

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

EPD HUB, HUB-7232
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Milo G2 Galv

Hide-a-lite



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	Hide-a-lite
Address	Tallvägen 5, 564 35, Bankeryd, SE
Contact details	info@elco.se
Website	www.hidealite.se
Place of production	Sweden
Place(s) of raw material origin	China
Place(s) of installation and use	Sverige, Danmark, Norge, Finland
Period for data	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	Design phase EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, B6, and modules C1-C4, D
EPD author	Emma Cunow
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	Milo G2 Galv
Product number / reference	7706893
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	3,77

PRODUCT CLASSIFICATION

Declared operating voltage, Volt	230
Light source color temperature, Kelvin	3000
Protection index for water and dust (IP)	44
Impact resistance index (IK)	-
Luminous flux, Lumen	340
Electrical power, Watt	4,5
Luminous efficiency, Lm/W	75,5

PRODUCT DESCRIPTION

Milo G2 is a dimmable wall light with a timeless design that provides an even and pleasant light distribution on walls and ground surfaces, Perfect for entrances, facades and garages in both private and public environments.
The declared unit is Milo G2 S Galv,galvanized version IP44. The galvanized finish develops a natural patina over time. The back plate is mounted to the wall and the luminaire is easily hung in place afterwards. Spacers for surface-mounted cabling are included. Reflector technology, Ra>90. Replaceable LED and driver for easy maintenance. Dimmable via phase dimming.
All product codes belonging to the homogeneous environmental luminaire range are listed in the scaling table in the annex. Scaling follows mass- and power-based extrapolation rules per PEP-PSR014-ed2.0. The luminaire is designed and manufactured in compliance with EN 60598-1, and the production facility is certified to ISO 9001 and ISO 14001.

ABOUT THE MANUFACTURER

With the brand Hide-a-lite, we create efficient lighting solutions for both private and public environments. In our range, you will find high-quality luminaires that are easy to install, perfect for illuminating everything from industries and residences to hotels, restaurants, offices, and shops. Over the years, we have built extensive experience and knowledge in lighting, knowledge that we gladly share with our customers. Our focus lies on technology, design, and functionality, with a commitment to sustainable development and energy efficiency adapted for the Nordic market.

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit
Declared unit mass, kg	0,6622
Mass of packaging, kg	0,1215
Functional unit	Provide lighting that delivers an outgoing artificial luminous flux of 1,000 lumens during a reference lifetime of 35,000 hours
Reference service life (years)	25
Assigned lifetime (hours)	50000
GWP-total, A1-A3 (kg CO_2e)	8,26
GWP-fossil, A1-A3 (kg CO_2e)	8,36
Secondary material, inputs (%)	26,8

Secondary material, outputs (%)	71,6
Total energy use, A1-A3 (kWh)	30,6
Net freshwater use, A1-A3 (m3)	1,95E-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
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demo.	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling

Modules 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	87,9	China
Minerals	2,91	China
Fossil materials	3,92	China
Bio-based materials	0	
Electronic parts	5,27	china

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	0,048

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 v2.2.7. The LCA and EPD have been prepared according to the reference standards, EN 50693, and ISO 14040/14044. Ecoinvent v3.10.1/3.11 and One Click LCA databases were used as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 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 default values from table G.4 of EN 50693. 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 finished product is packaged with polyethylene, cardboard, and/or paper as packaging material before being sent to customers.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation distances from manufacturing sites to customer locations are based on sales volume-based weighted averages. In the absence of exact data, conservative assumptions are made (A4).
Environmental impacts from installation include waste packaging materials (A5). During installation, there are no product losses, and the impacts of energy consumption and the used ancillary materials are considered negligible.

