

Product Environmental Profile

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



SYLVANIA Insaver family

Registration number	SYLV-00008-V01.01-EN	Drafting rules	PCR-ed4-EN-2021 09 06
Verifier accreditation number	VH44	Supple-mented by	PSR-0014-ed2.0-EN-2023 07 13
Date of issue	01-2025	Information and reference documents	www.pep-ecopassport.org
PEP prepared by	Feilo Sylvania International Group Kft.	Validity pe-riod	5 years
Independent verification of the declaration and data in compliance with ISO 14025: 2006			
Internal		External	X
The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)			
PEPs are compliant with XP C08-100-1:2016 and EN 50693:2019 or NF E38-500:2022			
The components of the present PEP may not be compared with components from any other program.			
Document complies with ISO 14025: 2006 “Environmental labels and declarations. Type III environmental declarations”			

1 General information

1.1 Product information

The SYLVANIA Insaver is a comprehensive range of downlights with lumens value from 620lm to 4950lm. The new, redesigned lenses provide very good uniformity of light, bigger beam angle of 70 degrees and a wide light distribution curve.

Insaver offers reduced glare of UGR<19 for lumens up to 3050lm, which makes it perfect for offices, education areas and any other spaces where light comfort is needed.

The shallow recess depth below 60mm makes it one of the smallest UGR19 compliant fixtures on the market.

High efficacy: up to 131lm/W brings benefit of even more energy savings while replacing the traditional lights or in any new buildings.

Available in CRI80 for 150-175-205-225mm cut outs and CRI90 in 205mm cut out.

Flicker rate less <5%.

IP44 rating from the front allows for installation in applicable wet zone areas. IP65 version from the front and below Insaver Slim IP65 is suitable for areas needed additional water ingress protection and for use under canopy area.

Loop in-Loop out facility with push fit terminal block for quick wiring.

DALI versions with Tridonic driver available.

For ceilings with insulation use Recess box small (3007940) for 9W and 13W downlights and Recess box large (3007950) for downlights of 20W and above.

The Insaver products have a long lifespan (90,000Hrs L80B20) and 5-year warranty which reduces maintenance cost. PIR, DALI and SylSmart Standalone and Connected options are also available.

Applicable product standards:

- EN 60598-1
- EN 61347-1, 2-13
- EN 62717
- EN 55015
- EN 61547
- EN 61000-3-2

The function of SYLVANIA Insaver family with its different series are described below:

- Non dimmable: Without dimming function, only power on and off.
- PIR: Integrated with PIR sensor, which can detect presence and ambient luminous.
- DALI(DA): Work with DALI lighting management system.
- SSC: Work with Sylvania wireless lighting management system Sylsmart Standalone (Casambi).
- SSA: Work with Sylvania wireless lighting management system Sylsmart Connect (Silvair).

The SYLVANIA Insaver reference product: 0030519 INSAVER U19 IP44 175 1200LM 840 PIR

belongs to PIR series, which can turn on or off the lamp based on the human presence status and the ambient luminous level.

Its technological key data are listed below:

Table 1: Key technological data for reference product

Information	Unit	
Product code	-	0030519
Light source	-	LED
Power supply	-	External
Colour temperature	K	4000
Protection index for water and dust (IP)	-	44/20
Impact resistance index (IK)	-	07
Nominal operating voltage	V	220-240V
Declared lifetime of the luminaire (L70B50)	h	100,000
Declaration lifetime of the light source	h	100,000
Useful output flux	lm	1,200
Total power consumption	W	9.5
Luminous efficiency	lm/W	126
Length	mm	NA
Width/Diameter	mm	195
Height	mm	50
Reference use scenario	-	Office, Retail, Hospital

SYLVANIA Insaver family are declared with below lifetime:

- L70B50 100,000hrs
- L80B20 88,000hrs
- L90B10 39,000hrs

L70B50 100,000hrs is used for LCA analysis.

For office using scenario, 2,500 annual operating hours, resulting in a lifetime of 40 years.

For retail and hospital using scenario, 5,000 annual operating hours, resulting in a lifetime of 20 years.

1.2 Overview

The general information used for the PEP are listed below:

Table 2: Basic PEP information

Information	
Functional unit	Provide lighting that delivers an outgoing artificial luminous flux of 1,000 lumens during a reference lifetime of 35,000 hours
Reference flow / declared unit*	0.292 pieces of product
Life cycle stages cover (according to EN15804+A2)	Cradle-to-grave and Module D
Product category according to PSR	Luminaires
Product family name	Sylvania Insaver
All products of the product family	Table 19 - Table 23
Extrapolation rules	Table 24 – Table 28

* The reference flow is calculated as: $(1,000/\text{outgoing luminous flux of the analyzed product in lumens}) \times (35,000/\text{declared product lifetime of the analyzed product in hours})$

Consequently, the reference flow of the following product corresponds to:

$$(1,000/1,200) \times (35,000/100,000) = 0.292$$

2 Constituent materials

2.1 Overview

Table 3: Product composition

Information	Weight/product [kg]	Weight/functional unit [kg]	Share [%]
Total weight	1.122	3.27E-01	100.0%
Product	0.796	2.32E-01	70.9%
Packaging	0.326	9.52E-02	29.1%

2.2 Product

Table 4: Material composition - product

Information	Weight/product [kg]	Weight/functional unit [kg]	Share [%]
Total weight	0.796	2.32E-01	100.0%
Metals	0.473	1.38E-01	59.4%
- Steel	0.106	3.08E-02	13.3%
- Aluminium	0.367	1.07E-01	46.1%
Plastics	0.121	3.54E-02	15.2%
- Polycarbonate (PC)	0.071	2.07E-02	8.9%
- Polymethyl methacrylate (PMMA)	0.025	7.29E-03	3.1%
- Silicone rubber	0.025	7.38E-03	3.2%
Electronics	0.202	5.89E-02	25.4%

Note: The total weight in this table differs slightly from the total weight of the product due to rounding inaccuracies.

2.3 Packaging

Table 5: Material composition - packaging

Information	Weight/product [kg]	Weight/functional unit [kg]	Share [%]
Total weight	0.326	9.52E-02	100.0%
Paper/cardboard	0.315	9.18E-02	96.4%
Plastics	0.005	1.53E-03	1.6%
Wood	0.005	1.34E-03	1.4%
Metal	0.002	5.56E-04	0.6%

3 Information on life cycle stages

3.1 Manufacturing (A1-A3)

For the manufacturer sources all parts come from international/Chinese suppliers. The final products are assembled and tested in Chinese factory, under the quality control of Feilo Sylvania International Group Kft.. The manufacturer is certified to ISO 9001:2015 / 14001:2015.

Metal scrap, plastic, waste carton/paper of the production side are mostly recycled, whereas electronic scrap is 100% incinerated with energy recovery and the waste wood is mostly considered as landfilling.

The energy model used in manufacturing is based on Sphera's Managed LCA Content V.10:

CN: Electricity grid mix Sphera.

3.2 Distribution (A4)

The main market for the product is Europe. For this reason, an intercontinental and intracontinental transport, following PEP-PCR-ed4-EN-2021 09 06, is considered in the following model:

- 18,000km by ship (heavy fuel oil driven, container ship, 5,000 to 200,000 dwt payload capacity, deep sea)
- 1,400 km by truck (diesel driven, EURO 0-6, >27t payload).

The background assumptions for the transportation are listed below.

Table 6: Background information distribution

Information	Unit	Truck	Ship
Fuel type	-	Diesel	Heavy fuel oil
Fuel consumption	l/(kg*km)	2.00E-05	3.24E-06
Total distance	km	1,400	18,000
Capacity utilisation (including empty runs)	%	85	70

3.3 Installation (A5)

The product can easily be installed with hooks or poles and tool free. No energy or material input is required. Packaging waste is treated with reference to chapter 3.5.3.1 of PSR-0014-ed 2.0-2023 07 13.

