



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Heat shrink products
Melbye AS



EPD HUB, HUB-7087

Published on 30.08.2026, last updated on 30.08.2026, valid until 29.08.2031

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

M E L
B Y
E

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	Construction 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 authorized verifier acting for EPD HUB Limited

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 products
Additional labels	-
Product reference	-
Place(s) of raw material origin	India
Place of production	Sardana Nagar, Jagadhari, 135003 Haryana, India
Place(s) of installation and use	Global
Period for data	January 2024 - 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 (%)	38.5

ENVIRONMENTAL DATA SUMMARY

Declared unit	1kg
Declared unit mass	1 kg
Mass of packaging	0.2702 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	6.42
GWP-total, A1-A3 (kgCO ₂ e)	6.33
Secondary material, inputs (%)	1.39
Total energy use, A1-A3 (kWh)	25.3
Net freshwater use, A1-A3 (m ³)	0.07

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

This average EPD covers heat shrink end caps and heat shrink breakouts (2-way, 3-way and 4-way) intended for low-voltage cable sealing and cable branching applications. The end caps are moulded heat shrink components designed to seal and protect cable ends, while the breakouts provide insulation and environmental sealing at cable branch points. The products are manufactured from cross-linked polyolefin (XLPO) with an inner glue lining that creates a moisture-resistant seal when heated. They are halogen-free, UV-resistant, and suitable for outdoor as well as indoor applications.

The breakout products covered by this EPD are intended for low-voltage applications up to 1 kV, including the 3-way breakout variant. The description is based on the representative product datasheets for the end caps and 2-way/4-way breakouts.

Key features:

Suitable for sealing cable ends and insulating cable branch points in low-voltage cable systems (up to 1 kV).

Cross-linked polyolefin (XLPO) construction with inner glue, offering reliable environmental sealing and protection against moisture and weathering.

The EPD covers the following range of products:

- End Caps
- 2-way Breakouts
- 3-way Breakouts
- 4-way Breakouts

Further information can be found at:

<https://melbye.no>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100	India
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	0.02727

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1kg
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	Recovery	Recycling	
																Reuse		

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 heat shrink end caps and breakout components are manufactured primarily from low-density polyethylene (LDPE) and ethylene-vinyl acetate (EVA), with minor quantities of additives such as pigments, stabilizers, and processing aids to achieve the required mechanical, electrical, and environmental performance. The products incorporate an inner adhesive layer to provide effective sealing and moisture protection after heat shrinking.

The manufacturing process includes compounding of raw materials, moulding of the heat shrink components, trimming of excess material, quality inspection, marking where applicable, and packaging. Manufacturing waste is assumed to be approximately 1% of the product mass, arising from start-up losses, trimming, and rejected components. Internal production scrap is not reprocessed and is treated as manufacturing waste. An average transport distance of 50 km by road is assumed for waste transport to the appropriate treatment facility.

Packaging materials primarily consist of cardboard boxes, plastic bags, and wooden pallets used for storage and transportation. Waste generated during manufacturing and packaging is managed according to standard industrial practices, with recyclable fractions sent for recycling and the remaining waste directed to energy recovery or landfill.

INSTALLATION (A5)

Material Loss: Minor material loss may occur during installation due to trimming of cable ends, incorrect positioning, or replacement of incorrectly installed components. However, installation losses are typically low and are estimated at approximately 1% or less.

Additional Materials: No additional materials such as adhesives, tapes, or sealants are required, as the products are supplied with an integrated adhesive lining that provides sealing and environmental protection during

the heat shrinking process.

Installation Method: Installation is carried out by positioning the end cap or breakout over the cable end or branching point and applying heat using a standard heat gun or similar heating equipment until the component fully shrinks and the adhesive lining forms a moisture-resistant seal. An electricity consumption of 0.01 kWh per installed product is assumed as a standard installation energy requirement.

Packaging waste generated during installation consists primarily of cardboard boxes, plastic bags, and wooden pallets. Packaging materials are managed according to standard waste treatment practices, with recyclable fractions sent for recycling and the remaining waste directed to energy recovery or landfill.

Packaging waste generated during installation (A5) is assumed to be transported by truck to local recycling or waste treatment facilities over an average distance of 50 km.

PRODUCT END OF LIFE (C1-C4, D)

C1 – Demolition

At the end of their service life, heat shrink end caps and breakout products are typically removed manually from the electrical installation. The removal process requires negligible energy consumption; however, where applicable, a standard assumption of 0.01 kWh/kg is used to account for product removal activities.

