



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPD HUB, HUB-6695

Published on 18.06.2026, last updated on 18.06.2026, valid until 17.06.2031

Primus

Legrand Finland Oy



This EPD is intended for business-to-business and/or business-to-consumer communication. Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1. 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 construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

MANUFACTURER AND SITE

Manufacturer	Legrand Finland Oy
Address	Linnoitustie 11, 02600 Espoo, Finland
Contact details	legrand.finland@legrand.com
Website	www.legrand.fi/en
Place of production	Paide, Estonia
Place(s) of raw material origin	EU and China
Place(s) of installation and use	Finland and Sweden
Period for data	Calendar year 2025

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR version 1.2, 24 Mar 2025
Sector	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, B6, and modules C1-C4, D
EPD author	Lili Karjalainen, Legrand Finland Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☒ Internal verification ☐ External verification
EPD verifier	Haiha Nguyen as an authorized verifier for EPD Hub

PRODUCT SPECIFICATION

Product name	Primus
Product number / reference	PRI15L
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	23,8

PRODUCT CLASSIFICATION

Declared operating voltage, Volt	220
Light source color temperature, Kelvin	4000
Protection index for water and dust (IP)	20
Impact resistance index (IK)	-
Luminous flux, Lumen	4140
Electrical power, Watt	31
Luminous efficiency, Lm/W	134
Additional characteristics	-

PRODUCT DESCRIPTION

Primus is a general luminaire for schools and offices, which turns into many different project needs and is surprisingly affordable. Simple body structure of Primus hides versatile possibilities of project tailoring for control systems, electrification and installation. The product family consists of 2 lengths (1207 mm and 1487 mm), 2 optics (low luminance louvre and microprism) and 6 types (with or without upright, with or without pull cord switch and with or without luminaire integrated presence detection sensor). Declared unit (PRI15L) consist of 4140 lm luminous flux, 1487 mm body, has light distribution downlight and on/off LED driver.

ABOUT THE MANUFACTURER

Legrand is a global specialist in electrical and digital building infrastructures, dedicated to supporting technological, societal and environmental change around the globe. Our purpose is to improve life by transforming the spaces where people live, work and meet by delivering electrical and digital infrastructures and connected solutions that are simple, innovative and sustainable.

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass, kg	3,868
Mass of packaging, kg	0,708
Functional unit	Provide lighting that delivers an outgoing artificial luminous flux of 4,140 lumens during a reference lifetime of 100,000 hours
Reference service life (years)	40
Assigned lifetime (hours)	100000
GWP-total, A1-A3 (kg CO ₂ e)	29,9
GWP-fossil, A1-A3 (kg CO ₂ e)	30,4
Secondary material, inputs (%)	17,7
Secondary material, outputs (%)	68,1
Total energy use, A1-A3 (kWh)	120
Net freshwater use, A1-A3 (m ³)	2,50E-01

LIFE CYCLE ASSESSMENT

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	ND	ND	ND	ND	ND	x	ND	x	x	x	x	x	Reuse, Recovery, Recycling
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruct./demo.	Transport	Waste processing	Disposal		

Not declared = ND.

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. 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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	No allocation
Ancillary materials	Allocated by mass
Manufacturing energy and waste	Allocated by mass

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

This EPD is product and factory specific.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	86,3	Global, mainly EU
Minerals	0	-
Fossil materials	11,2	Global, mainly EU
Bio-based materials	0	-
Electronic parts	2,5	Global, mainly EU

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	0,116

SUBSTANCES, REACH - VERY HIGH CONCERN

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

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA Luminaire EPD Generator v2.2.8. The LCA and EPD have been prepared according to the reference standards, EN 50693, and ISO 14040/14044. Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases were used as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, cut-off, EN 15804+A2'.

PRODUCT LIFE CYCLE

MANUFACTURING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production. The material losses occurring during the manufacturing processes are treated as per the waste handling practices in the factory, while scenario assumptions are made in the absence of exact data. The study also considers the fuels used by machines as well as losses during electricity transmission. A market-based approach is used in modelling the electricity mix utilized in the factory.

The product is made of metals, plastics, and electronic components. All components are transported to the production facility, where the main manufacturing processes are associated with assembly of different parts and components. The product is packaged in a corrugated cardboard box. The product is being sent to the installation site on a wooden pallet wrapped in plastic film.