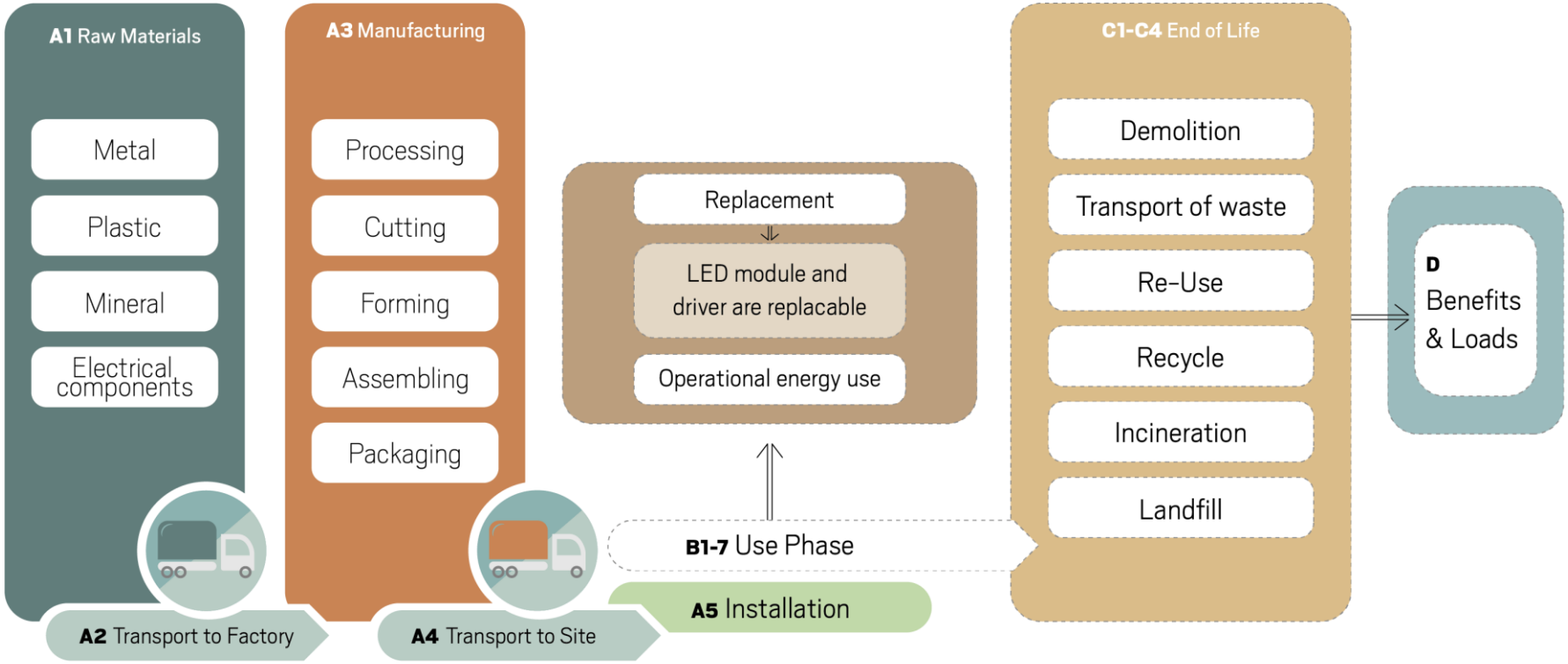
PRODUCT USE AND MAINTENANCE (B1-B7)