C2 – Transport

Following removal, the waste products are transported to an appropriate waste treatment facility. An average transport distance of 50 km by EURO 6, 16–32 tonne lorries is assumed for all products.

C3 – Waste Processing

The removed products are treated as plastic waste. Due to the cross-linked polymer structure of the heat shrink material, mechanical recycling is limited. The end-of-life scenario assumes that approximately 24% of the product is recycled and 49% is incinerated with energy recovery, generating electricity and/or heat. Packaging waste is collected separately and processed according to standard European waste management practices. Cardboard packaging is assumed to undergo 83% recycling and 8% incineration with energy recovery. Wooden pallet packaging is assumed to undergo 30% recycling and 32% incineration with energy recovery. Plastic packaging is assumed to undergo 40% recycling and 37% incineration with energy recovery.

C4 – Disposal

The fraction of product material that is not recycled or recovered for energy is disposed of via landfill. Accordingly, 27% of the heat shrink product is assumed to be landfilled. Packaging materials are also disposed of according to their respective treatment scenarios, with 9% of cardboard, 38% of wooden pallets, and 23% of plastic packaging assumed to be sent to landfill. These assumptions represent typical European end-of-life waste management practices.

Module D – Benefits and Loads Beyond the System Boundary

Module D includes the potential benefits and loads beyond the system boundary associated only with the recycling and energy recovery of packaging materials. Credits are assigned for the recovery of cardboard, plastic packaging, and wooden pallets, reflecting the substitution of virgin materials and recovered energy where applicable. No Module D benefits are assigned to the heat shrink end caps and breakout products themselves, as the cross-linked polymer materials are not assumed to provide recyclable material substitution credits within the scope of this study. All substituted

processes are modelled using European average datasets consistent with the background database applied in the LCA model and in accordance with EN 15804 and the applicable 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%

This EPD is product and factory specific.

LCA 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 ₂ e	3.64E+00	1.38E-01	2.56E+00	6.33E+00	ND	1.10E-01	ND	ND	ND	ND	ND	ND	ND	1.01E-03	2.22E-02	0.00E+00	3.10E+00	-1.81E-02
GWP – fossil	kg CO ₂ e	3.66E+00	1.38E-01	2.62E+00	6.42E+00	ND	1.46E-02	ND	ND	ND	ND	ND	ND	ND	1.01E-03	2.22E-02	0.00E+00	3.10E+00	-9.51E-03
GWP – biogenic	kg CO ₂ e	-2.98E-02	3.02E-05	-7.47E-02	-1.04E-01	ND	9.53E-02	ND	ND	ND	ND	ND	ND	ND	1.63E-07	5.11E-06	0.00E+00	5.77E-05	-8.57E-03
GWP – LULUC	kg CO ₂ e	3.57E-03	6.12E-05	1.09E-02	1.46E-02	ND	6.45E-06	ND	ND	ND	ND	ND	ND	ND	1.02E-07	9.89E-06	0.00E+00	8.52E-06	-2.76E-05
Ozone depletion pot.	kg CFC-11e	1.29E-07	2.00E-09	1.10E-08	1.42E-07	ND	1.09E-10	ND	ND	ND	ND	ND	ND	ND	1.55E-11	3.23E-10	0.00E+00	4.26E-10	-1.23E-10
Acidification potential	mol H ⁺ e	1.43E-02	4.78E-04	1.64E-02	3.12E-02	ND	5.37E-05	ND	ND	ND	ND	ND	ND	ND	8.99E-06	7.72E-05	0.00E+00	3.92E-04	-6.06E-05
EP-freshwater ²⁾	kg Pe	1.44E-03	1.49E-05	7.53E-04	2.21E-03	ND	2.36E-06	ND	ND	ND	ND	ND	ND	ND	3.22E-08	2.41E-06	0.00E+00	4.29E-06	-5.93E-06
EP-marine	kg Ne	2.95E-03	1.58E-04	3.25E-03	6.36E-03	ND	5.00E-05	ND	ND	ND	ND	ND	ND	ND	4.21E-06	2.55E-05	0.00E+00	1.92E-04	-9.64E-06
EP-terrestrial	mol Ne	2.91E-02	1.71E-03	2.17E-02	5.25E-02	ND	1.90E-04	ND	ND	ND	ND	ND	ND	ND	4.61E-05	2.76E-04	0.00E+00	2.03E-03	-9.49E-05
POCP (“smog”) ³⁾	kg NMVOCe	1.51E-02	7.01E-04	5.96E-03	2.18E-02	ND	6.92E-05	ND	ND	ND	ND	ND	ND	ND	1.38E-05	1.13E-04	0.00E+00	4.97E-04	-2.97E-05
ADP-minerals & metals ⁴⁾	kg Sbe	1.65E-05	3.93E-07	1.19E-06	1.81E-05	ND	6.39E-08	ND	ND	ND	ND	ND	ND	ND	3.66E-10	6.35E-08	0.00E+00	7.92E-08	-1.39E-08
ADP-fossil resources	MJ	8.46E+01	1.96E+00	2.95E+01	1.16E+02	ND	1.04E-01	ND	ND	ND	ND	ND	ND	ND	1.31E-02	3.17E-01	0.00E+00	2.95E-01	-1.54E-01
Water use ⁵⁾	m ³ e depr.	1.30E+00	1.15E-02	2.17E+01	2.30E+01	ND	2.65E-03	ND	ND	ND	ND	ND	ND	ND	3.27E-05	1.85E-03	0.00E+00	7.23E-02	-3.12E-03

