ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Heat shrink tube medium wall without glue
Melbye As

EPD HUB, HUB-6995
Published on 20.07.2026, last updated on 20.07.2026, valid until 19.07.2031

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.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Melbye As
Address	Prost Stabels Vei 22, 2019 Skedsmokorset, Norway
Contact details	kontakt@melbye.no
Website	https://melbye.no

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	Manufactured product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A5, and modules C1-C4, D
EPD author	Aditya Dharmendra Nishad
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Afzal khan Peerukhan as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. 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.

PRODUCT

Product name	Heat shrink tube medium wall without glue
Additional labels	-
Product reference	-
Place(s) of raw material origin	China
Place of production	Baolong High-tech Park, Longgang, Shenzhen, China
Place(s) of installation and use	Global
Period for data	1st January 2024 - 31st December 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	0%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	57.9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0.10294 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	5.34
GWP-total, A1-A3 ($kgCO_2e$)	5.12
Secondary material, inputs (%)	0.98
Total energy use, A1-A3 (kWh)	20.3
Net freshwater use, A1-A3 (m^3)	0.02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Melbye As is one of Norway's oldest family-owned companies, with a history dating all the way back to 1907. We have a proud tradition of technical innovation and trade, and today, we are a leading provider of forward-thinking products and system solutions for critical infrastructure. We have expertise in transmission and utilities, fiber, ducts and chambers and safety. We serve customers throughout the Nordic region and the United Kingdom, engage with stakeholders across Europe, and collaborate with around 200 partners and suppliers.
While our headquarters are located just outside Oslo, Norway, we also have offices at multiple locations in Norway, Sweden, and the United Kingdom, as well as representatives in Finland, India and China. Together, we are more than 120 co-workers who share the company's core values: Innovation, teamwork, and professionalism.
With advanced expertise spread across our core areas and a dedication to long-term operation and future-oriented development, we stand at the forefront of addressing future challenges. We take pride in contributing to the development of critical infrastructure that will shape tomorrow's society.
Note: Melbye As is a distributor and not the original manufacturer of the product

PRODUCT DESCRIPTION

The heat shrink tubing product group is manufactured from polymer-based materials, primarily consisting of polyolefin compounds, and is designed to provide electrical insulation and mechanical protection in low-voltage (≤1 kV) cable applications. The EPD is relevant for medium-walled, non-adhesive heat shrink tubing variants with different diameters and lengths, including products not directly modelled in the LCA but manufactured using the same materials and production technology.
The products provide electrical insulation, mechanical protection, abrasion resistance, and UV resistance under standard operating conditions. The representative product group is characterized by a medium-walled polyolefin construction, an approximate shrink ratio of 4:1.
Typical characteristics of the product group:
Material: polyolefin-based (without adhesive layer)
Wall type: medium walled
Shrink ratio: ~4:1.
The products within the group share similar material composition, manufacturing process, and intended application. The main differences among the variants are dimensions, and mass per unit length, which influence raw material consumption and result in variations in environmental impacts across the product group.
The EPD covers the entire range of heat shrink tube medium wall without glue.

Further information can be found on:
https://melbye.no

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100	China
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product’s biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.024545.

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

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

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

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

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

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

A market-based approach is used in modelling the electricity mix utilized in the factory.
The manufacturing of heat shrink tubing involves extrusion of polyolefin-based material followed by cross-linking and expansion to achieve the required shrink characteristics. The material composition is primarily based on polyethylene, with small amounts of additives such as stabilizers, fillers, and pigments to ensure required performance properties.
The extruded tubing is subsequently processed into final product forms, including cutting to specified lengths or winding onto spools, followed by inspection and packaging. Manufacturing waste generation is approximately 1%, arising from start-up losses, trimming, and rejected material; internal scrap is not reprocessed and is end as a scrap, an average transport distance of approximately 50 km by road transport was assumed for logistics.
Packaging materials consist mainly of cardboard boxes, plastic bags, and spool components where applicable. Generated waste is treated according to standard practice, with recyclable fractions sent for recycling and remaining waste sent to energy recovery or landfill.