During the use phase, the product consumes electricity (B6). As such, this EPD follows additional requirements for products using energy in module B6 of the use stage and permanently installed into building or infrastructure. A market-based approach is used in modelling the electricity mix utilized. 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_2e	7,97E+00	1,56E-02	2,79E-01	8,26E+00	2,00E-01	1,68E-01	ND	ND	ND	ND	ND	8,41E+00	ND	0,00E+00	1,94E-02	3,12E-02	1,12E-02	-6,78E-01
GWP – fossil	kg CO_2e	7,89E+00	1,56E-02	4,51E-01	8,36E+00	2,00E-01	6,69E-03	ND	ND	ND	ND	ND	7,44E+00	ND	0,00E+00	1,94E-02	3,12E-02	1,12E-02	-6,67E-01
GWP – biogenic	kg CO_2e	6,62E-02	3,60E-06	-1,76E-01	-1,10E-01	3,46E-05	1,61E-01	ND	ND	ND	ND	ND	1,35E-01	ND	0,00E+00	4,23E-06	-4,49E-05	-3,76E-06	-1,13E-02
GWP – LULUC	kg CO_2e	1,02E-02	6,97E-06	4,05E-03	1,43E-02	1,04E-04	3,53E-06	ND	ND	ND	ND	ND	8,36E-01	ND	0,00E+00	8,58E-06	2,16E-05	4,11E-06	-2,42E-04
Ozone depletion pot.	kg CFC_{-11}e	1,60E-07	2,27E-10	4,21E-09	1,64E-07	2,89E-09	7,13E-11	ND	ND	ND	ND	ND	2,23E-07	ND	0,00E+00	2,71E-10	1,64E-10	5,67E-11	-3,35E-09
Acidification potential	mol H^+e	5,55E-02	5,35E-05	2,36E-03	5,79E-02	4,63E-03	2,59E-05	ND	ND	ND	ND	ND	9,11E-02	ND	0,00E+00	6,46E-05	1,55E-04	1,91E-05	-1,78E-02
EP-freshwater[2)]	kg Pe	5,60E-03	1,69E-06	1,27E-04	5,73E-03	8,50E-06	1,00E-06	ND	ND	ND	ND	ND	6,58E-03	ND	0,00E+00	1,51E-06	8,33E-06	1,22E-06	-1,04E-03
EP-marine	kg Ne	9,01E-03	1,75E-05	7,15E-04	9,74E-03	1,17E-03	2,37E-05	ND	ND	ND	ND	ND	1,34E-02	ND	0,00E+00	2,09E-05	3,50E-05	1,40E-05	-1,13E-03
EP-terrestrial	mol Ne	9,65E-02	1,89E-04	5,81E-03	1,03E-01	1,29E-02	8,22E-05	ND	ND	ND	ND	ND	1,37E-01	ND	0,00E+00	2,28E-04	3,87E-04	7,72E-05	-1,46E-02
POCP ("smog")[3)]	kg NMVOCe	3,36E-02	7,83E-05	1,66E-03	3,53E-02	3,59E-03	3,29E-05	ND	ND	ND	ND	ND	3,65E-02	ND	0,00E+00	9,00E-05	1,13E-04	2,52E-05	-4,34E-03
ADP-minerals & metals[4)]	kg Sbe	9,00E-04	4,52E-08	1,14E-06	9,01E-04	2,82E-07	3,61E-08	ND	ND	ND	ND	ND	8,94E-04	ND	0,00E+00	6,37E-08	7,57E-07	1,16E-08	-2,44E-04
ADP-fossil resources	MJ	9,36E+01	2,23E-01	5,31E+00	9,91E+01	2,56E+00	7,30E-02	ND	ND	ND	ND	ND	9,95E+02	ND	0,00E+00	2,72E-01	1,94E-01	5,04E-02	-7,13E+00
Water use[5)]	m^3e depr.	8,14E+00	1,29E-03	9,74E-02	8,23E+00	8,62E-03	1,61E-03	ND	ND	ND	ND	ND	5,49E+01	ND	0,00E+00	1,26E-03	4,17E-03	1,01E-03	-1,29E-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, 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	5,39E-07	1,51E-09	3,66E-08	5,77E-07	9,30E-09	4,26E-10	ND	ND	ND	ND	ND	7,58E-07	ND	0,00E+00	1,54E-09	2,04E-09	4,34E-10	-5,36E-08
Ionizing radiation[6)]	kBq U235e	5,99E-01	1,86E-04	4,01E-02	6,40E-01	1,44E-03	2,80E-04	ND	ND	ND	ND	ND	7,14E+01	ND	0,00E+00	2,20E-04	9,72E-04	5,60E-05	-4,64E-02
Ecotoxicity (freshwater)	CTUe	9,76E+01	4,64E-02	1,77E+00	9,95E+01	2,35E-01	5,13E-01	ND	ND	ND	ND	ND	1,25E+02	ND	0,00E+00	4,30E-02	1,27E-01	6,49E-01	-1,76E+01
Human toxicity, cancer	CTUh	6,80E-09	2,46E-12	1,22E-10	6,92E-09	4,01E-11	3,39E-12	ND	ND	ND	ND	ND	1,47E-08	ND	0,00E+00	3,30E-12	1,24E-11	8,57E-12	-2,04E-09
Human tox. non-cancer	CTUh	2,55E-07	1,38E-10	4,13E-09	2,59E-07	9,03E-10	1,84E-10	ND	ND	ND	ND	ND	7,67E-07	ND	0,00E+00	1,70E-10	7,81E-10	3,85E-10	-1,82E-07
SQP[7)]	-	3,46E+01	2,18E-01	9,73E+00	4,45E+01	8,45E-01	4,90E-02	ND	ND	ND	ND	ND	2,34E+02	ND	0,00E+00	1,62E-01	2,92E-01	7,70E-02	-8,68E+00