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	1.31E-07	1.35E-08	2.83E-08	1.73E-07	ND	2.07E-09	ND	ND	ND	ND	ND	ND	ND	2.57E-10	2.18E-09	0.00E+00	1.74E-09	-5.06E-10
Ionizing radiation ⁶⁾	kBq	3.74E-01	1.65E-03	6.03E-02	4.36E-01	ND	2.81E-04	ND	ND	ND	ND	ND	ND	ND	5.45E-06	2.66E-04	0.00E+00	3.09E-04	-2.91E-03
	11235e																		
Ecotoxicity (freshwater)	CTUe	2.51E+01	4.07E-01	1.00E+01	3.56E+01	ND	3.25E+00	ND	ND	ND	ND	ND	ND	ND	1.32E-03	6.58E-02	0.00E+00	5.97E-01	-1.75E-01
Human toxicity, cancer	CTUh	8.64E-10	2.16E-11	2.28E-10	1.11E-09	ND	1.31E-11	ND	ND	ND	ND	ND	ND	ND	9.65E-14	3.49E-12	0.00E+00	9.02E-11	-1.74E-12
Human tox. non-cancer	CTUh	2.75E-08	1.22E-09	1.78E-08	4.66E-08	ND	6.01E-10	ND	ND	ND	ND	ND	ND	ND	1.71E-12	1.97E-10	0.00E+00	4.40E-09	-6.42E-11
SQP ⁷⁾	-	1.33E+01	1.96E+00	1.32E+01	2.84E+01	ND	7.09E-02	ND	ND	ND	ND	ND	ND	ND	9.01E-04	3.16E-01	0.00E+00	7.65E-02	-1.15E-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	4.85E+00	2.73E-02	-9.50E-01	3.93E+00	ND	-4.22E+00	ND	ND	ND	ND	ND	ND	ND	8.16E-05	4.41E-03	0.00E+00	7.22E-03	-2.90E-02
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.50E+00	3.50E+00	ND	-3.50E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.25E-02
Total use of renew. PER	MJ	4.85E+00	2.73E-02	2.55E+00	7.43E+00	ND	-7.72E+00	ND	ND	ND	ND	ND	ND	ND	8.16E-05	4.41E-03	0.00E+00	7.22E-03	2.35E-02
Non-re. PER as energy	MJ	5.53E+01	1.96E+00	2.99E+01	8.72E+01	ND	-5.79E-02	ND	ND	ND	ND	ND	ND	ND	1.31E-02	3.17E-01	0.00E+00	-3.87E+01	-1.54E-01
Non-re. PER as material	MJ	2.92E+01	0.00E+00	-2.74E-01	2.90E+01	ND	-1.51E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	-2.89E+01	1.76E-03
Total use of non-re. PER	MJ	8.46E+01	1.96E+00	2.96E+01	1.16E+02	ND	-7.30E-02	ND	ND	ND	ND	ND	ND	ND	1.31E-02	3.17E-01	0.00E+00	-6.77E+01	-1.52E-01
Secondary materials	kg	1.39E-02	8.21E-04	2.57E-01	2.71E-01	ND	1.54E-04	ND	ND	ND	ND	ND	ND	ND	5.41E-06	1.33E-04	0.00E+00	4.60E-04	1.55E-04
Renew. secondary fuels	MJ	1.56E-02	1.07E-05	2.43E-02	3.98E-02	ND	9.01E-07	ND	ND	ND	ND	ND	ND	ND	1.42E-08	1.73E-06	0.00E+00	2.79E-06	2.88E-05
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	3.09E-02	2.81E-04	4.15E-02	7.27E-02	ND	-6.08E-05	ND	ND	ND	ND	ND	ND	ND	7.85E-07	4.55E-05	0.00E+00	5.50E-04	-7.20E-05