INSTALLATION (A5)

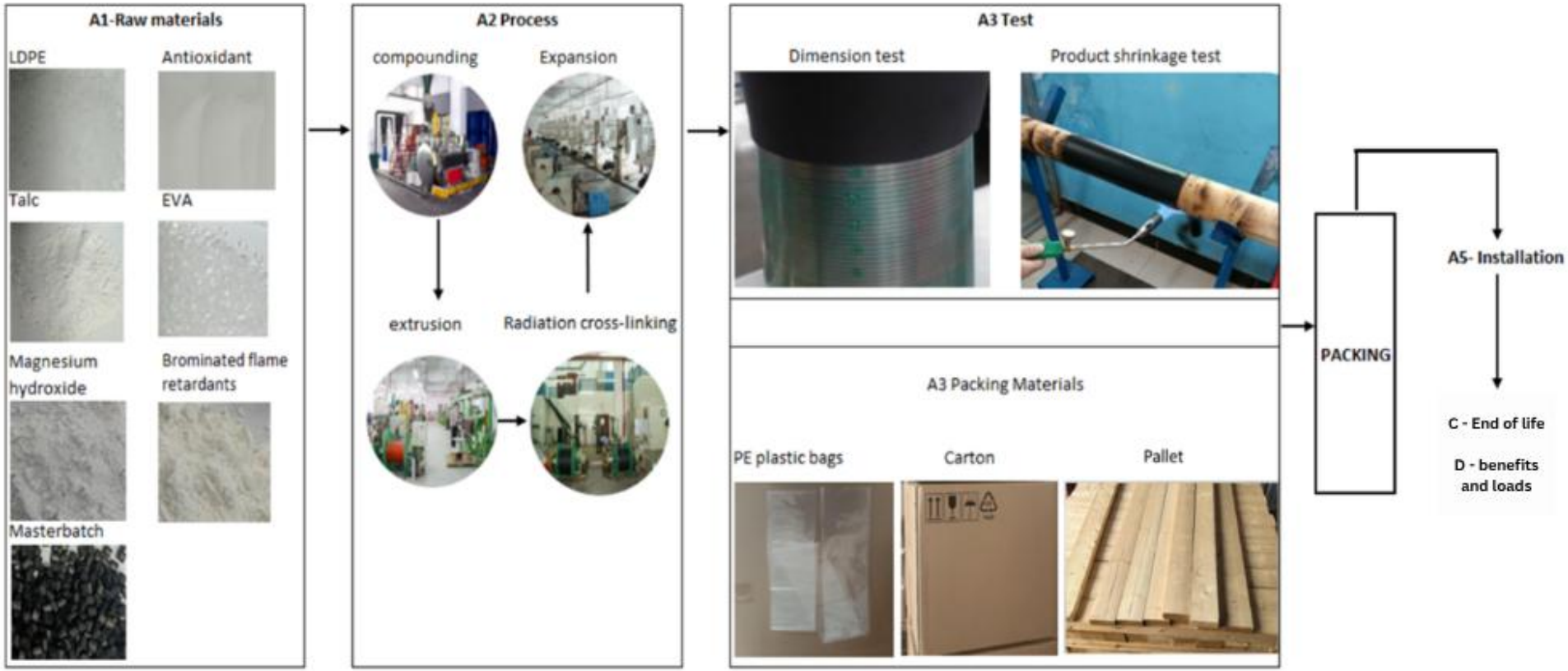
Material Loss: Minor material loss may occur during installation due to cutting tubing to required lengths and occasional misapplication; however, losses are typically low and estimated at approximately 1% or less.
Additional Materials: No additional materials such as adhesives or consumables are required, as the tubing is supplied without adhesive lining and functions independently.
Installation Method: Installation is carried out by positioning the tubing over the component and applying heat (e.g., heat gun) to achieve shrinkage. A small amount of energy is required for heating; however, this is considered negligible and is typically excluded or estimated using standard assumptions where required.
Packaging waste from heat shrink tubing products consists mainly of cardboard boxes, plastic bags, and wooden pallets. Cardboard, plastic and Wooden pallets packaging is treated as per the standards with some quality is recycled and rest is sent to energy recovery or landfill according to standard waste treatment practices.
Packaging waste generated during installation (A5) is assumed to be transported by truck to local waste treatment or recycling facilities over an average distance of approximately 50 km.