3.4 Use stage (B1-B7)

During the use stage of the product, the product only consumes electricity (B6). The main market of the product is Europe. Consequently, an average European electricity grid mix (database from Sphera) has been used for the calculations.

According to [PSR-0014-ED2.0-EN- 2023 07 13](#), the theoretical energy saving coefficients for the 5 series of SYLVANIA Insaver family are:

- Non dimmable: 1
- PIR : 0.55
- DALI (DA): 0.5

- SSC: 0.5
- SSA : 0.5

The SYLVANIA Insaver reference product 0030519 is grouped under PIR series and is capable to turn on or off the lamp based on the human presence status and the ambient luminous level. Therefore, the theoretical energy saving coefficient of the reference product is 0.55.

The declared power consumption of the reference product is 9.5 Watts, and its declared lifetime is 100,000 hours (L70B50).

Combining all these information leads to a total power consumption of 522.5 kWh.

All other modules of the life cycle stage have no environmental impact, since the product has no direct emissions (B1), no maintenance (B2), and no replacement (B4), repair (B3), or refurbishment activities (B5). The luminaire does not consume water during its use (B7).

3.5 End of life (C1-C4)

The product falls under the Waste from Electrical and Electronic Equipment (WEEE) directive 2012/19/EU subcategory 4. EOL model is created referring to chapter 2.5.6 End of life treatment scenarios of PCR-ed4-EN-2021 09 06.

The share of the different end of life pathways are shown below. For the energy consumed in material separation, an average European grid mix has been used.

- Incineration with energy recovery: 30.6%
- Landfilling: 26.5%
- Recycling: 42.9%

3.6 Benefits and loads beyond the system boundaries (D)

Incineration with energy recovery and recycling of the product, packaging, and manufacturing scrap generate environmental benefits by avoiding the production of primary materials or energy. The amount and type of waste streams are listed in Table 7.

Table 7: Material flows for Benefits and loads beyond the system boundaries.

Information	Unit	Value
Total weight going into reuse	kg/functional unit	0.000
Total weight going into recycling	kg/functional unit	0.191
- Share from product	%	52.1
- Share from packaging	%	40.4
- Share from upstream packaging & manufacturing scrap	%	7.5
Total weight going into incineration with energy recovery	kg/functional unit	0.0831
- Share from product	%	85.5
- Share from packaging	%	11.1
- Share from upstream packaging & manufacturing scrap	%	3.3

4 Environmental impacts

4.1 Introduction

The following table summarizes the key information for the calculation of the environmental impacts:

Table 8: Basic information LCA model

Information	Value
Used LCA software	LCA for Experts 10
Used LCI database	LCA Managed Content Professional 2024.1 + Extension 2024.1
PCR version	PEP-PCR-ED4-EN-2021 09 06
PSR version	PEP-PSR-0014-ED2.0-EN-2023 07 13
Functional unit	Provide lighting that delivers an outgoing artificial luminous flux of 1,000 lumens during a reference lifetime of 35,000 hours

4.2 Results per functional unit

The following results of the environmental declaration have been developed by considering an outgoing artificial luminous flux of 1,000 lumens over a reference lifetime of 35,000 hours. The results refer to the core environmental impact indicators and indicators describing resource use, waste categories, and output flows according to EN 15804:2012+A2:2019.

Table 9: Results core environmental impact indicators per functional unit (0.327 kg product incl. packaging)

	Total (Excl.D)	Manufacturing				Distribution	Installation	Use				End of life					Benefits and loads beyond the system boundaries
		A1	A2	A3	Tot. A1-A3			B1-B5	B6	B7	Tot. B1-B7	C1	C2	C3	C4	Tot. C1-C4	
GWP - total [kg CO2 eq.]	4.99E+01	3.36E+00	2.15E-03	2.73E-01	3.63E+00	9.80E-02	7.58E-02	0.00E+00	4.60E+01	0.00E+00	4.60E+01	0.00E+00	1.47E-02	1.33E-01	3.39E-03	1.51E-01	-6.90E-01
GWP - fossil [kg CO2 eq.]	4.97E+01	3.53E+00	2.03E-03	2.68E-01	3.80E+00	9.62E-02	4.31E-02	0.00E+00	4.56E+01	0.00E+00	4.56E+01	0.00E+00	1.39E-02	1.33E-01	3.38E-03	1.50E-01	-7.98E-01
GWP - biogenic [kg CO2 eq.]	2.56E-01	-1.75E-01	9.56E-05	4.41E-03	-1.71E-01	1.50E-03	3.26E-02	0.00E+00	3.92E-01	0.00E+00	3.92E-01	0.00E+00	6.55E-04	1.07E-04	6.64E-06	7.68E-04	1.08E-01
GWP - luluc [kg CO2 eq.]	7.47E-03	1.51E-03	1.88E-05	1.68E-04	1.70E-03	2.83E-04	1.33E-04	0.00E+00	5.19E-03	0.00E+00	5.19E-03	0.00E+00	1.29E-04	3.58E-05	3.13E-06	1.68E-04	-2.22E-04
ODP [kg CFC-11 eq.]	9.67E-10	7.70E-12	2.64E-16	1.22E-12	8.92E-12	8.45E-15	8.41E-14	0.00E+00	9.58E-10	0.00E+00	9.58E-10	0.00E+00	1.81E-15	2.13E-13	5.64E-15	2.21E-13	-1.29E-12
AP [Mole of H+ eq.]	1.71E-01	2.17E-02	2.36E-06	9.52E-04	2.26E-02	1.32E-03	7.74E-05	0.00E+00	1.47E-01	0.00E+00	1.47E-01	0.00E+00	1.62E-05	1.70E-04	1.05E-05	1.97E-04	-2.70E-03
EP - freshwater [kg P eq.]	2.07E-04	8.45E-06	7.41E-09	1.31E-07	8.59E-06	1.26E-07	1.25E-06	0.00E+00	1.97E-04	0.00E+00	1.97E-04	0.00E+00	5.08E-08	7.99E-08	3.09E-07	4.40E-07	-1.69E-06
EP - marine [kg N eq.]	2.95E-02	3.37E-03	7.91E-07	2.05E-04	3.57E-03	5.53E-04	3.55E-05	0.00E+00	2.53E-02	0.00E+00	2.53E-02	0.00E+00	5.42E-06	6.74E-05	2.54E-06	7.54E-05	-5.51E-04
EP - terrestrial [Mole of N eq.]	3.11E-01	3.63E-02	9.33E-06	2.23E-03	3.86E-02	6.07E-03	3.24E-04	0.00E+00	2.66E-01	0.00E+00	2.66E-01	0.00E+00	6.39E-05	7.63E-04	2.79E-05	8.55E-04	-5.90E-03
POCP [kg NMVOC eq.]	8.21E-02	1.02E-02	2.06E-06	6.09E-04	1.08E-02	1.51E-03	7.49E-05	0.00E+00	6.95E-02	0.00E+00	6.95E-02	0.00E+00	1.41E-05	1.91E-04	8.00E-06	2.13E-04	-1.61E-03
ADPE [kg Sb eq.]	2.91E-04	2.82E-04	1.34E-10	1.16E-08	2.82E-04	2.62E-09	1.81E-08	0.00E+00	9.43E-06	0.00E+00	9.43E-06	0.00E+00	9.20E-10	5.15E-09	9.13E-11	6.16E-09	-4.17E-08
ADPF [MJ]	1.02E+03	4.28E+01	2.76E-02	2.86E+00	4.57E+01	1.22E+00	5.86E-01	0.00E+00	9.76E+02	0.00E+00	9.76E+02	0.00E+00	1.89E-01	6.78E-01	5.06E-02	9.18E-01	1.07E+01
WDP [m³ world equiv.]	9.76E+00	7.04E-01	2.45E-05	8.50E-02	7.89E-01	4.77E-04	2.81E-03	0.00E+00	8.95E+00	0.00E+00	8.95E+00	0.00E+00	1.68E-04	1.45E-02	-4.69E-05	1.46E-02	-4.86E-02