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	1,11E+01	3,10E-03	2,87E-01	1,14E+01	2,37E-02	-1,97E+00	ND	ND	ND	ND	ND	6,82E+02	ND	0,00E+00	3,73E-03	2,90E-02	1,06E-03	-8,74E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,55E+00	1,55E+00	0,00E+00	-1,55E+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	1,11E+01	3,10E-03	1,84E+00	1,30E+01	2,37E-02	-3,52E+00	ND	ND	ND	ND	ND	6,82E+02	ND	0,00E+00	3,73E-03	2,90E-02	1,06E-03	-8,74E-01
Non-re. PER as energy	MJ	9,34E+01	2,23E-01	5,33E+00	9,89E+01	2,56E+00	7,30E-02	ND	ND	ND	ND	ND	9,95E+02	ND	0,00E+00	2,72E-01	-4,02E-02	-1,84E-01	-7,13E+00
Non-re. PER as material	MJ	2,16E-01	0,00E+00	1,34E-02	2,29E-01	0,00E+00	-1,34E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-1,08E-01	-1,08E-01	0,00E+00
Total use of non-re. PER	MJ	9,36E+01	2,23E-01	5,34E+00	9,91E+01	2,56E+00	5,97E-02	ND	ND	ND	ND	ND	9,95E+02	ND	0,00E+00	2,72E-01	-1,48E-01	-2,92E-01	-7,13E+00
Secondary materials	kg	1,77E-01	0,00E+00	0,00E+00	1,77E-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	1,48E-03	1,22E-06	1,30E-02	1,44E-02	5,69E-06	5,93E-07	ND	ND	ND	ND	ND	8,83E-04	ND	0,00E+00	1,56E-06	9,66E-06	7,80E-07	-7,57E-05
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	1,93E-01	3,18E-05	2,23E-03	1,95E-01	2,29E-04	-1,08E-05	ND	ND	ND	ND	ND	1,31E+00	ND	0,00E+00	3,60E-05	9,43E-05	-4,82E-06	-1,49E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,54E+00	1,43E-03	4,48E-02	1,59E+00	3,64E-03	5,55E-04	ND	ND	ND	ND	ND	1,02E+00	ND	0,00E+00	4,74E-04	1,72E-03	2,25E-02	-2,48E-01
Non-hazardous waste	kg	2,84E+01	2,78E-02	5,60E-01	2,90E+01	5,50E-02	7,80E-02	ND	ND	ND	ND	ND	3,36E+01	ND	0,00E+00	8,89E-03	6,07E-02	2,19E-01	-2,21E+00
Radioactive waste	kg	1,47E-04	4,45E-08	9,77E-06	1,57E-04	3,52E-07	7,11E-08	ND	ND	ND	ND	ND	1,52E-02	ND	0,00E+00	5,39E-08	2,38E-07	1,39E-08	-1,18E-05