Co-product allocation is neglected as revenue of co-product is very low. Hence, the waste undergoes a conservative waste treatment as per the default end-of-life values of EN 50693.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation distances from manufacturing sites to customer locations are based on IEC PAS 63629:2025 PSR – Specific rules for luminaires Intracontinental transport: 3,500 km by lorry. Environmental impacts from installation include waste packaging materials (A5). The impacts of energy consumption and the used ancillary materials during installation are considered negligible.

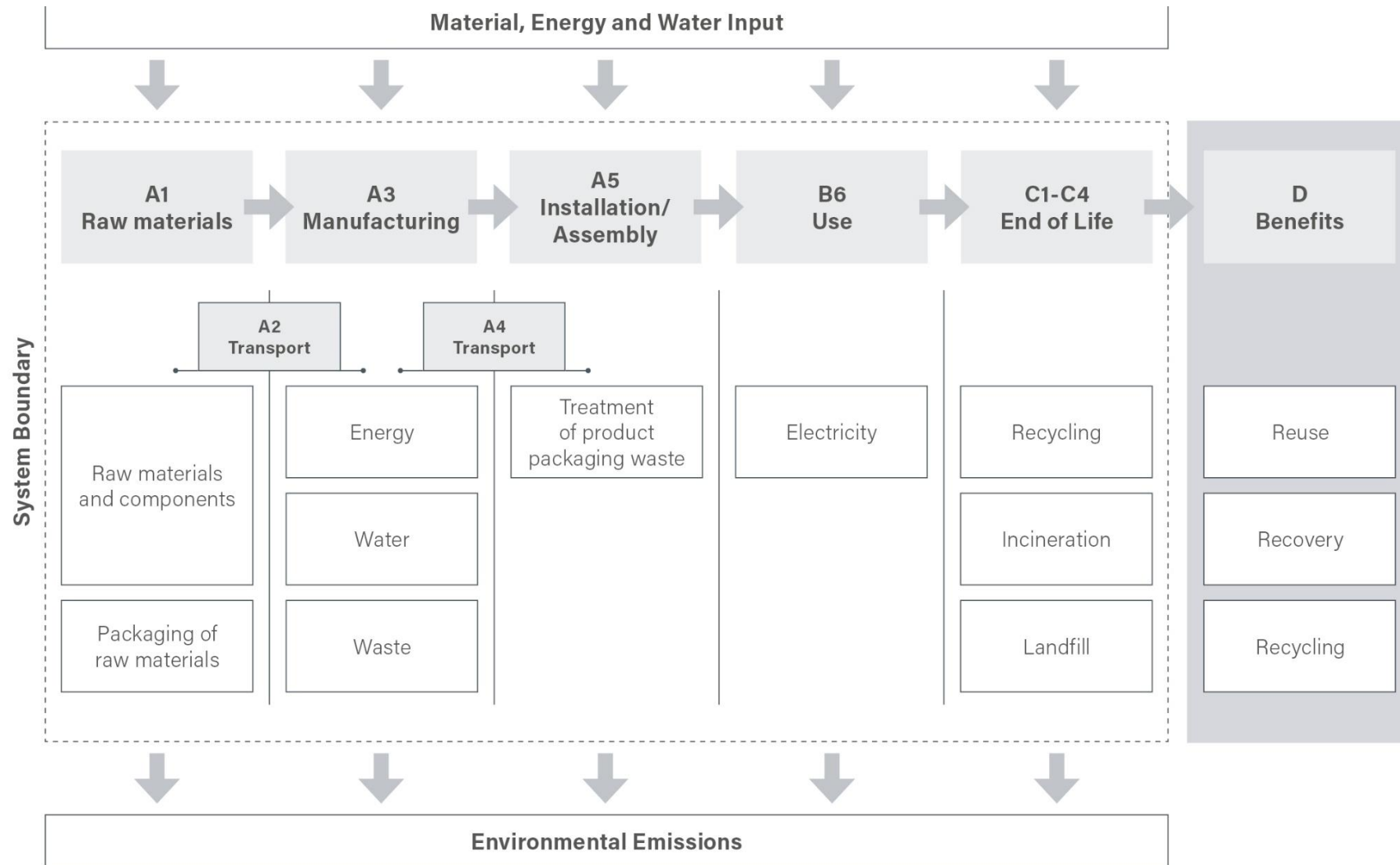
PRODUCT USE AND MAINTENANCE (B1-B7)

During the use phase, the product consumes electricity (B6). Impacts due to electricity production include direct emissions to air, transformation, and transmission losses.