Table 10: Results indicators describing resource use, waste categories, and output flows per functional unit (0.327 kg product incl. packaging)

	Total (Excl.D)	Manufacturing				Distribution	Installation	Use				End of life					Benefits and loads beyond the system boundaries
		A1	A2	A3	Tot. A1-A3			B1-B5	B6	B7	Tot. B1-B7	C1	C2	C3	C4	Tot. C1-C4	
PERE [MJ]	6.80E+02	8.83E+00	2.01E-03	7.76E-01	9.61E+00	3.37E-02	1.57E-01	0.00E+00	6.70E+02	0.00E+00	0.00E+00	0.00E+00	1.38E-02	1.43E-01	4.55E-03	1.61E-01	-5.39E+00
PERM [MJ]	1.40E+00	1.40E+00	0.00E+00	0.00E+00	1.40E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT [MJ]	6.81E+02	1.02E+01	2.01E-03	7.76E-01	1.10E+01	3.37E-02	1.57E-01	0.00E+00	6.70E+02	0.00E+00	0.00E+00	0.00E+00	1.38E-02	1.43E-01	4.55E-03	1.61E-01	-5.39E+00
PENRE [MJ]	1.02E+03	4.12E+01	2.77E-02	2.86E+00	4.41E+01	1.22E+00	5.87E-01	0.00E+00	9.76E+02	0.00E+00	0.00E+00	0.00E+00	1.90E-01	6.78E-01	5.06E-02	9.19E-01	-9.52E+00
PENRM [MJ]	1.76E+00	1.76E+00	0.00E+00	0.00E+00	1.76E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.22E+00
PENRT [MJ]	1.02E+03	4.30E+01	2.77E-02	2.86E+00	4.59E+01	1.22E+00	5.87E-01	0.00E+00	9.76E+02	0.00E+00	0.00E+00	0.00E+00	1.90E-01	6.78E-01	5.06E-02	9.19E-01	-1.07E+01
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.01E-01
RSF [MJ]	3.43E-02	0.00E+00	1.48E-03	0.00E+00	1.48E-03	2.23E-02	4.16E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.02E-02	0.00E+00	0.00E+00	1.02E-02	0.00E+00
NRSF [MJ]	1.27E+00	0.00E+00	2.33E-02	0.00E+00	2.33E-02	1.08E+00	6.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-01	0.00E+00	0.00E+00	1.59E-01	0.00E+00
FW [m3]	3.23E-01	2.42E-02	2.20E-06	2.02E-03	2.63E-02	3.77E-05	6.52E-04	0.00E+00	2.95E-01	0.00E+00	0.00E+00	0.00E+00	1.51E-05	4.08E-04	5.37E-07	4.24E-04	-6.39E-03
HWD [kg]	1.33E-07	2.03E-07	8.58E-14	-1.37E-10	2.03E-07	3.82E-12	2.05E-08	0.00E+00	-9.19E-08	0.00E+00	0.00E+00	0.00E+00	5.88E-13	1.27E-09	4.22E-12	1.28E-09	-1.61E-08
NHWD [kg]	1.50E+00	5.14E-01	4.22E-06	3.35E-03	5.18E-01	1.37E-04	9.27E-03	0.00E+00	8.80E-01	0.00E+00	0.00E+00	0.00E+00	2.89E-05	3.09E-02	6.15E-02	9.24E-02	-1.63E-01
RWD [kg]	1.54E-01	8.69E-04	5.19E-08	6.77E-05	9.37E-04	1.72E-06	1.39E-05	0.00E+00	1.53E-01	0.00E+00	0.00E+00	0.00E+00	3.55E-07	2.80E-05	5.93E-07	2.89E-05	-7.28E-04
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR [kg]	1.91E-01	7.78E-03	0.00E+00	6.46E-03	1.42E-02	0.00E+00	7.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.96E-02	0.00E+00	9.96E-02	0.00E+00
MER [kg]	8.31E-02	0.00E+00	0.00E+00	2.76E-03	2.76E-03	0.00E+00	9.25E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.10E-02	0.00E+00	7.10E-02	0.00E+00
EEE [MJ]	1.83E-01	3.42E-04	0.00E+00	0.00E+00	3.42E-04	0.00E+00	2.14E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.61E-01	0.00E+00	1.61E-01	-5.38E-03
EET [MJ]	3.83E-01	7.91E-04	0.00E+00	0.00E+00	7.91E-04	0.00E+00	3.89E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E-01	0.00E+00	3.43E-01	-1.25E-02
Biog. C in product [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biog. C in packaging [kg]	0.00E+00	-4.00E-02	0.00E+00	0.00E+00	-4.00E-02	0.00E+00	4.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 11: Additional environmental impact indicators per functional unit (0.327 kg product incl. packaging)

	Total (Excl.D)	Manufacturing				Distribution	Installation	Use				End of life					Benefits and loads beyond the system boundaries
		A1	A2	A3	Tot. A1-A3			B1-B5	B6	B7	Tot. B1-B7	C1	C2	C3	C4	Tot. C1-C7	
PM [Disease incidences]	1.73E-06	4.00E-07	1.72E-11	1.31E-08	4.13E-07	3.41E-08	6.56E-10	0.00E+00	1.29E-06	0.00E+00	1.29E-06	0.00E+00	1.18E-10	1.58E-09	1.08E-10	1.80E-09	-2.92E-08
IRP [kBq. U235 eq.]	1.44E+01	1.07E-01	7.73E-06	4.25E-03	1.11E-01	2.51E-04	2.28E-03	0.00E+00	1.43E+01	0.00E+00	1.43E+01	0.00E+00	5.30E-05	3.89E-03	8.78E-05	4.03E-03	-1.56E-01
ETP-fw [CTUe]	2.63E+02	1.87E+01	1.98E-02	3.97E-01	1.91E+01	8.64E-01	8.23E-02	0.00E+00	2.43E+02	0.00E+00	2.43E+02	0.00E+00	1.35E-01	1.26E-01	2.83E-02	2.90E-01	-2.68E+00
HTP-c [CTUh]	3.75E-08	2.01E-08	4.01E-13	5.45E-11	2.02E-08	1.64E-11	8.54E-12	0.00E+00	1.73E-08	0.00E+00	1.73E-08	0.00E+00	2.75E-12	1.00E-11	1.99E-12	1.47E-11	-3.68E-10
HTP-nc [CTUh]	2.85E-07	3.92E-08	1.79E-11	9.24E-10	4.02E-08	5.98E-10	4.33E-10	0.00E+00	2.43E-07	0.00E+00	2.43E-07	0.00E+00	1.22E-10	5.15E-10	1.73E-10	8.11E-10	-6.25E-09
SQP [dimensionsless]	4.73E+02	2.95E+01	1.15E-02	3.56E-01	2.99E+01	1.76E-01	8.32E-01	0.00E+00	4.41E+02	0.00E+00	4.41E+02	0.00E+00	7.90E-02	1.29E-01	4.56E-03	2.13E-01	-1.47E+01

4.3 Results per unit of product

The following results of the environmental declaration have been developed by considering the entire life cycle of one product with the technical properties described in Table 1. The results refer to the core environmental impact indicators and indicators describing resource use, waste categories, and output flows according to EN 15804:2012+A2:2019.