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	2,54E-01	2,54E-01	0,00E+00	9,96E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,74E-01	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	0,00E+00	0,00E+00	0,00E+00	5,60E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	7,35E-02	0,00E+00	0,00E+00
Exported energy: Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,36E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	3,10E-02	0,00E+00	0,00E+00
Exported energy: Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,95E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	4,26E-02	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	7,91E+00	1,55E-02	4,65E-01	8,39E+00	1,99E-01	2,22E-02	ND	ND	ND	ND	ND	8,32E+00	ND	0,00E+00	1,93E-02	3,12E-02	1,11E-02	-6,62E-01
Ozone depletion Pot.	kg $CFC_{-11}e$	1,66E-07	1,81E-10	4,44E-09	1,70E-07	2,30E-09	5,82E-11	ND	ND	ND	ND	ND	1,93E-07	ND	0,00E+00	2,17E-10	1,37E-10	4,57E-11	-3,07E-09
Acidification	kg SO_2e	4,63E-02	4,09E-05	1,82E-03	4,81E-02	3,69E-03	2,00E-05	ND	ND	ND	ND	ND	7,62E-02	ND	0,00E+00	4,95E-05	1,25E-04	1,41E-05	-1,56E-02
Eutrophication	kg PO_4^3e	1,09E-02	1,11E-05	5,31E-04	1,14E-02	4,22E-04	1,82E-05	ND	ND	ND	ND	ND	9,47E-03	ND	0,00E+00	1,20E-05	1,83E-05	5,35E-06	-5,42E-04
POCP (“smog”)	kg C_2H_4e	4,92E-03	3,57E-06	1,33E-04	5,06E-03	1,88E-04	5,25E-06	ND	ND	ND	ND	ND	4,12E-03	ND	0,00E+00	4,43E-06	7,34E-06	1,39E-06	-8,11E-04
ADP-elements	kg Sbe	8,99E-04	4,40E-08	1,13E-06	9,00E-04	2,77E-07	3,52E-08	ND	ND	ND	ND	ND	8,94E-04	ND	0,00E+00	6,21E-08	7,54E-07	9,52E-09	-2,44E-04
ADP-fossil	MJ	8,40E+01	2,20E-01	4,62E+00	8,89E+01	2,53E+00	6,82E-02	ND	ND	ND	ND	ND	5,25E+01	ND	0,00E+00	2,68E-01	1,79E-01	4,95E-02	-6,38E+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_2e	7,90E+00	1,56E-02	4,55E-01	8,37E+00	2,00E-01	6,69E-03	ND	ND	ND	ND	ND	8,27E+00	ND	0,00E+00	1,94E-02	3,13E-02	1,12E-02	-6,67E-01

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.