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. The transport distance is 150 km while 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.

LIFE CYCLE FLOW DIAGRAM



ENVIRONMENTAL IMPACT DATA, RESULTS PER DECLARED UNIT

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	2,29E+01	2,57E+00	4,49E+00	2,99E+01	3,04E+00	7,41E-01	ND	ND	ND	ND	ND	4,80E+02	ND	0,00E+00	1,13E-01	3,45E-01	4,68E-01	5,36E+01
GWP – fossil	kg CO ₂ e	2,26E+01	2,56E+00	5,23E+00	3,04E+01	3,04E+00	3,86E-02	ND	ND	ND	ND	ND	4,69E+02	ND	0,00E+00	1,13E-01	3,45E-01	4,68E-01	-6,82E+00
GWP – biogenic	kg CO ₂ e	1,76E-01	5,15E-04	-7,60E-01	-5,84E-01	6,11E-04	7,02E-01	ND	ND	ND	ND	ND	1,72E+00	ND	0,00E+00	2,47E-05	-4,84E-04	-3,04E-05	6,05E+01
GWP – LULUC	kg CO ₂ e	3,11E-02	9,21E-04	1,46E-02	4,67E-02	1,09E-03	1,84E-05	ND	ND	ND	ND	ND	9,12E+00	ND	0,00E+00	5,01E-05	1,13E-04	1,98E-05	-3,01E-02
Ozone depletion pot.	kg CFC ₁₁ e	3,31E-07	5,10E-08	8,15E-08	4,63E-07	6,05E-08	4,27E-10	ND	ND	ND	ND	ND	9,05E-06	ND	0,00E+00	1,58E-09	9,57E-10	3,33E-10	-5,05E-08
Acidification potential	mol H ⁺ e	2,56E-01	5,34E-03	1,42E-02	2,75E-01	6,32E-03	1,42E-04	ND	ND	ND	ND	ND	2,43E+00	ND	0,00E+00	3,77E-04	8,98E-04	1,36E-04	-7,95E-02
EP-freshwater ²⁾	kg Pe	1,42E-02	1,73E-04	8,78E-04	1,52E-02	2,05E-04	6,37E-06	ND	ND	ND	ND	ND	1,81E-01	ND	0,00E+00	8,79E-06	4,56E-05	5,92E-06	-5,03E-03
EP-marine	kg Ne	2,67E-02	1,28E-03	3,22E-03	3,12E-02	1,52E-03	1,43E-04	ND	ND	ND	ND	ND	4,24E-01	ND	0,00E+00	1,22E-04	2,21E-04	3,20E-04	-9,46E-03
EP-terrestrial	mol Ne	6,83E-01	1,38E-02	3,04E-02	7,27E-01	1,64E-02	5,11E-04	ND	ND	ND	ND	ND	4,54E+00	ND	0,00E+00	1,33E-03	2,35E-03	6,05E-04	-1,07E-01
POCP (“smog”) ³⁾	kg NMVOCe	8,53E-02	8,88E-03	1,34E-02	1,08E-01	1,05E-02	1,87E-04	ND	ND	ND	ND	ND	1,35E+00	ND	0,00E+00	5,25E-04	6,79E-04	1,83E-04	-4,18E-02
ADP-minerals & metals ⁴⁾	kg Sbe	1,43E-03	8,54E-06	7,27E-06	1,44E-03	1,01E-05	1,38E-07	ND	ND	ND	ND	ND	1,26E-02	ND	0,00E+00	3,71E-07	4,34E-06	5,10E-08	-5,45E-04
ADP-fossil resources	MJ	2,96E+02	3,61E+01	6,88E+01	4,01E+02	4,28E+01	4,25E-01	ND	ND	ND	ND	ND	2,07E+04	ND	0,00E+00	1,59E+00	1,07E+00	2,79E-01	-8,01E+01
Water use ⁵⁾	m ³ e depr.	8,85E+00	1,79E-01	5,56E-01	9,59E+00	2,13E-01	9,92E-03	ND	ND	ND	ND	ND	5,73E+02	ND	0,00E+00	7,36E-03	3,39E-02	1,45E-02	-1,21E+00