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	7.92E-01	1.26E-02	4.57E-02	8.51E-01	ND	1.59E-03	ND	ND	ND	ND	ND	ND	ND	4.23E-05	2.03E-03	0.00E+00	2.76E-02	-6.46E-04
Non-hazardous waste	kg	1.26E+01	2.48E-01	4.89E+01	6.17E+01	ND	1.17E-01	ND	ND	ND	ND	ND	ND	ND	2.11E-04	4.00E-02	0.00E+00	1.07E+00	-2.89E-02
Radioactive waste	kg	9.39E-05	3.93E-07	1.16E-05	1.06E-04	ND	6.87E-08	ND	ND	ND	ND	ND	ND	ND	1.28E-09	6.35E-08	0.00E+00	7.61E-08	-7.46E-07

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	2.19E-01	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	1.35E-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	5.58E-02	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	7.93E-02	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 ₂ e	3.64E+00	1.37E-01	2.63E+00	6.40E+00	ND	4.48E-02	ND	ND	ND	ND	ND	ND	ND	1.00E-03	2.21E-02	0.00E+00	3.10E+00	-9.50E-03
Ozone depletion Pot.	kg CFC ₁₁ e	1.07E-07	1.59E-09	9.45E-09	1.18E-07	ND	8.90E-11	ND	ND	ND	ND	ND	ND	ND	1.23E-11	2.58E-10	0.00E+00	3.57E-10	-1.02E-10
Acidification	kg SO ₂ e	1.18E-02	3.65E-04	1.40E-02	2.62E-02	ND	4.07E-05	ND	ND	ND	ND	ND	ND	ND	6.30E-06	5.89E-05	0.00E+00	2.73E-04	-5.13E-05
Eutrophication	kg PO ₄ ³ e	5.98E-02	9.88E-05	3.30E-03	6.32E-02	ND	3.82E-05	ND	ND	ND	ND	ND	ND	ND	1.51E-06	1.60E-05	0.00E+00	9.38E-05	-6.30E-06
POCP (“smog”)	kg C ₂ H ₄ e	1.38E-03	3.18E-05	5.91E-04	2.00E-03	ND	1.13E-05	ND	ND	ND	ND	ND	ND	ND	4.75E-07	5.13E-06	0.00E+00	1.69E-05	-2.94E-06
ADP-elements	kg Sbe	1.60E-05	3.83E-07	1.20E-06	1.76E-05	ND	6.26E-08	ND	ND	ND	ND	ND	ND	ND	3.55E-10	6.19E-08	0.00E+00	6.15E-08	-1.35E-08

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	7.83E+01	1.94E+00	2.90E+01	1.09E+02	ND	9.96E-02	ND	ND	ND	ND	ND	ND	ND	1.30E-02	3.13E-01	0.00E+00	2.90E-01	-1.02E-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 ₂ e	3.67E+00	1.38E-01	2.63E+00	6.44E+00	ND	1.46E-02	ND	ND	ND	ND	ND	ND	ND	1.01E-03	2.22E-02	0.00E+00	3.10E+00	-9.54E-03

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, consumption mix w/o renewables, Punjab, 2024, punjab, One Click LCA, 1.17 kgCO₂e/kWh

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 generated from the heat shrink end caps and breakout products consists primarily of cardboard boxes, plastic bags, and wooden pallets. These packaging materials are managed according to standard waste treatment practices, with recyclable fractions sent for recycling and the remaining waste directed to energy recovery or landfill. Packaging waste generated during installation (A5) is assumed to be transported by truck to local recycling or waste treatment facilities over an average distance of 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)	0
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 authorized verifier acting for EPD HUB Limited
30.07.2026