ENVIRONMENTAL IMPACT DATA, RESULTS PER FUNCTIONAL 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-C

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 éq/FU	1,64E+01	3,22E-02	5,74E-01	1,70E+01	4,12E-01	3,46E-01	ND	ND	ND	ND	ND	1,73E+01	ND	0,00E+00	3,99E-02	6,43E-02	2,30E-02	-1,40E+00
GWP – fossil	kg CO_2 éq/FU	1,62E+01	3,22E-02	9,29E-01	1,72E+01	4,12E-01	1,38E-02	ND	ND	ND	ND	ND	1,53E+01	ND	0,00E+00	3,99E-02	6,43E-02	2,30E-02	-1,37E+00
GWP – biogenic	kg CO_2 éq/FU	1,36E-01	7,41E-06	-3,63E-01	-2,27E-01	7,12E-05	3,32E-01	ND	ND	ND	ND	ND	2,78E-01	ND	0,00E+00	8,72E-06	-9,24E-05	-7,74E-06	-2,32E-02
GWP – LULUC	kg CO_2 éq/FU	2,11E-02	1,43E-05	8,33E-03	2,94E-02	2,13E-04	7,26E-06	ND	ND	ND	ND	ND	1,72E+00	ND	0,00E+00	1,77E-05	4,45E-05	8,47E-06	-4,97E-04
Ozone depletion pot.	kg CFC_{11}e/FU	3,28E-07	4,68E-10	8,67E-09	3,38E-07	5,95E-09	1,47E-10	ND	ND	ND	ND	ND	4,58E-07	ND	0,00E+00	5,58E-10	3,37E-10	1,17E-10	-6,89E-09
Acidification potential	mole H^+e/FU	1,14E-01	1,10E-04	4,86E-03	1,19E-01	9,53E-03	5,33E-05	ND	ND	ND	ND	ND	1,88E-01	ND	0,00E+00	1,33E-04	3,19E-04	3,93E-05	-3,67E-02
EP-freshwater[2)]	kg Pe/FU	1,15E-02	3,49E-06	2,62E-04	1,18E-02	1,75E-05	2,06E-06	ND	ND	ND	ND	ND	1,36E-02	ND	0,00E+00	3,10E-06	1,72E-05	2,50E-06	-2,14E-03
EP-marine	kg Ne/FU	1,85E-02	3,61E-05	1,47E-03	2,01E-02	2,40E-03	4,89E-05	ND	ND	ND	ND	ND	2,76E-02	ND	0,00E+00	4,31E-05	7,20E-05	2,89E-05	-2,32E-03
EP-terrestrial	mol Ne/FU	1,99E-01	3,90E-04	1,20E-02	2,11E-01	2,66E-02	1,69E-04	ND	ND	ND	ND	ND	2,82E-01	ND	0,00E+00	4,69E-04	7,96E-04	1,59E-04	-3,00E-02
POCP ("smog")[3)]	kg NMVOCe/	6,91E-02	1,61E-04	3,41E-03	7,27E-02	7,38E-03	6,78E-05	ND	ND	ND	ND	ND	7,52E-02	ND	0,00E+00	1,85E-04	2,33E-04	5,19E-05	-8,94E-03
ADP-minerals & metals[4)]	kg Sbe/FU	1,85E-03	9,30E-08	2,35E-06	1,85E-03	5,80E-07	7,42E-08	ND	ND	ND	ND	ND	1,84E-03	ND	0,00E+00	1,31E-07	1,56E-06	2,39E-08	-5,03E-04
ADP-fossil resources	MJ/FU	1,93E+02	4,58E-01	1,09E+01	2,04E+02	5,26E+00	1,50E-01	ND	ND	ND	ND	ND	2,05E+03	ND	0,00E+00	5,60E-01	4,00E-01	1,04E-01	-1,47E+01
Water use[5)]	m^3e priv. /FU	1,67E+01	2,66E-03	2,01E-01	1,70E+01	1,78E-02	3,32E-03	ND	ND	ND	ND	ND	1,13E+02	ND	0,00E+00	2,60E-03	8,58E-03	2,09E-03	-2,66E-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, 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 /FU	1,11E-06	3,11E-09	7,53E-08	1,19E-06	1,91E-08	8,77E-10	ND	ND	ND	ND	ND	1,56E-06	ND	0,00E+00	3,17E-09	4,21E-09	8,94E-10	-1,10E-07
Ionizing radiation[6)]	kBq U235e/FU	1,23E+00	3,83E-04	8,27E-02	1,32E+00	2,97E-03	5,77E-04	ND	ND	ND	ND	ND	1,47E+02	ND	0,00E+00	4,53E-04	2,00E-03	1,15E-04	-9,56E-02
Ecotoxicity (freshwater)	CTUe/FU	2,01E+02	9,56E-02	3,65E+00	2,05E+02	4,85E-01	1,06E+00	ND	ND	ND	ND	ND	2,56E+02	ND	0,00E+00	8,85E-02	2,62E-01	1,34E+00	-3,63E+01
Human toxicity, cancer	CTUh/FU	1,40E-08	5,06E-12	2,51E-10	1,43E-08	8,27E-11	6,98E-12	ND	ND	ND	ND	ND	3,02E-08	ND	0,00E+00	6,79E-12	2,55E-11	1,76E-11	-4,20E-09
Human tox. non-cancer	CTUh/FU	5,25E-07	2,85E-10	8,50E-09	5,34E-07	1,86E-09	3,78E-10	ND	ND	ND	ND	ND	1,58E-06	ND	0,00E+00	3,50E-10	1,61E-09	7,92E-10	-3,75E-07
SQP[7)]	-/FU	7,12E+01	4,49E-01	2,00E+01	9,17E+01	1,74E+00	1,01E-01	ND	ND	ND	ND	ND	4,83E+02	ND	0,00E+00	3,34E-01	6,02E-01	1,58E-01	-1,79E+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/FU	2,29E+01	6,38E-03	5,91E-01	2,35E+01	4,89E-02	-4,06E+00	ND	ND	ND	ND	ND	1,41E+03	ND	0,00E+00	7,68E-03	5,96E-02	2,18E-03	-1,80E+00
Renew. PER as material	MJ/FU	0,00E+00	0,00E+00	3,20E+00	3,20E+00	0,00E+00	-3,20E+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/FU	2,29E+01	6,38E-03	3,79E+00	2,67E+01	4,89E-02	-7,26E+00	ND	ND	ND	ND	ND	1,41E+03	ND	0,00E+00	7,68E-03	5,96E-02	2,18E-03	-1,80E+00
Non-re. PER as energy	MJ/FU	1,92E+02	4,58E-01	1,10E+01	2,04E+02	5,26E+00	1,50E-01	ND	ND	ND	ND	ND	2,05E+03	ND	0,00E+00	5,60E-01	-8,28E-02	-3,80E-01	-1,47E+01
Non-re. PER as material	MJ/FU	4,44E-01	0,00E+00	2,75E-02	4,72E-01	0,00E+00	-2,75E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	-2,22E-01	-2,22E-01	0,00E+00
Total use of non-re. PER	MJ/FU	1,93E+02	4,58E-01	1,10E+01	2,04E+02	5,26E+00	1,23E-01	ND	ND	ND	ND	ND	2,05E+03	ND	0,00E+00	5,60E-01	-3,05E-01	-6,02E-01	-1,47E+01
Secondary materials	kg/FU	3,65E-01	0,00E+00	0,00E+00	3,65E-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/FU	3,06E-03	2,51E-06	2,67E-02	2,97E-02	1,17E-05	1,22E-06	ND	ND	ND	ND	ND	1,82E-03	ND	0,00E+00	3,20E-06	1,99E-05	1,61E-06	-1,56E-04
Non-ren. secondary fuels	MJ/FU	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/FU	3,97E-01	6,55E-05	4,59E-03	4,02E-01	4,72E-04	-2,22E-05	ND	ND	ND	ND	ND	2,69E+00	ND	0,00E+00	7,42E-05	1,94E-04	-9,93E-06	-3,07E-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/FU	3,18E+00	2,95E-03	9,22E-02	3,27E+00	7,49E-03	1,14E-03	ND	ND	ND	ND	ND	2,09E+00	ND	0,00E+00	9,76E-04	3,53E-03	4,64E-02	-5,11E-01
Non-hazardous waste	kg/FU	5,85E+01	5,72E-02	1,15E+00	5,97E+01	1,13E-01	1,61E-01	ND	ND	ND	ND	ND	6,92E+01	ND	0,00E+00	1,83E-02	1,25E-01	4,52E-01	-4,56E+00
Radioactive waste	kg/FU	3,03E-04	9,17E-08	2,01E-05	3,24E-04	7,25E-07	1,46E-07	ND	ND	ND	ND	ND	3,14E-02	ND	0,00E+00	1,11E-07	4,91E-07	2,85E-08	-2,43E-05