Table 12: Results core environmental impact indicators per unit of product

	Total (Excl.D)	Manufacturing				Distribution	Installation	Use				End of life					Benefits and loads beyond the system boundaries
		A1	A2	A3	Tot. A1-A3			B1-B5	B6	B7	Tot. B1-B7	C1	C2	C3	C4	Tot. C1-C7	
GWP - total [kg CO ₂ eq.]	1.71E+02	1.15E+01	7.37E-03	9.34E-01	1.25E+01	3.36E-01	2.60E-01	0.00E+00	1.58E+02	0.00E+00	1.58E+02	0.00E+00	5.05E-02	4.55E-01	1.16E-02	5.17E-01	-2.37E+00
GWP - fossil [kg CO ₂ eq.]	1.70E+02	1.21E+01	6.97E-03	9.19E-01	1.30E+01	3.30E-01	1.48E-01	0.00E+00	1.56E+02	0.00E+00	1.56E+02	0.00E+00	4.78E-02	4.55E-01	1.16E-02	5.14E-01	-2.74E+00
GWP - biogenic [kg CO ₂ eq.]	8.78E-01	-6.00E-01	3.28E-04	1.51E-02	-5.85E-01	5.13E-03	1.12E-01	0.00E+00	1.34E+00	0.00E+00	1.34E+00	0.00E+00	2.25E-03	3.65E-04	2.28E-05	2.63E-03	3.70E-01
GWP - luluc [kg CO ₂ eq.]	2.56E-02	5.19E-03	6.43E-05	5.77E-04	5.83E-03	9.70E-04	4.55E-04	0.00E+00	1.78E-02	0.00E+00	1.78E-02	0.00E+00	4.41E-04	1.23E-04	1.07E-05	5.74E-04	-7.61E-04
ODP [kg CFC-11 eq.]	3.31E-09	2.64E-11	9.04E-16	4.18E-12	3.06E-11	2.90E-14	2.88E-13	0.00E+00	3.28E-09	0.00E+00	3.28E-09	0.00E+00	6.19E-15	7.31E-13	1.93E-14	7.56E-13	-4.42E-12
AP [Mole of H+ eq.]	5.87E-01	7.42E-02	8.10E-06	3.26E-03	7.75E-02	4.52E-03	2.65E-04	0.00E+00	5.04E-01	0.00E+00	5.04E-01	0.00E+00	5.55E-05	5.82E-04	3.61E-05	6.74E-04	-9.27E-03
EP - freshwater [kg P eq.]	7.10E-04	2.90E-05	2.54E-08	4.49E-07	2.95E-05	4.33E-07	4.29E-06	0.00E+00	6.74E-04	0.00E+00	6.74E-04	0.00E+00	1.74E-07	2.74E-07	1.06E-06	1.51E-06	-5.78E-06
EP - marine [kg N eq.]	1.01E-01	1.15E-02	2.71E-06	7.04E-04	1.22E-02	1.90E-03	1.22E-04	0.00E+00	8.68E-02	0.00E+00	8.68E-02	0.00E+00	1.86E-05	2.31E-04	8.71E-06	2.58E-04	-1.89E-03
EP - terrestrial [Mole of N eq.]	1.07E+00	1.25E-01	3.20E-05	7.65E-03	1.32E-01	2.08E-02	1.11E-03	0.00E+00	9.10E-01	0.00E+00	9.10E-01	0.00E+00	2.19E-04	2.62E-03	9.56E-05	2.93E-03	-2.02E-02
POCP [kg NMVOC eq.]	2.81E-01	3.49E-02	7.06E-06	2.09E-03	3.70E-02	5.18E-03	2.57E-04	0.00E+00	2.38E-01	0.00E+00	2.38E-01	0.00E+00	4.84E-05	6.54E-04	2.74E-05	7.30E-04	-5.53E-03
ADPE [kg Sb eq.]	9.98E-04	9.66E-04	4.61E-10	3.98E-08	9.66E-04	8.98E-09	6.22E-08	0.00E+00	3.23E-05	0.00E+00	3.23E-05	0.00E+00	3.16E-09	1.77E-08	3.13E-10	2.11E-08	-1.43E-07
ADPF [MJ]	3.51E+03	1.47E+02	9.46E-02	9.81E+00	1.57E+02	4.17E+00	2.01E+00	0.00E+00	3.35E+03	0.00E+00	3.35E+03	0.00E+00	6.48E-01	2.33E+00	1.73E-01	3.15E+00	-3.68E+01
WDP [m ³ world equiv.]	3.35E+01	2.41E+00	8.39E-05	2.91E-01	2.71E+00	1.64E-03	9.64E-03	0.00E+00	3.07E+01	0.00E+00	3.07E+01	0.00E+00	5.75E-04	4.97E-02	-1.61E-04	5.01E-02	-1.67E-01

Table 13: Results indicators describing resource use, waste categories, and output flows per unit of product.

	Total (Excl.D)	Manufacturing				Distribution	Installation	Use				End of life					Benefits and loads beyond the system boundaries
		A1	A2	A3	Tot. A1-A3	A4	A5	B1-B5	B6	B7	Tot. B1-B7	C1	C2	C3	C4	Tot. C1-C4	D
PERE [MJ]	2.33E+03	3.03E+01	6.89E-03	2.66E+00	3.29E+01	1.15E-01	5.38E-01	0.00E+00	2.30E+03	0.00E+00	2.30E+03	0.00E+00	4.72E-02	4.90E-01	1.56E-02	5.53E-01	-1.85E+01
PERM [MJ]	4.79E+00	4.79E+00	0.00E+00	0.00E+00	4.79E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT [MJ]	2.34E+03	3.51E+01	6.89E-03	2.66E+00	3.77E+01	1.15E-01	5.38E-01	0.00E+00	2.30E+03	0.00E+00	2.30E+03	0.00E+00	4.72E-02	4.90E-01	1.56E-02	5.53E-01	-1.85E+01
PENRE [MJ]	3.51E+03	1.41E+02	9.50E-02	9.81E+00	1.51E+02	4.18E+00	2.01E+00	0.00E+00	3.35E+03	0.00E+00	3.35E+03	0.00E+00	6.51E-01	2.33E+00	1.74E-01	3.15E+00	-3.27E+01
PENRM [MJ]	6.02E+00	6.02E+00	0.00E+00	0.00E+00	6.02E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-4.20E+00
PENRT [MJ]	3.51E+03	1.47E+02	9.50E-02	9.81E+00	1.57E+02	4.18E+00	2.01E+00	0.00E+00	3.35E+03	0.00E+00	3.35E+03	0.00E+00	6.51E-01	2.33E+00	1.74E-01	3.15E+00	-3.68E+01
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.47E-01
RSF [MJ]	1.18E-01	0.00E+00	5.08E-03	0.00E+00	5.08E-03	7.63E-02	1.43E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.48E-02	0.00E+00	0.00E+00	3.48E-02	0.00E+00
NRSF [MJ]	4.36E+00	0.00E+00	7.97E-02	0.00E+00	7.97E-02	3.71E+00	2.24E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.46E-01	0.00E+00	0.00E+00	5.46E-01	0.00E+00
FW [m3]	1.11E+00	8.31E-02	7.54E-06	6.94E-03	9.01E-02	1.29E-04	2.23E-03	0.00E+00	1.01E+00	0.00E+00	1.01E+00	0.00E+00	5.17E-05	1.40E-03	1.84E-06	1.45E-03	-2.19E-02
HWD [kg]	4.57E-07	6.98E-07	2.94E-13	-4.68E-10	6.97E-07	1.31E-11	7.04E-08	0.00E+00	-3.15E-07	0.00E+00	-3.15E-07	0.00E+00	2.02E-12	4.37E-09	1.45E-11	4.38E-09	-5.51E-08
NHWD [kg]	5.14E+00	1.76E+00	1.45E-05	1.15E-02	1.78E+00	4.70E-04	3.18E-02	0.00E+00	3.02E+00	0.00E+00	3.02E+00	0.00E+00	9.92E-05	1.06E-01	2.11E-01	3.17E-01	-5.59E-01
RWD [kg]	5.29E-01	2.98E-03	1.78E-07	2.32E-04	3.21E-03	5.91E-06	4.77E-05	0.00E+00	5.26E-01	0.00E+00	5.26E-01	0.00E+00	1.22E-06	9.58E-05	2.03E-06	9.91E-05	-2.50E-03
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR [kg]	6.55E-01	2.67E-02	0.00E+00	2.22E-02	4.88E-02	0.00E+00	2.65E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.41E-01	0.00E+00	0.00E+00
MER [kg]	2.85E-01	0.00E+00	0.00E+00	9.47E-03	9.47E-03	0.00E+00	3.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.44E-01	0.00E+00	0.00E+00
EEE [MJ]	6.28E-01	1.17E-03	0.00E+00	0.00E+00	1.17E-03	0.00E+00	7.35E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.53E-01	0.00E+00	5.53E-01	-1.84E-02
EET [MJ]	1.31E+00	2.71E-03	0.00E+00	0.00E+00	2.71E-03	0.00E+00	1.33E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E+00	0.00E+00	1.18E+00	-4.27E-02
Biog. C in product [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biog. C in packaging [kg]	0.00E+00	-1.37E-01	0.00E+00	0.00E+00	-1.37E-01	0.00E+00	1.37E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 14: Additional environmental impact indicators per unit of product