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, EF 3.1

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	2,51E-06	1,89E-07	1,53E-07	2,86E-06	2,24E-07	2,54E-09	ND	ND	ND	ND	ND	1,61E-05	ND	0,00E+00	8,97E-09	1,18E-08	2,42E-09	-4,56E-07
Ionizing radiation ⁶⁾	kBq U235e	2,26E+00	4,65E-02	3,14E-01	2,62E+00	5,52E-02	1,42E-03	ND	ND	ND	ND	ND	1,18E+03	ND	0,00E+00	1,28E-03	4,83E-03	3,16E-04	-5,35E-01
Ecotoxicity (freshwater)	CTUe	2,94E+02	4,80E+00	1,07E+01	3,09E+02	5,69E+00	1,29E+00	ND	ND	ND	ND	ND	2,33E+03	ND	0,00E+00	2,51E-01	1,05E+00	8,80E+00	-3,44E+01
Human toxicity, cancer	CTUh	2,64E-08	4,30E-10	2,58E-09	2,94E-08	5,10E-10	1,52E-11	ND	ND	ND	ND	ND	2,50E-07	ND	0,00E+00	1,92E-11	8,68E-11	4,22E-10	-6,28E-09
Human tox. non-cancer	CTUh	8,66E-07	2,28E-08	2,56E-08	9,14E-07	2,71E-08	8,64E-10	ND	ND	ND	ND	ND	1,28E-05	ND	0,00E+00	9,93E-10	4,85E-09	2,59E-09	-3,92E-07
SQP ⁷⁾	-	9,96E+01	2,18E+01	9,15E+01	2,13E+02	2,58E+01	3,22E-01	ND	ND	ND	ND	ND	6,91E+03	ND	0,00E+00	9,47E-01	1,67E+00	3,88E-01	-2,81E+03

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 the 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	3,47E+01	6,31E-01	4,58E+00	4,00E+01	7,49E-01	-9,49E+00	ND	ND	ND	ND	ND	7,41E+03	ND	0,00E+00	2,17E-02	1,57E-01	5,87E-03	-3,07E+02
Renew. PER as material	MJ	0,00E+00	0,00E+00	6,61E+00	6,61E+00	0,00E+00	-6,61E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	3,47E+01	6,31E-01	1,12E+01	4,66E+01	7,49E-01	-1,61E+01	ND	ND	ND	ND	ND	7,41E+03	ND	0,00E+00	2,17E-02	1,57E-01	5,87E-03	-3,07E+02
Non-re. PER as energy	MJ	2,89E+02	3,61E+01	6,62E+01	3,91E+02	4,28E+01	1,92E-01	ND	ND	ND	ND	ND	2,07E+04	ND	0,00E+00	1,59E+00	-3,79E+00	-8,33E+00	-7,95E+01
Non-re. PER as material	MJ	7,56E+00	0,00E+00	6,82E-01	8,24E+00	0,00E+00	-6,82E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-4,07E+00	-3,49E+00	0,00E+00
Total use of non-re. PER	MJ	2,97E+02	3,61E+01	6,69E+01	3,99E+02	4,28E+01	-4,90E-01	ND	ND	ND	ND	ND	2,07E+04	ND	0,00E+00	1,59E+00	-7,86E+00	-1,18E+01	-7,95E+01
Secondary materials	kg	6,84E-01	0,00E+00	0,00E+00	6,84E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Renew. secondary fuels	MJ	7,03E-03	2,12E-04	2,80E-01	2,87E-01	2,51E-04	2,86E-06	ND	ND	ND	ND	ND	1,21E-02	ND	0,00E+00	9,07E-06	5,37E-05	4,31E-06	-8,89E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	2,19E-01	4,91E-03	2,59E-02	2,50E-01	5,83E-03	-5,42E-04	ND	ND	ND	ND	ND	1,82E+01	ND	0,00E+00	2,10E-04	7,57E-04	-3,56E-04	-8,10E-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	5,10E+00	5,24E-02	2,31E-01	5,38E+00	6,22E-02	2,69E-03	ND	ND	ND	ND	ND	3,19E+01	ND	0,00E+00	2,76E-03	1,24E-02	3,76E-02	-1,63E+00
Non-hazardous waste	kg	1,01E+02	1,11E+00	1,55E+01	1,18E+02	1,31E+00	1,12E+00	ND	ND	ND	ND	ND	9,11E+02	ND	0,00E+00	5,18E-02	3,38E-01	1,80E+00	-2,84E+00
Radioactive waste	kg	5,73E-04	1,16E-05	7,76E-05	6,62E-04	1,37E-05	3,61E-07	ND	ND	ND	ND	ND	2,54E-01	ND	0,00E+00	3,14E-07	1,19E-06	7,81E-08	-1,34E-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 reuse	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	1,30E-01	1,30E-01	0,00E+00	3,66E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	2,63E+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	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	3,19E-01	3,19E-01	0,00E+00	8,13E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	1,32E+00	0,00E+00	0,00E+00
Exported energy: Electricity	MJ	0,00E+00	0,00E+00	1,35E-01	1,35E-01	0,00E+00	3,42E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	5,58E-01	0,00E+00	0,00E+00
Exported energy: Heat	MJ	0,00E+00	0,00E+00	1,83E-01	1,83E-01	0,00E+00	4,64E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	7,67E-01	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	2,27E+01	2,57E+00	5,25E+00	3,05E+01	3,04E+00	3,86E-02	ND	ND	ND	ND	ND	4,78E+02	ND	0,00E+00	1,13E-01	3,46E-01	4,68E-01	-6,85E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation – A3 (Energy data source)