PRODUCT END OF LIFE (C1-C4, D)

End-of-Life (C1–C4)
At end of life, heat shrink tubing is typically removed manually from the electrical installation (C1), with negligible energy use; where required, a standard assumption of 0.01 kWh/kg may be applied. After removal, the material is transported to waste treatment facilities (C2), with assumed distances of 250 km to recycling facilities and 50 km to landfill using 16–32 t EURO 6 lorries.
In the waste processing stage (C3), the product is treated as plastic waste. Due to its cross-linked structure, material recycling is limited; therefore, the end-of-life scenario assumes approximately 24% recycling, 49% incineration with energy recovery, and the remainder landfilled, in line with typical European plastic waste treatment practices. Energy recovery from incineration contributes to electricity and/or heat generation.
Packaging waste generated during installation and end-of-life activities is assumed to be separately collected and treated according to standard European waste management practices. Cardboard packaging waste is assumed to undergo 83% recycling, 8% incineration with energy recovery, and 9% landfill disposal. Wood packaging waste is assumed to undergo 30% recycling, 32% incineration with energy recovery, and 38% landfill disposal. Plastic packaging waste is assumed to undergo 40% recycling, 37% incineration with energy recovery, and the remaining fraction disposed of via landfill.
D – Benefits and Loads Beyond the System Boundary

Module D includes loads and benefits beyond the system boundary associated with energy recovery and material recycling. Benefits arise primarily from the substitution of average European energy production due to incineration of plastic material, and to a limited extent from recycled polymer substitution where applicable. All treatment-related burdens are included to avoid double counting. Substituted processes are modelled using European average datasets consistent with the background database applied in the LCA model, in accordance with EN 15804 and EPD programme requirements.

LIFE CYCLE FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

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

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

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	Physical Properties
Packaging material	Physical Properties
Ancillary materials	Physical Properties
Manufacturing energy and waste	Physical Properties

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	0%

AVERAGING ASSUMPTION

The average EPD covers a range of medium-walled heat shrink tube products without glue. Since the declared unit is 1 kg of product, differences in individual product dimensions and weight were normalized. The representativeness of the average product was assessed based on the material composition per declared unit and the corresponding environmental impact results. The comparison between the included

product variants showed no variation in GWP-fossil results for modules A1–A3, with both the minimum and maximum variation being 0% compared to the representative product. Therefore, the selected average is considered representative of the heat shrink tube product range covered by this EPD.

Product range covered:

Heat shrink tubes medium-walled type without glue, 2–160 mm.

SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases 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'.

EN 15804 + A2:2019 – Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EPD Hub General Programme Instructions (GPI), (2023)

EPD Hub Product Category Rules (PCR): Electrification Components and Systems, Version 1.0 (2023)

Ecoinvent v3.9 (2023) – Life Cycle Inventory database used for background data.

ISO 14040:2006 – Environmental management – Life cycle assessment – Principles and framework.

ISO 14044:2006 – Environmental management – Life cycle assessment – Requirements and guidelines.

Manufacturer primary data (2023) – Material composition, energy consumption, packaging, transport distances, and waste treatment provided by the manufacturer.

Eurostat (2023) – Recycling and waste management statistics for Norway and Sweden used for end-of-life assumptions.

European Commission JRC (2021) – Electricity and heat mix data for substitution modelling.