	Total (Excl.D)	Manufacturing				Distribution	Installation	Use				End of life					Benefits and loads beyond the system boundaries
		A1	A2	A3	Tot. A1-A3	A4	A5	B1-B5	B6	B7	Tot. B1-B7	C1	C2	C3	C4	Tot. C1-C7	D
PM [Disease incidences]	5.95E-06	1.37E-06	5.90E-11	4.48E-08	1.42E-06	1.17E-07	2.25E-09	0.00E+00	4.41E-06	0.00E+00	4.41E-06	0.00E+00	4.04E-10	5.40E-09	3.72E-10	6.18E-09	-1.00E-07
IRP [kBq, U235 eq.]	4.95E+01	3.66E-01	2.65E-05	1.46E-02	3.80E-01	8.62E-04	7.83E-03	0.00E+00	4.91E+01	0.00E+00	4.91E+01	0.00E+00	1.82E-04	1.33E-02	3.01E-04	1.38E-02	-5.33E-01
ETP-fw [CTUe]	9.02E+02	6.42E+01	6.78E-02	1.36E+00	6.56E+01	2.96E+00	2.82E-01	0.00E+00	8.32E+02	0.00E+00	8.32E+02	0.00E+00	4.64E-01	4.34E-01	9.70E-02	9.95E-01	-9.20E+00
HTP-c [CTUh]	1.29E-07	6.91E-08	1.38E-12	1.87E-10	6.93E-08	5.61E-11	2.93E-11	0.00E+00	5.92E-08	0.00E+00	5.92E-08	0.00E+00	9.43E-12	3.43E-11	6.81E-12	5.05E-11	-1.26E-09
HTP-nc [CTUh]	9.77E-07	1.35E-07	6.12E-11	3.17E-09	1.38E-07	2.05E-09	1.49E-09	0.00E+00	8.33E-07	0.00E+00	8.33E-07	0.00E+00	4.19E-10	1.77E-09	5.94E-10	2.78E-09	-2.14E-08
SQP [dimensionless]	1.62E+03	1.01E+02	3.95E-02	1.22E+00	1.02E+02	6.03E-01	2.85E+00	0.00E+00	1.51E+03	0.00E+00	1.51E+03	0.00E+00	2.71E-01	4.44E-01	1.56E-02	7.30E-01	-5.05E+01

4.4 Data comparison

The environmental profile especially for use stage B6 is very sensitive to the region of input electricity which relies on in which country the luminaires are used. Table 16 (per FU) and Table 17 (per product unit) give a comparison for Global Warming Potential GWP total [kg CO₂ eq.] of reference product for use stage B6 with electricity used from different countries of Europe. Table 15 shows the scaling factor for GWP total of energy grid mixes for different countries.

For example:

For the reference model 0030519, Multiple GWP total B6 for EU (4.60E+01/functional unit) with Scaling factor for B6 for Belgium (0.599), The GWP total result for B6 for Belgium (2.75E+01) per functional unit can be worked out.

For other concerned models, first step, need to work out the GWP total of B6 for EU per functional unit or unit of product, based on the extrapolation rules provided in chapter 5 of this report, then by the same way provided above, the GWP total of B6 for different countries can be worked out.

Table 15: Scaling factor of use stage for GWP total of energy grid mixes for different countries

Electricity grid	Scaling Factor for use stage	Electricity grid	Scaling Factor for use stage
EU	1.000	NETHERLANDS	1.403
AUSTRIA	0.821	NORWAY	0.126
BELGIUM	0.599	POLAND	2.771
DENMARK	0.686	PORTUGUAL	1.122
FINLAND	0.606	ROMANIA	1.489
FRANCE	0.250	SPAN	0.972
GERMANY	1.445	SWEDEN	0.139
HUNGARY	1.131	SWITZERLAND	0.390
IRELAND	1.339	UK	0.872
ITALY	1.268		

Table 16: GWP total [kg CO2 eq.] results for B6 for different country per functional unit (0.327 kg product incl. packaging)

Electricity grid	GWP - total [kg CO2 eq.] B6
EU	4.60E+01
AUSTRIA	3.77E+01
BELGIUM	2.75E+01
DENMARK	3.15E+01
FINLAND	2.79E+01
FRANCE	1.15E+01
GERMANY	6.64E+01
HUNGARY	5.20E+01
IRELAND	6.15E+01
ITALY	5.83E+01
NETHERLANDS	6.45E+01
NORWAY	5.80E+00
POLAND	1.27E+02
POTUGAL	5.16E+01
ROMANIA	6.85E+01
SPAIN	4.47E+01
SWEDEN	6.39E+00
SWITZERLAND	1.79E+01
UK	4.01E+01

Note: The result in this table would be slightly different due to rounding inaccuracies.

Table 17: GWP total [kg CO2 eq.] results for B6 for different country per unit of product

Electricity grid	GWP - total [kg CO2 eq.] B6
EU	1.58E+02
AUSTRIA	1.29E+02
BELGIUM	9.44E+01
DENMARK	1.08E+02
FINLAND	9.55E+01
FRANCE	3.94E+01
GERMANY	2.28E+02
HUNGARY	1.78E+02
IRELAND	2.11E+02
ITALY	2.00E+02
NETHERLANDS	2.21E+02
NORWAY	1.99E+01
POLAND	4.37E+02
POTUGAL	1.77E+02
ROMANIA	2.35E+02
SPAIN	1.53E+02
SWEDEN	2.19E+01
SWITZERLAND	6.15E+01
UK	1.37E+02

Note: The result in this table would be slightly different due to rounding inaccuracies.

4.5 Data quality

The underlying LCA model has been developed in Sphera's LCA software LCA for Experts V.10 and with datasets from Sphera's Managed LCA Content. The overall DQR for the representativeness has been calculated as average of the individual ratings according to the PCR respectively the Product Environmental Footprint Guide, version 6.3. Consequently, the overall representativeness is assessed as good (DQR = 1.78).

The individual rating for technological, time and geographical representativeness is assessed as good (DQR = 2.11, 1.35 and 1.87).

5 Extrapolation Rules

The extrapolation coefficients in the PEP Eco-passport have been developed according to the valid PCR & PSR. Below table shows the key properties of the reference product, with function as extrapolation basis.

Table 18: Reference values for the extrapolations.

Parameter	Unit	Reference value
Weight of structural/ mechanical parts	kg	0.597
Weight of power equipment	kg	0.148
Weight of light source	kg	0.0109
Weight of light management system	kg	0.040
Weight of product (excl. packaging)	kg	0.796
Weight of packaging	kg	0.326
Weight of product (incl. packaging)	kg	1.122
Typical power consumption	W	9.5
Lumen output	lm	1,200
Energy saving	-	0.55

The extrapolation at the level of the functional unit needs to be done according to the following formula:

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

Lumen output of each product variant and other important properties are listed in the tables below.