1. Energy supply, heat, steam and air conditioning, heat from fuel oil, Heat production, light fuel oil, at boiler 100kW condensing, non-modulating, World,ecoinvent 3.10.1, 0.0953 kgCO₂e/MJ
2. Energy supply, electricity transformation and distribution, distribution of medium, Electricity, medium voltage, residual mix, Estonia,ecoinvent 3.10.1, 0.64 kgCO₂e/kWh

Transport scenario documentation - A4

1. Market for transport, freight, lorry 16-32 metric ton, EURO6, 3500.0 km

Installation scenario documentation - A5 (Waste materials data source)

1. Carton board box production service, with offset printing, 0.262 kg
2. Eur-flat pallet production, 0.415 kg
3. Paper production, woodfree, uncoated, at integrated mill, 4.77E-4 kg
4. Melamine formaldehyde resin production, 5.3E-5 kg
5. Packaging film production, low density polyethylene, 0.006 kg
6. Paper production, woodfree, uncoated, at integrated mill, 0.024 kg

Use stages scenario documentation - B6-B7 (Energy data source)

1. Energy supply, electricity transformation and distribution, distribution low voltage, Market for electricity, low voltage, Finland, 1550.0 kWh

TRANSPORT SCENARIO DOCUMENTATION - A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50 %
Bulk density of transported products / kg/m ³	0
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	<1

INSTALLATION SCENARIO DOCUMENTATION - A5

Scenario parameter	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m ³	0

Other resource use / kg	0
Direct emissions to ambient air, soil and water / kg	0
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / %	Plastic: 41% recycled, 37% incinerated, 22% land filled. Cardboard: 82% recycled, 9% incinerated, 9% land filled. Wood: 31% recycled, 31% incinerated, 38% land filled.

USE STAGES SCENARIO DOCUMENTATION - B6-B7 USE OF ENERGY AND WATER

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	Not applicable
Net fresh water consumption / m ³	0
Power output of equipment / kW	31
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc. / Units as appropriate	-
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants / Units as appropriate	Declared unit reference service life 20 years. Annual operating time 2500h (Based on energy performance of buildings. Energy requirements for lightning, EN 15193-1:2017 / Office. Energy consumption (C) = 31 (max. system power, W) * 2500 (annual operating hours) * 20 /assigned lifetime, years) = 1550 kWh

END OF LIFE SCENARIO DOCUMENTATION

Scenario information	Value
Collection process – kg collected separately	3,868
Collection process – kg collected with mixed construction waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	2,63
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	1,07
Scenario assumptions e.g. transportation	Lorry, 16-32 metric ton, EURO5; 150 km

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.



Program assistant: Xinyuan Zhang



The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

[Verified tools](#)

Tool verifier: Hai Ha Nguyen

Tool verification validity: 28 March 2025 - 27 March 2028

APPENDIX

Primus

According to IEC PAS 63629, PSR – Specific rules for luminaires, the functional unit follows “Provide lighting that delivers an outgoing artificial luminous flux of 1,000 lumens during a reference lifetime of 35,000 hours”.