ENVIRONMENTAL IMPACT DATA

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	1.91E+00	4.57E-03	3.21E+00	5.12E+00	ND	1.19E-01	ND	ND	ND	ND	ND	ND	ND	3.61E-03	0.00E+00	0.00E+00	2.00E-01	-1.06E-01
GWP – fossil	kg CO_2e	2.11E+00	4.57E-03	3.22E+00	5.34E+00	ND	1.02E-01	ND	ND	ND	ND	ND	ND	ND	3.60E-03	0.00E+00	0.00E+00	2.00E-01	-1.06E-01
GWP – biogenic	kg CO_2e	-2.00E-01	1.04E-06	-1.77E-02	-2.18E-01	ND	1.66E-02	ND	ND	ND	ND	ND	ND	ND	3.68E-07	0.00E+00	0.00E+00	7.96E-07	6.24E-04
GWP – LULUC	kg CO_2e	1.41E-03	2.04E-06	9.00E-04	2.31E-03	ND	4.32E-06	ND	ND	ND	ND	ND	ND	ND	3.69E-07	0.00E+00	0.00E+00	4.94E-07	-8.69E-05
Ozone depletion pot.	kg CFC_{-11}e	1.31E-07	6.65E-11	5.00E-09	1.36E-07	ND	1.10E-10	ND	ND	ND	ND	ND	ND	ND	5.52E-11	0.00E+00	0.00E+00	7.53E-11	-3.71E-09
Acidification potential	mol H^+e	6.37E-03	1.59E-05	3.25E-03	9.64E-03	ND	5.93E-05	ND	ND	ND	ND	ND	ND	ND	3.25E-05	0.00E+00	0.00E+00	4.44E-05	-4.39E-04
EP-freshwater[2)]	kg Pe	4.88E-04	4.84E-07	1.82E-03	2.31E-03	ND	1.01E-06	ND	ND	ND	ND	ND	ND	ND	1.04E-07	0.00E+00	0.00E+00	1.57E-07	-3.34E-05
EP-marine	kg Ne	1.51E-03	5.24E-06	1.07E-03	2.58E-03	ND	3.67E-05	ND	ND	ND	ND	ND	ND	ND	1.51E-05	0.00E+00	0.00E+00	2.51E-04	-7.32E-05
EP-terrestrial	mol Ne	1.46E-02	5.67E-05	7.98E-03	2.27E-02	ND	2.75E-04	ND	ND	ND	ND	ND	ND	ND	1.65E-04	0.00E+00	0.00E+00	2.23E-04	-7.57E-04
POCP ("smog")[3)]	kg NMVOCe	1.32E-02	2.33E-05	2.25E-03	1.55E-02	ND	8.19E-05	ND	ND	ND	ND	ND	ND	ND	4.93E-05	0.00E+00	0.00E+00	1.29E-04	-5.00E-04
ADP-minerals & metals[4)]	kg Sbe	1.15E-05	1.31E-08	3.03E-07	1.18E-05	ND	3.06E-08	ND	ND	ND	ND	ND	ND	ND	1.29E-09	0.00E+00	0.00E+00	1.78E-09	-6.23E-07
ADP-fossil resources	MJ	6.71E+01	6.53E-02	3.05E+01	9.77E+01	ND	9.44E-02	ND	ND	ND	ND	ND	ND	ND	4.72E-02	0.00E+00	0.00E+00	6.33E-02	-2.84E+00
Water use[5)]	m^3e depr.	2.39E+00	3.76E-04	8.67E-02	2.47E+00	ND	3.21E-03	ND	ND	ND	ND	ND	ND	ND	1.18E-04	0.00E+00	0.00E+00	1.59E-04	-2.88E-02