Table 19: Information for product family: Non dimmable

Product code	Product name	Power (W)	Lighting output (lm)	Luminaire structure weight (kg)	Product packaging weight (kg)	Power equipment weight (kg)	Light source weight (kg)	Light management weight (kg)	Total weight (kg)	Energy saving coefficient
0030458	INSAVER SLIM UGR19 IP65 205 2400lm 865	20	2400	0.925	0.289	0.078	0.021	0.000	1.313	1
0030486	Insaver Slim U19 IP44 205 2500 840 EU	20	2500	0.579	0.289	0.225	0.021	0.000	1.113	1
0030500	Insaver UGR19 IP44 150 1150LM 830	9.5	1150	0.358	0.190	0.086	0.011	0.000	0.645	1
0030501	Insaver UGR19 IP44 150 1200LM 840	9.5	1200	0.358	0.190	0.086	0.011	0.000	0.645	1
0030502	Insaver UGR19 IP44 175 1650LM 830	13	1650	0.457	0.245	0.100	0.011	0.000	0.812	1
0030503	Insaver UGR19 IP44 175 1700LM 840	13	1700	0.457	0.245	0.100	0.011	0.000	0.812	1
0030504	Insaver UGR19 IP44 205 2350LM 830	20	2350	0.579	0.289	0.100	0.021	0.000	0.988	1
0030505	Insaver UGR19 IP44 205 2500LM 840	20	2500	0.579	0.289	0.100	0.021	0.000	0.988	1
0030506	Insaver UGR19 IP44 225 2950LM 830	24	2950	0.660	0.296	0.119	0.021	0.000	1.096	1
0030507	Insaver UGR19 IP44 225 3050LM 840	24	3050	0.660	0.296	0.119	0.021	0.000	1.096	1
0030508	Insaver IP44 225 4050-4800LM 830 Multi	41	4800	0.660	0.296	0.168	0.022	0.000	1.146	1
0030509	Insaver IP44 225 4150-4950LM 840 Multi	41	4950	0.660	0.296	0.168	0.022	0.000	1.146	1
0030510	INSAVER UGR19 IP54 150 1150 830 SQ	9.5	1150	0.442	0.202	0.086	0.011	0.000	0.741	1
0030511	INSAVER UGR19 IP54 150 1200 840 SQ	9.5	1200	0.442	0.202	0.086	0.011	0.000	0.741	1
0030512	INSAVER UGR19 IP44 200 2350 830 SQ	20	2350	0.710	0.304	0.100	0.021	0.000	1.134	1
0030513	INSAVER UGR19 IP44 200 2500 840 SQ	20	2500	0.710	0.304	0.100	0.021	0.000	1.134	1
0030514	INSAVER UGR19 165 1150LM 830 SM	9.5	1150	0.640	0.163	0.086	0.011	0.000	0.900	1
0030515	INSAVER UGR19 165 1200LM 840 SM	9.5	1200	0.640	0.163	0.086	0.011	0.000	0.900	1
0030516	INSAVER UGR19 220 2350LM 830 SM	20	2350	0.928	0.252	0.100	0.021	0.000	1.300	1
0030517	INSAVER UGR19 220 2500LM 840 SM	20	2500	0.928	0.252	0.100	0.021	0.000	1.300	1
0030520	INSAVER UGR19 IP54 175 1150 830 WB	9.5	1150	0.457	0.245	0.086	0.011	0.000	0.799	1
0030521	INSAVER UGR19 IP54 175 1200 840 WB	9.5	1200	0.457	0.245	0.086	0.011	0.000	0.799	1
0030522	INSAVER UGR19 IP54 150 950LM 930	9.5	950	0.358	0.190	0.086	0.011	0.000	0.645	1
0030523	INSAVER UGR19 IP54 150 1000LM 940	9.5	1000	0.358	0.190	0.086	0.011	0.000	0.645	1
0030524	INSAVER UGR19 IP54 175 1400LM 930	13	1400	0.457	0.245	0.100	0.011	0.000	0.812	1
0030525	INSAVER UGR19 IP54 175 1450LM 940	13	1450	0.457	0.245	0.100	0.011	0.000	0.812	1
0030528	INSAVER UGR19 IP65 150 1150LM 830	9.5	1150	0.704	0.190	0.061	0.011	0.000	0.966	1
0030529	INSAVER UGR19 IP65 150 1200LM 840	9.5	1200	0.704	0.190	0.061	0.011	0.000	0.966	1
0030530	INSAVER UGR19 IP65 205 2350LM 830	20	2350	0.925	0.289	0.078	0.021	0.000	1.313	1
0030531	INSAVER UGR19 IP65 205 2500LM 840	20	2500	0.925	0.289	0.078	0.021	0.000	1.313	1
0030532	Insaver IP65 225 4050-4800LM 830 Multi	41	4800	1.006	0.296	0.143	0.022	0.000	1.466	1
0030533	Insaver IP65 225 4150-4950LM 840 Multi	41	4950	1.006	0.296	0.143	0.022	0.000	1.466	1

0030548	Insaver U19 IP54 225 730-2350 830 Multi	19	2350	0.660	0.296	0.100	0.022	0.000	1.078	1
0030549	Insaver U19 IP54 225 770-2500 840 Multi	19	2500	0.660	0.296	0.100	0.022	0.000	1.078	1
0030550	Insaver U19 IP54 205 620-1950 830 Multi	16	1950	0.579	0.289	0.1	0.021	0.000	0.988	1
0030551	Insaver U19 IP54 205 620-2050 840 Multi	16	2050	0.579	0.289	0.1	0.021	0.000	0.988	1

Table 20: Information for product family: PIR

Product code	Product name	Power (W)	Lighting output (lm)	Luminaire structure weight (kg)	Product packaging weight (kg)	Power equipment weight (kg)	Light source weight (kg)	Light management weight (kg)	Total weight (kg)	Energy saving coefficient
0030518	INSAVER U19 IP44 175 1150LM 830 PIR	9.5	1150	0.597	0.326	0.148	0.011	0.040	1.122	0.55
0030519	INSAVER U19 IP44 175 1200LM 840 PIR	9.5	1200	0.597	0.326	0.148	0.011	0.040	1.122	0.55

Table 21: Information for product family: Dali (DA)