By converting the results to ensure the functional unit, a reference flow is used. It is calculated as follows;
 $(1,000 \text{ lumens/outgoing luminous flux of the declared unit}) \times (35,000 \text{ hours/lifetime in hours of the declared unit})$.

The declared unit delivers an outgoing artificial luminous flux of 4140 lumens during a reference lifetime of 100,000 hours. The reference flow scaling factor is given by the following calculation;
 $(1,000/4,140) \times (35,000/100,000) = 0,0845$

The results of the reference flow is given by multiplying the scaling factor with the results based on the declared unit. Which gives the following results for GWP total in A1-A5, B6, C1-C4 and D;

Reference flow, GWP total

A1	A2	A3	A4	A5	B6	C1	C2	C3	C4	D
1,93E+00	2,17E-01	3,80E-01	2,57E-01	6,26E-02	4,06E+01	0,00E+00	9,55E-03	2,92E-02	3,96E-02	4,53E+00

The assigned life time of the luminaire is 100,000 h corresponds to an operational life time depending on the light operation hours in buildings according to IEC PAS 63629, Table 9 – Luminaire annual operating times according to the area of applications and the type of building.

Type of building	Annual operating hours by default	Operational life time in years
Residential buildings	3500	29
Offices	2500	40
Education	2000	50
Hospitals	5000	20
Hotels	5000	20
Restaurants	2500	40
Sports facilities	4000	25
Wholesale and retail services	5000	20
Manufacturing factories	4000	25

As stated in the EPD, the B6 calculations are based on a Finnish electricity grid mix on low voltage dataset from Ecoinvent 3.10.1

Furthermore, the calculations does not include any energy saving from using controls. If a light management system is applicable, a reduction factor can be used. The factors to be applied are presented in IEC PAS 63629, Table 5 – Energy saving coefficients according to light management function.

Light management function nomination	Reduction	Coefficient
Variation or extinction system according to the brightness of day Light	-25%	0,75
Variation or extinction system according to the presence and absence	-25%	0,75
Combination of presence detection function and luminosity function	-45%	0,55
Luminaire capable of communicating with an external Light Management System	-50%	0,50