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	4.71E-08	4.48E-10	3.01E-08	7.76E-08	ND	1.24E-09	ND	ND	ND	ND	ND	ND	ND	9.25E-10	0.00E+00	0.00E+00	1.25E-09	-3.44E-09
Ionizing radiation[6)]	kBq U235e	3.69E-01	5.49E-05	7.86E-03	3.77E-01	ND	2.35E-04	ND	ND	ND	ND	ND	ND	ND	2.09E-05	0.00E+00	0.00E+00	2.66E-05	-1.50E-02
Ecotoxicity (freshwater)	CTUe	8.37E+00	1.32E-02	1.38E+00	9.76E+00	ND	7.13E-02	ND	ND	ND	ND	ND	ND	ND	2.60E-03	0.00E+00	0.00E+00	1.14E-01	-2.23E-01
Human toxicity, cancer	CTUh	4.50E-10	7.21E-13	8.33E-11	5.34E-10	ND	6.26E-12	ND	ND	ND	ND	ND	ND	ND	3.71E-13	0.00E+00	0.00E+00	8.64E-13	-2.07E-11
Human tox. non-cancer	CTUh	1.42E-08	4.07E-11	3.32E-09	1.75E-08	ND	2.35E-10	ND	ND	ND	ND	ND	ND	ND	5.87E-12	0.00E+00	0.00E+00	4.21E-10	-8.35E-10
SQP[7)]	-	4.96E+00	6.52E-02	2.76E+00	7.78E+00	ND	5.76E-02	ND	ND	ND	ND	ND	ND	ND	3.30E-03	0.00E+00	0.00E+00	5.11E-01	-3.75E-01

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

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	7.46E+00	9.07E-04	5.09E+00	1.26E+01	ND	-3.78E-01	ND	ND	ND	ND	ND	ND	ND	2.99E-04	0.00E+00	0.00E+00	3.98E-04	-1.65E-01
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.20E-01	3.20E-01	ND	-3.20E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.00E-03
Total use of renew. PER	MJ	7.46E+00	9.07E-04	5.42E+00	1.29E+01	ND	-6.99E-01	ND	ND	ND	ND	ND	ND	ND	2.99E-04	0.00E+00	0.00E+00	3.98E-04	-1.58E-01
Non-re. PER as energy	MJ	3.01E+01	6.53E-02	3.02E+01	6.04E+01	ND	-3.06E+00	ND	ND	ND	ND	ND	ND	ND	4.72E-02	0.00E+00	0.00E+00	-3.89E+01	-2.84E+00
Non-re. PER as material	MJ	3.65E+01	0.00E+00	-3.58E-01	3.61E+01	ND	-3.42E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	-3.61E+01	1.33E+00
Total use of non-re. PER	MJ	6.66E+01	6.53E-02	2.98E+01	9.65E+01	ND	-3.07E+00	ND	ND	ND	ND	ND	ND	ND	4.72E-02	0.00E+00	0.00E+00	-7.50E+01	-1.51E+00
Secondary materials	kg	9.78E-03	2.74E-05	2.24E-02	3.22E-02	ND	1.56E-04	ND	ND	ND	ND	ND	ND	ND	1.96E-05	0.00E+00	0.00E+00	2.64E-05	3.24E-02
Renew. secondary fuels	MJ	5.57E-05	3.56E-07	5.15E-03	5.21E-03	ND	1.11E-06	ND	ND	ND	ND	ND	ND	ND	5.12E-08	0.00E+00	0.00E+00	6.90E-08	-2.83E-06
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	1.85E-02	9.39E-06	1.78E-03	2.03E-02	ND	-3.85E-05	ND	ND	ND	ND	ND	ND	ND	3.12E-06	0.00E+00	0.00E+00	3.81E-06	-9.01E-04