Product code	Product name	Power (W)	Lighting output (lm)	Luminaire structure weight (kg)	Product packaging weight (kg)	Power equipment weight (kg)	Light source weight (kg)	Light management weight (kg)	Total weight (kg)	Energy saving coefficient
0030534	INSAVER U19 IP44 150 1150LM 830 DALI	9.5	1150	0.358	0.190	0.203	0.011	0.000	0.762	0.5
0030535	INSAVER U19 IP44 150 1200LM 840 DALI	9.5	1200	0.358	0.190	0.203	0.011	0.000	0.762	0.5
0030536	INSAVER U19 IP44 175 1650LM 830 DALI	13	1650	0.457	0.245	0.203	0.011	0.000	0.916	0.5
0030537	INSAVER U19 IP44 175 1700LM 840 DALI	13	1700	0.457	0.245	0.203	0.011	0.000	0.916	0.5
0030538	INSAVER U19 IP44 205 2350LM 830 DALI	20	2350	0.579	0.289	0.207	0.021	0.000	1.095	0.5
0030539	INSAVER U19 IP44 205 2500LM 840 DALI	20	2500	0.579	0.289	0.207	0.021	0.000	1.095	0.5
0030540	INSAVER IP44 225 4800LM 830 DALI	41	4800	0.660	0.296	0.184	0.021	0.000	1.161	0.5
0030541	INSAVER IP44 225 4950LM 840 DALI	41	4950	0.660	0.296	0.184	0.021	0.000	1.161	0.5
0030542	INSV U19 IP44 200 2350 830 DALI SQ	20	2350	0.710	0.304	0.207	0.021	0.000	1.241	0.5
0030543	INSV U19 IP44 200 2500 830 DALI SQ	20	2500	0.710	0.304	0.207	0.021	0.000	1.241	0.5
0030572	Insaver UGR19 IP54 150 1150lm 830 DALI	9.5	1150	0.358	0.190	0.165	0.011	0.000	0.762	0.5
0030573	Insaver UGR19 IP54 150 1200lm 830 DALI	9.5	1200	0.358	0.190	0.165	0.011	0.000	0.762	0.5
0030574	Insaver UGR19 IP54 175 1650lm 830 DALI	13	1650	0.457	0.245	0.165	0.011	0.000	0.916	0.5
0030575	Insaver UGR19 IP54 175 1700lm 830 DALI	13	1700	0.457	0.245	0.165	0.011	0.000	0.916	0.5
0030576	Insaver UGR19 IP54 205 2350lm 830 DALI	20	2350	0.579	0.289	0.165	0.021	0.000	1.095	0.5
0030577	Insaver UGR19 IP54 205 2500lm 830 DALI	20	2500	0.579	0.289	0.165	0.021	0.000	1.095	0.5
0030578	Insaver IP54 225 4800lm 830 DALI	41	4800	0.660	0.296	0.182	0.021	0.000	1.161	0.5
0030579	Insaver IP54 225 4950lm 830 DALI	41	4950	0.660	0.296	0.182	0.021	0.000	1.161	0.5
0030580	Insaver UGR19 IP54 200 2500lm 830 DALI Square	20	2350	0.710	0.304	0.165	0.021	0.000	1.241	0.5
0030581	Insaver UGR19 IP54 200 2350lm 830 DALI Square	20	2500	0.710	0.304	0.165	0.021	0.000	1.241	0.5
0030582	INSAVER UGR19 IP44 DALI 205 2000LM 930	20	2000	0.579	0.289	0.165	0.021	0.000	1.053	0.5
0030583	INSAVER UGR19 IP44 DALI 205 2050LM 940	20	2050	0.579	0.289	0.165	0.021	0.000	1.053	0.5

0030584	INSAVER UGR19 165 1150LM 830 SM DALI	9.5	1150	0.640	0.163	0.165	0.011	0.000	0.979	0.5
0030585	INSAVER UGR19 165 1200LM 840 SM DALI	9.5	1200	0.640	0.163	0.165	0.011	0.000	0.979	0.5
0030586	INSAVER UGR19 220 2350LM 830 SM DALI	20	2350	0.928	0.252	0.165	0.021	0.000	1.365	0.5
0030587	INSAVER UGR19 220 2500LM 840 SM DALI	20	2500	0.928	0.252	0.165	0.021	0.000	1.365	0.5
0030598	INSAVER UGR19 IP44 DALI 175 1500LM 927	13	1500	0.457	0.245	0.165	0.011	0.000	0.878	0.5

Table 22: Information for product family: SSC

Product code	Product name	Power (W)	Lighting output (lm)	Luminaire structure weight (kg)	Product packaging weight (kg)	Power equipment weight (kg)	Light source weight (kg)	Light management weight (kg)	Total weight (kg)	Energy saving coefficient
0030478	Insaver UGR19 IP44 205 2350 830 SSC01D	20	2350	0.579	0.289	0.166	0.021	0.000	1.054	0.5
0030479	Insaver UGR19 IP44 205 2500 840 SSC01D	20	2500	0.579	0.289	0.166	0.021	0.000	1.054	0.5

Table 23: Information for product family: SSA

Product code	Product name	Power (W)	Lighting output (lm)	Luminaire structure weight (kg)	Product packaging weight (kg)	Power equipment weight (kg)	Light source weight (kg)	Light management weight (kg)	Total weight (kg)	Energy saving coefficient
0030488	Insaver UGR19 IP44 205 2350 830 SSA01D	20	2350	0.579	0.289	0.179	0.021	0.000	1.067	0.5
0030489	Insaver UGR19 IP44 205 2500 840 SSA01D	20	2500	0.579	0.289	0.179	0.021	0.000	1.067	0.5

The required extrapolation coefficients at the product level are listed in the following tables.

Table 24: Extrapolation coefficients at product level for Non dimmable

Product code	Product name	Power (W)	Lighting output (lm)	Manufacturing stage (A1-A3)	distribution stage (A4)	installation stage (A5)	use stage (B6)	EOL stage (C1 to C4)	Benefits stage (D)
0030458	INSAVER SLIM UGR19 IP65 205 2400lm 865	20	2400	1.35	1.17	0.89	3.83	1.29	1.35
0030486	Insaver Slim U19 IP44 205 2500 840 EU	20	2500	1.08	0.99	0.88	3.83	1.04	1.08
0030500	Insaver UGR19 IP44 150 1150LM 830	9.5	1150	0.60	0.57	0.58	1.82	0.57	0.60
0030501	Insaver UGR19 IP44 150 1200LM 840	9.5	1200	0.60	0.57	0.58	1.82	0.57	0.60
0030502	Insaver UGR19 IP44 175 1650LM 830	13	1650	0.75	0.72	0.75	2.49	0.71	0.75
0030503	Insaver UGR19 IP44 175 1700LM 840	13	1700	0.75	0.72	0.75	2.49	0.71	0.75
0030504	Insaver UGR19 IP44 205 2350LM 830	20	2350	0.93	0.88	0.88	3.83	0.88	0.93
0030505	Insaver UGR19 IP44 205 2500LM 840	20	2500	0.93	0.88	0.88	3.83	0.88	0.93
0030506	Insaver UGR19 IP44 225 2950LM 830	24	2950	1.03	0.98	0.91	4.59	1.01	1.03
0030507	Insaver UGR19 IP44 225 3050LM 840	24	3050	1.03	0.98	0.91	4.59	1.01	1.03
0030508	Insaver IP44 225 4050-4800LM 830 Multi	41	4800	1.08	1.02	0.91	7.85	1.07	1.08
0030509	Insaver IP44 225 4150-4950LM 840 Multi	41	4950	1.08	1.02	0.91	7.85	1.07	1.08
0030510	INSAVER UGR19 IP54 150 1150 830 SQ	9.5	1150	0.69	0.66	0.62	1.82	0.68	0.69
0030511	INSAVER UGR19 IP54 150 1200 840 SQ	9.5	1200	0.69	0.66	0.62	1.82	0.68	0.69
0030512	INSAVER UGR19 IP44 200 2350 830 SQ	20	2350	1.09	1.01	0.93	3.83	1.04	1.09
0030513	INSAVER UGR19 IP44 200 2500 840 SQ	20	2500	1.09	1.01	0.93	3.83	1.04	1.09
0030514	INSAVER UGR19 165 1150LM 830 SM	9.5	1150	0.92	0.80	0.50	1.82	0.93	0.92
0030515	INSAVER UGR19 165 1200LM 840 SM	9.5	1200	0.92	0.80	0.50	1.82	0.93	0.92
0030516	INSAVER UGR19 220 2350LM 830 SM	20	2350	1.34	1.16	0.77	3.83	1.32	1.34
0030517	INSAVER UGR19 220 2500LM 840 SM	20	2500	1.34	1.16	0.77	3.83	1.32	1.34
0030520	INSAVER UGR19 IP54 175 1150 830 WB	9.5	1150	0.74	0.71	0.75	1.82	0.70	0.74
0030521	INSAVER UGR19 IP54 175 1200 840 WB	9.5	1200	0.74	0.71	0.75	1.82	0.70	0.74
0030522	INSAVER UGR19 IP54 150 950LM 930	9.5	950	0.60	0.57	0.58	1.82	0.57	0.60
0030523	INSAVER UGR19 IP54 150 1000LM 940	9.5	1000	0.60	0.57	0.58	1.82	0.57	0.60
0030524	INSAVER UGR19 IP54 175 1400LM 930	13	1400	0.75	0.72	0.75	2.49	0.71	0.75
0030525	INSAVER UGR19 IP54 175 1450LM 940	13	1450	0.75	0.72	0.75	2.49	0.71	0.75
0030528	INSAVER UGR19 IP65 150 1150LM 830	9.5	1150	1.01	0.86	0.58	1.82	0.97	1.01
0030529	INSAVER UGR19 IP65 150 1200LM 840	9.5	1200	1.01	0.86	0.58	1.82	0.97	1.01
0030530	INSAVER UGR19 IP65 205 2350LM 830	20	2350	1.35	1.17	0.89	3.83	1.29	1.35
0030531	INSAVER UGR19 IP65 205 2500LM 840	20	2500	1.35	1.17	0.89	3.83	1.29	1.35
0030532	Insaver IP65 225 4050-4800LM 830 Multi	41	4800	1.46	1.31	0.91	7.85	1.47	1.46
0030533	Insaver IP65 225 4150-4950LM 840 Multi	41	4950	1.46	1.31	0.91	7.85	1.47	1.46