APPENDIX

Primus scaling table

A1-A3 Product stage		A1-A3 Product stage		A1-A3 Product stage	
Global Warming		Global Warming		Global Warming	
Product code	Potential total kg CO ₂ e	Product code	Potential total kg CO ₂ e	Product code	Potential total kg CO ₂ e
PRI12LU30	26,12	PRI15LU30PS	31,77	PRI12MDPS	29,09
PRI12LU30/830	26,12	PRI15LU30PS/830	31,77	PRI12MDPS/830	29,09
PRI12LU30PS	26,42	PRI15LU50PS	31,78	PRI12MHODPS	29,09
PRI12LU30PS/830	26,42	PRI15LU50PS/830	31,78	PRI12MHODPS/830	29,09
PRI12LU30ED	26,51	PRI15LU50HO	31,71	PRI15LED/8TW	31,70
PRI12LU30ED/830	26,51	PRI15LU50HO/830	31,71	PRI15LED/9TW	31,70
PRI12LU30HOED	26,51	PRI12MU30	29,17	PRI15LHOED/8TW	31,70
PRI12LU30HOED/830	26,51	PRI12MU30/830	29,17	PRI15LHOED/9TW	31,70
PRI12LU50ED	26,52	PRI15LU50HOPS	32,02	PRI12MAAG2	31,94
PRI12LU50ED/830	26,52	PRI15LU50HOPS/830	32,02	PRI12MAAG2/830	31,94
PRI12LU50HOED	26,52	PRI12MU30PS	29,48	PRI12MED/8TW	30,12
PRI12LU50HOED/830	26,52	PRI12MU30PS/830	29,48	PRI12MED/9TW	30,12
PRI12LU30HO	26,61	PRI15LU50HOED	31,99	PRI12MHOED/8TW	30,12
PRI12LU30HO/830	26,61	PRI15LU50HOED/830	31,99	PRI12MHOED/9TW	30,12
PRI12LU50	26,62	PRI15LU50HODPS	32,27	PRI15MU30ED	35,24
PRI12LU50/830	26,62	PRI15LU50HODPS/830	32,27	PRI15MU30ED/830	35,24
PRI12LU50HO	26,62	PRI12MU30ED	29,56	PRI15MU30ED/940	35,24
PRI12LU50HO/830	26,62	PRI12MU30ED/830	29,56	PRI15MU30HOED	35,24
PRI12LU30DPS	26,80	PRI12MU30HOED	29,56	PRI15MU30HOED/830	35,24
PRI12LU30DPS/830	26,80	PRI12MU30HOED/830	29,56	PRI15MU50ED	35,25
PRI12LU30HODPS	26,80	PRI12MU50ED	29,57	PRI15MU50ED/830	35,25
PRI12LU30HODPS/830	26,80	PRI12MU50ED/830	29,57	PRI15MU30	35,34
PRI12LU50DPS	26,80	PRI12MU50HOED	29,57	PRI15MU30/830	35,34
PRI12LU50DPS/830	26,80	PRI12MU50HOED/830	29,57	PRI15MU30HO	35,34
PRI12LU50HODPS	26,80	PRI12MU30HO	29,67	PRI15MU30HO/830	35,34
PRI12LU50HODPS/830	26,80	PRI12MU30HO/830	29,67	PRI15MU50	35,35
PRI12LU30HOPS	26,92	PRI12MU50	29,67	PRI15MU50/830	35,35
PRI12LU30HOPS/830	26,92	PRI12MU50/830	29,67	PRI15MU30DPS	35,53
PRI12LU50HOPS	26,93	PRI12MU50HO	29,67	PRI15MU30DPS/830	35,53
PRI12LU50HOPS/830	26,93	PRI12MU50HO/830	29,67	PRI15MU30HODPS	35,53
PRI12LU50PS	26,93	PRI12MU30DPS	29,85	PRI15MU30HODPS/830	35,53
PRI12LU50PS/830	26,93	PRI12MU30DPS/830	29,85	PRI15MU50DPS	35,54
PRI12LU50HOAAG2	29,84	PRI12MU30HODPS	29,85	PRI15MU50DPS/830	35,54
PRI12LASV	25,35	PRI12MU30HODPS/830	29,85	PRI15MU30HOPS	35,65
PRI12L	25,10	PRI12MU50DPS	29,86	PRI15MU30HOPS/830	35,65
PRI12L/830	25,10	PRI12MU50DPS/830	29,86	PRI15MU30PS	35,65
PRI12LHO	25,44	PRI12MU50HODPS	29,86	PRI15MU30PS/830	35,65
PRI12LHO/830	25,44	PRI12MU50HODPS/830	29,86	PRI15MU50PS	35,66
PRI12LPS	25,66	PRI15L	29,90	PRI15MU50PS/830	35,66
PRI12LPS/830	25,66	PRI15L/830	29,90	PRI15MU50HO	35,59
PRI12LHOPS	25,74	PRI15LASV	29,92	PRI15MU50HO/830	35,59
PRI12LHOPS/830	25,74	PRI12MU30HOPS	29,98	PRI15MU50HOPS	35,90
PRI12LASVED	25,71	PRI12MU30HOPS/830	29,98	PRI15MU50HOPS/830	35,90
PRI12LED	25,74	PRI12MU50HOPS	29,99	PRI15MU50HOED	35,87