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	3.58E-01	3.93E-04	3.97E-01	7.56E-01	ND	1.27E-03	ND	ND	ND	ND	ND	ND	ND	5.25E-05	0.00E+00	0.00E+00	2.06E-04	-5.12E-03
Non-hazardous waste	kg	3.12E+01	7.75E-03	1.78E+01	4.90E+01	ND	1.46E-01	ND	ND	ND	ND	ND	ND	ND	7.15E-04	0.00E+00	0.00E+00	1.00E+00	-7.52E-01
Radioactive waste	kg	5.49E-05	1.32E-08	5.03E-05	1.05E-04	ND	5.96E-08	ND	ND	ND	ND	ND	ND	ND	5.12E-09	0.00E+00	0.00E+00	6.25E-09	-3.84E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	ND	ND	ND	ND	ND	ND	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	0.00E+00	0.00E+00	ND	5.10E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	0.00E+00	ND	ND	ND	ND	ND	ND	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	ND	4.78E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	2.01E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	2.77E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	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	2.09E+00	4.55E-03	3.23E+00	5.32E+00	ND	1.05E-01	ND	ND	ND	ND	ND	ND	ND	3.59E-03	0.00E+00	0.00E+00	1.89E-01	-1.04E-01
Ozone depletion Pot.	kg $CFC_{-11}e$	1.03E-07	5.31E-11	5.88E-09	1.09E-07	ND	8.89E-11	ND	ND	ND	ND	ND	ND	ND	4.37E-11	0.00E+00	0.00E+00	5.98E-11	-3.02E-09
Acidification	kg SO_2e	5.20E-03	1.21E-05	2.62E-03	7.83E-03	ND	4.26E-05	ND	ND	ND	ND	ND	ND	ND	2.29E-05	0.00E+00	0.00E+00	3.14E-05	-3.68E-04
Eutrophication	kg $PO_4^{3}e$	2.80E-03	3.25E-06	6.50E-04	3.45E-03	ND	1.45E-05	ND	ND	ND	ND	ND	ND	ND	5.34E-06	0.00E+00	0.00E+00	2.00E-05	-1.28E-04
POCP (“smog”)	kg C_2H_4e	1.44E-03	1.06E-06	1.33E-04	1.58E-03	ND	4.19E-06	ND	ND	ND	ND	ND	ND	ND	1.71E-06	0.00E+00	0.00E+00	3.89E-05	-3.83E-05
ADP-elements	kg Sbe	1.12E-05	1.27E-08	2.99E-07	1.15E-05	ND	2.97E-08	ND	ND	ND	ND	ND	ND	ND	1.26E-09	0.00E+00	0.00E+00	1.73E-09	-6.16E-07

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	6.33E+01	6.45E-02	2.77E+01	9.11E+01	ND	9.04E-02	ND	ND	ND	ND	ND	ND	ND	4.68E-02	0.00E+00	0.00E+00	6.29E-02	-2.57E+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	2.11E+00	4.57E-03	3.22E+00	5.34E+00	ND	1.02E-01	ND	ND	ND	ND	ND	ND	ND	3.61E-03	0.00E+00	0.00E+00	2.00E-01	-1.06E-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 characterisation factor for biogenic CO2 is set to zero

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity China, China, Ecoinvent, 0.19 kgCO2e/MJ

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	
Water use (m^3)	--
Ancillary materials: type and mass (kg)	Transport to Waste Facility: The average distance to the recycling or disposal facility is assumed to be 50 km, carried out by a lorry (>32 metric tons, EURO 5 standard).
Waste materials: type and mass (kg)	-
Waste materials: output routes	Packaging waste from heat shrink tubing products consists mainly of cardboard boxes, plastic bags, and wooden pallets. Cardboard, plastic and Wooden pallets packaging is treated as per the standards with some quatity is recylcled and rest is sent to energy recovery or landfill according to standard waste treatment practices. Packaging waste generated during installation (A5) is assumed to be transported by truck to local waste treatment or recycling facilities over an average distance of approximately 50 km.
Direct emissions (kg)	-

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	-
Collection process: Mixed waste (kg)	-
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0
Recovery: energy recovery (kg)	0
Disposal (kg)	1
Scenario assumptions e.g. transportation (mode, km) & other	

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.

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: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Afzal khan Peerukhan as an authorized verifier for EPD Hub Limited 20.07.2026