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/FU	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/FU	0,00E+00	0,00E+00	5,23E-01	5,23E-01	0,00E+00	2,05E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	9,76E-01	0,00E+00	0,00E+00
Materials for energy rec	kg/FU	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/FU	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,15E-01	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	1,51E-01	0,00E+00	0,00E+00
Exported energy: Electricity	MJ/FU	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,86E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,37E-02	0,00E+00	0,00E+00
Exported energy: Heat	MJ/FU	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,08E-02	ND	ND	ND	ND	ND	0,00E+00	ND	0,00E+00	0,00E+00	8,76E-02	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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 éq./FU	1,63E+01	3,20E-02	9,58E-01	1,73E+01	4,10E-01	4,57E-02	ND	ND	ND	ND	ND	1,71E+01	ND	0,00E+00	3,97E-02	6,42E-02	2,29E-02	-1,36E+00
Ozone depletion Pot.	kg CFC_{11}e/FU	3,41E-07	3,73E-10	9,14E-09	3,51E-07	4,73E-09	1,20E-10	ND	ND	ND	ND	ND	3,97E-07	ND	0,00E+00	4,46E-10	2,81E-10	9,41E-11	-6,33E-09
Acidification	kg SO_2e/FU	9,53E-02	8,42E-05	3,75E-03	9,91E-02	7,60E-03	4,11E-05	ND	ND	ND	ND	ND	1,57E-01	ND	0,00E+00	1,02E-04	2,56E-04	2,91E-05	-3,22E-02
Eutrophication	kg PO_4^3e/FU	2,24E-02	2,28E-05	1,09E-03	2,35E-02	8,69E-04	3,74E-05	ND	ND	ND	ND	ND	1,95E-02	ND	0,00E+00	2,48E-05	3,76E-05	1,10E-05	-1,12E-03
POCP (“smog”)	kg C_2H_4e/FU	1,01E-02	7,35E-06	2,73E-04	1,04E-02	3,87E-04	1,08E-05	ND	ND	ND	ND	ND	8,49E-03	ND	0,00E+00	9,13E-06	1,51E-05	2,87E-06	-1,67E-03
ADP-elements	kg Sbe/FU	1,85E-03	9,06E-08	2,32E-06	1,85E-03	5,70E-07	7,25E-08	ND	ND	ND	ND	ND	1,84E-03	ND	0,00E+00	1,28E-07	1,55E-06	1,96E-08	-5,02E-04
ADP-fossil	MJ/FU	1,73E+02	4,52E-01	9,52E+00	1,83E+02	5,22E+00	1,41E-01	ND	ND	ND	ND	ND	1,08E+02	ND	0,00E+00	5,53E-01	3,68E-01	1,02E-01	-1,31E+01