A1-A3 Product stage		A1-A3 Product stage		A1-A3 Product stage	
Global Warming		Global Warming		Global Warming	
Product code	Potential total kg CO2e	Product code	Potential total kg CO2e	Product code	Potential total kg CO2e
PRI12LED/830	25,74	PRI12MU50HOPS/830	29,99	PRI15MU50HOED/830	35,87
PRI12LHOED	25,74	PRI12MU50PS	29,99	PRI15MU50HODPS	36,16
PRI12LHOED/830	25,74	PRI12MU50PS/830	29,99	PRI15MU50HODPS/830	36,16
PRI12LED/940	25,74	PRI15LPS	30,20	PRI15M	33,78
PRI12LHOED/940	25,74	PRI15LPS/830	30,20	PRI15M/830	33,78
PRI12LDPS	26,04	PRI15LU30AAG2	34,65	PRI15MPS	34,09
PRI12LDPS/830	26,04	PRI15LED	30,29	PRI15MPS/830	34,09
PRI12LHODPS	26,04	PRI15LED/830	30,29	PRI15MU30AAG2	38,53
PRI12LHODPS/830	26,04	PRI15LHOED	30,29	PRI15MU30HAAAG2	38,54
PRI12LAAG2	28,88	PRI15LHOED/830	30,29	PRI15MED	34,17
PRI12LAAG2/830	28,88	PRI15LED/940	30,29	PRI15MED/830	34,17
PRI12LED/8TW	27,07	PRI15LASYED	30,30	PRI15MED/940	34,17
PRI12LED/9TW	27,07	PRI15LHO	30,39	PRI15MHOED	34,17
PRI12LHOED/8TW	27,07	PRI15LHO/830	30,39	PRI15MHOED/830	34,17
PRI12LHOED/9TW	27,07	PRI15LDPS	30,58	PRI15MHO	34,28
PRI15LU30ED	31,36	PRI15LDPS/830	30,58	PRI15MHO/830	34,28
PRI15LU30ED/830	31,36	PRI15LHODPS	30,58	PRI15MDPS	34,46
PRI15LU30HOED	31,36	PRI15LHODPS/830	30,58	PRI15MDPS/830	34,46
PRI15LU30HOED/830	31,36	PRI15LHOPS	30,70	PRI15MHODPS	34,46
PRI15LU30ED/940	31,36	PRI15LHOPS/830	30,70	PRI15MHODPS/830	34,46
PRI15LU50ED	31,36	PRI12M	28,41	PRI15MHOPS	34,59
PRI15LU50ED/830	31,36	PRI12M/830	28,41	PRI15MHOPS/830	34,59
PRI15LU30	31,46	PRI12MHO	28,49	PRI15MAAG2	37,24
PRI15LU30/830	31,46	PRI12MHO/830	28,49	PRI15MAAG2/830	37,24
PRI15LU30HO	31,46	PRI12MPS	28,71	PRI15MED/8TW	35,58
PRI15LU30HO/830	31,46	PRI12MPS/830	28,71	PRI15MED/9TW	35,58
PRI15LU50	31,47	PRI12MHOPS	28,80	PRI15MHOED/8TW	35,58
PRI15LU50/830	31,47	PRI12MHOPS/830	28,80	PRI15MHOED/9TW	35,58
PRI15LU30DPS	31,64	PRI15LAAG2	33,36	PRI12LU30HODPSS-S	29,00
PRI15LU30DPS/830	31,64	PRI15LAAG2/830	33,36	PRI12LU30HODPSS-S/830	29,00
PRI15LU30HODPS	31,64	PRI12MED	28,80	PRI12MU50DPS2	35,04
PRI15LU30HODPS/830	31,64	PRI12MED/830	28,80	PRI15MU50DPS2/830	40,30
PRI15LU50DPS	31,65	PRI12MED/940	28,80	PRI15MU50DPS2	40,30
PRI15LU50DPS/830	31,65	PRI12MHOED	28,80	PRI12LU50DPS2	26,73
PRI15LU30HOPS	31,77	PRI12MHOED/830	28,80	PRI12LU50DPS2/830	26,73
PRI15LU30HOPS/830	31,77	PRI12MHOED/940	28,80		

APPENDIX

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The results of the reference flow is given by multiplying the scaling factor with the results based on the declared unit. Which gives the following results for GWP total in A1-A5, B6, C1-C4 and D;

Reference flow, GWP total

A1	A2	A3	A4	A5	B6	C1	C2	C3	C4	D
1,93E+00	2,16E-01	3,78E-01	2,57E-01	6,26E-02	2,03E+01	0,00E+00	9,55E-03	2,92E-02	4,37E-02	4,58E+00

The assigned life time of the luminaire is 100,000 h corresponds to an operational life time depending on the light operation hours in buildings according to IEC PAS 63629, Table 9 – Luminaire annual operating times according to the area of applications and the type of building.

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Residential buildings	3500	29
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Hospitals	5000	20
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Restaurants	2500	40
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Wholesale and retail services	5000	20
Manufacturing factories	4000	25

As stated in the EPD, the B6 calculations are based on a Finnish electricity grid mix on low voltage dataset from Ecoinvent 3.10.1

Furthermore, the calculations does not include any energy saving from using controls. If a light management system is applicable, a reduction factor can be used. The factors to be applied are presented in IEC PAS 63629, Table 5 – Energy saving coefficients according to light management function.

Light management function nomination	Reduction	Coefficient
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Variation or extinction system according to the presence and absence	-25%	0,75
Combination of presence detection function and luminosity function	-45%	0,55
Luminaire capable of communicating with an external Light Management System	-50%	0,50