0030548	Insaver U19 IP54 225 730-2350 830 Multi	19	2350	1.03	0.96	0.91	3.64	0.98	1.03
0030549	Insaver U19 IP54 225 770-2500 840 Multi	19	2500	1.03	0.96	0.91	3.64	0.98	1.03
0030550	Insaver U19 IP54 205 620-1950 830 Multi	16	1950	0.93	0.88	0.88	3.06	0.88	0.93
0030551	Insaver U19 IP54 205 620-2050 840 Multi	16	2050	0.93	0.88	0.88	3.06	0.88	0.93

Table 25: Extrapolation coefficients at product level for PIR

Product code	Product name	Power (W)	Lighting output (lm)	Manufacturing stage (A1-A3)	distribution stage (A4)	installation stage (A5)	use stage (B6)	EOL stage (C1 to C4)	Benefits stage (D)
0030518	INSAVER U19 IP44 175 1150LM 830 PIR	9.5	1150	1.00	1.00	1.00	1.00	1.00	1.00
0030519	INSAVER U19 IP44 175 1200LM 840 PIR	9.5	1200	1.00	1.00	1.00	1.00	1.00	1.00

Table 26: Extrapolation coefficients at product level for Dali (DA)

Product code	Product name	Power (W)	Lighting output (lm)	Manufacturing stage (A1-A3)	distribution stage (A4)	installation stage (A5)	use stage (B6)	EOL stage (C1 to C4)	Benefits stage (D)
0030534	INSAVER U19 IP44 150 1150LM 830 DALI	9.5	1150	0.81	0.68	0.58	0.91	0.72	0.81
0030535	INSAVER U19 IP44 150 1200LM 840 DALI	9.5	1200	0.81	0.68	0.58	0.91	0.72	0.81
0030536	INSAVER U19 IP44 175 1650LM 830 DALI	13	1650	0.90	0.82	0.75	1.24	0.84	0.90
0030537	INSAVER U19 IP44 175 1700LM 840 DALI	13	1700	0.90	0.82	0.75	1.24	0.84	0.90
0030538	INSAVER U19 IP44 205 2350LM 830 DALI	20	2350	1.05	0.98	0.88	1.91	1.01	1.05
0030539	INSAVER U19 IP44 205 2500LM 840 DALI	20	2500	1.05	0.98	0.88	1.91	1.01	1.05
0030540	INSAVER IP44 225 4800LM 830 DALI	41	4800	1.09	1.03	0.91	3.92	1.09	1.09
0030541	INSAVER IP44 225 4950LM 840 DALI	41	4950	1.09	1.03	0.91	3.92	1.09	1.09
0030542	INSV U19 IP44 200 2350 830 DALI SQ	20	2350	1.17	1.11	0.93	1.91	1.18	1.17
0030543	INSV U19 IP44 200 2500 830 DALI SQ	20	2500	1.17	1.11	0.93	1.91	1.18	1.17
0030572	Insaver UGR19 IP54 150 1150lm 830 DALI	9.5	1150	0.81	0.68	0.58	0.91	0.72	0.81
0030573	Insaver UGR19 IP54 150 1200lm 830 DALI	9.5	1200	0.81	0.68	0.58	0.91	0.72	0.81
0030574	Insaver UGR19 IP54 175 1650lm 830 DALI	13	1650	0.90	0.82	0.75	1.24	0.84	0.90
0030575	Insaver UGR19 IP54 175 1700lm 830 DALI	13	1700	0.90	0.82	0.75	1.24	0.84	0.90
0030576	Insaver UGR19 IP54 205 2350lm 830 DALI	20	2350	1.05	0.98	0.88	1.91	1.01	1.05
0030577	Insaver UGR19 IP54 205 2500lm 830 DALI	20	2500	1.05	0.98	0.88	1.91	1.01	1.05
0030578	Insaver IP54 225 4800lm 830 DALI	41	4800	1.09	1.03	0.91	3.92	1.09	1.09
0030579	Insaver IP54 225 4950lm 830 DALI	41	4950	1.09	1.03	0.91	3.92	1.09	1.09
0030580	Insaver UGR19 IP54 200 2500lm 830 DALI Square	20	2350	1.17	1.11	0.93	1.91	1.18	1.17
0030581	Insaver UGR19 IP54 200 2350lm 830 DALI Square	20	2500	1.17	1.11	0.93	1.91	1.18	1.17
0030582	INSAVER UGR19 IP44 DALI 205 2000LM 930	20	2000	0.99	0.94	0.88	1.91	0.96	0.99
0030583	INSAVER UGR19 IP44 DALI 205 2050LM 940	20	2050	0.99	0.94	0.88	1.91	0.96	0.99
0030584	INSAVER UGR19 165 1150LM 830 SM DALI	9.5	1150	0.98	0.87	0.50	0.91	1.03	0.98

0030585	INSAVER UGR19 165 1200LM 840 SM DALI	9.5	1200	0.98	0.87	0.50	0.91	1.03	0.98
0030586	INSAVER UGR19 220 2350LM 830 SM DALI	20	2350	1.36	1.22	0.77	1.91	1.40	1.36
0030587	INSAVER UGR19 220 2500LM 840 SM DALI	20	2500	1.36	1.22	0.77	1.91	1.40	1.36
0030598	INSAVER UGR19 IP44 DALI 175 1500LM 927	13	1500	0.83	0.78	0.75	1.24	0.80	0.83

Table 27: Extrapolation coefficients at product level for SSC

Product code	Product name	Power (W)	Lighting output (lm)	Manufacturing stage (A1-A3)	distribution stage (A4)	installation stage (A5)	use stage (B6)	EOL stage (C1 to C4)	Benefits stage (D)
0030478	Insaver UGR19 IP44 205 2350 830 SSC01D	20	2350	0.99	0.94	0.88	1.91	0.96	0.99
0030479	Insaver UGR19 IP44 205 2500 840 SSC01D	20	2500	0.99	0.94	0.88	1.91	0.96	0.99

Table 28: Extrapolation coefficients at product level for SSA

Product code	Product name	Power (W)	Lighting output (lm)	Manufacturing stage (A1-A3)	distribution stage (A4)	installation stage (A5)	use stage (B6)	EOL stage (C1 to C4)	Benefits stage (D)
0030488	Insaver UGR19 IP44 205 2350 830 SSA01D	20	2350	1.01	0.95	0.88	1.91	0.98	1.01
0030489	Insaver UGR19 IP44 205 2500 840 SSA01D	20	2500	1.01	0.95	0.88	1.91	0.98	1.01

DA /DALI Digital Addressable Lighting Interface

PIR Passive Infrared Radiation

SSA SylSmart connected systems (Silvair)

SSC SylSmart connected systems (Casambi)