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_2e/FU	1,63E+01	3,22E-02	9,37E-01	1,72E+01	4,12E-01	1,38E-02	ND	ND	ND	ND	ND	1,70E+01	ND	0,00E+00	3,99E-02	6,44E-02	2,30E-02	-1,37E+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, electricity transformation and distribution, distribution of medium, Market for electricity, medium voltage, eastChinaGrid, ecoinvent 3.10.1, 0.86 kgCO2e/kWh

Transport scenario documentation - A4

1. Transport, freight, sea, container ship, 18932.0 km
2. Transport, freight, lorry >32 metric ton, EURO5, 570.0 km

Installation scenario documentation - A5 (Waste materials data source)

1. Corrugated board box production, 0.1181 kg
2. Paper production, newsprint, recycled, 0.0034 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, Sweden, 225.0 kWh

TRANSPORT SCENARIO DOCUMENTATION - A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50 %
Bulk density of transported products / kg/m³	572
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1

INSTALLATION SCENARIO DOCUMENTATION - A5

Scenario parameter	Value	
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)	Paper/Cardboard packaging	
	Recycling	82%
	Energy recovery	9%
	Disposal	9%
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0	
Water use / m³	0	
Other resource use / kg	0	
Direct emissions to ambient air, soil and water / kg	0	

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 / m³	0
Power output of equipment / W	4,5
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc. / Units as appropriate	N/A
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants / Units as appropriate	N/A

END OF LIFE SCENARIO DOCUMENTATION

Scenario information	Value
Collection process – kg collected separately	0,6622
Collection process – kg collected with mixed construction waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0,47
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	0,18
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

ANNEX : Scaling table with coefficients for Milo G2 Galv

This section apply the Rule(s) for extrapolation to a homogeneous environmental family" of the current PCR (PSR-0014-ED2.0-EN-2023 07 13) of the Product Environmental Profiles (PEP).

Note:The extrapolation coefficients are intended at product level(declared unit)and not at functional unit

According Extrapolation rules applied to fabrication stage (A1-A3),distribution stage(A4),Installation stage(A5),Use stage(B6),End of Life stage(C1-C4) and net benefits beyond the system boundaries stage (D).

Table A1 Scaled GWP per scaling factor

Product name	E-number	Wattage	CCT	CRI	Lumen	corresponding factor A1-A3	GWP A1-A3-total kg CO2e	corresponding factor A4	GWP A4-total kg CO2e	corresponding factor A5	GWP A5-total kg CO2e	corresponding factor B6	GWP B6-total kg CO2e	corresponding factor Module C	GWP Module C-total kg CO2e	corresponding factor Module D	GWP Module D-total kg CO2e
Milo G2 S Galv	7706893	4.5W	3000K	90	340LM	1.000	8.260	1.000	0.200	1.000	0.168	1.000	8.410	1.000	0.062	1.000	-0.678
Milo G2 M I Galv	7706896	6W	3000K/4000K	90	500LM	1.547	12.782	1.536	0.307	1.832	0.308	1.333	11.213	1.483	0.092	1.547	-1.049
Milo G2 M I GU10 Galv	7706899	/	/	/	/	1.583	13.076	1.499	0.300	1.660	0.279	/	/	1.567	0.097	1.583	-1.073
Milo G2 M II Galv	7706902	10W	3000K/4000K	90	1000LM	1.942	16.037	1.935	0.387	2.135	0.359	2.222	18.689	1.902	0.118	1.942	-1.316
Milo G2 M II GU10 Galv	7706905	/	/	/	/	1.936	15.988	1.829	0.366	2.127	0.357	/	/	1.894	0.117	1.936	-1.312