ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Ceiling diffusers
Lindab s.r.o.

EPD HUB, Hub-0671
Published on 01.09.2023, last updated on 27.03.2026, valid until 01.09.2028

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	Lindab s.r.o.
Address	Na Hurce 1081/6, Prague, Czech Republic
Contact details	lindab@lindab.com
Website	https:/www.lindab.com/

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, A4-A5, and modules C1-C4, D
EPD author	Kerstin Bergström, Lindab Ventilation AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Vera Durão, as an authorised 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	Ceiling diffusers
Additional labels	Formo: LCA, LCAL, LCAN, LKA, LKAL, LKAN, PCA, PCAL, PCAN, PKA, PKAL, PKAN. Integra: PC6, PC7, RC14, RC15, NC19. Versio - V: GS23-V-E, PS1, PS8, RS14, RS15, RS16, NS19, NQ19
Product reference	LCP-200
Place(s) of raw material origin	Europe
Place of production	Prague, Czech Republic
Place(s) of installation and use	Europe
Period for data	Calendar year 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	<10%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	43,9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Ceiling Diffuser
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	4,95
GWP-total, A1-A3 (kgCO2e)	3,61
Secondary material, inputs (%)	20,7
Secondary material, outputs (%)	84,7
Total energy use, A1-A3 (kWh)	20,5
Net freshwater use, A1-A3 (m3)	1,36

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Lindab is a leading ventilation company in Europe, offering solutions for energy-efficient ventilation and a healthy indoor climate. The products are characterised by high quality, ease of installation and environmental thinking. In northern Europe, Lindab also offers an extensive range of roof, wall and rainwater systems.

FOR A BETTER CLIMATE

We want to create a better climate. Most of us spend a majority of our time indoors. The air we breathe, in our homes, at our workplaces and at school, affects our well-being. Since air is not visible, we do not always think about it. However, the indoor climate is crucial for how we feel, for our energy levels and whether we stay healthy. Lindab wants to contribute to the architecture and indoor climate of tomorrow. We also want a better climate for our planet. That is why we develop energy-efficient solutions for healthy indoor environments

OUR VISION

We want to be the leading player in the area in which we are strongest – ventilation in Europe. We focus on air distribution and air diffusion. Since we offer high-quality products, we focus on Europe where demand for good ventilation is high, and we can offer superior availability. We specialise in those parts of the ventilation system where we are the strongest. We adapt our offering to the local market, with our core ventilation offering as the clear common denominator in all markets.

THE IMPORTANCE OF VENTILATION

About 90 percent of the global population breathes poor air every day. A common misconception is that outdoor air is more polluted due to emissions, smog, and harmful chemicals. In fact, indoor air in homes, schools, offices, and factories can be as much as five times more polluted. People nonetheless spend most of their life indoors. The most common causes of indoor air pollution are mould, chemicals in, for example, furniture and building materials, dust, radon, and cigarette smoke but, above all, airborne particles from combustion and industrial processes, which are so small they can enter the human bloodstream via the respiratory system. Today, air pollution is a risk factor in several of the world's most common causes of death, including heart disease, pneumonia, stroke, diabetes, and lung cancer. Ventilation is an efficient and convenient method to remove those indoor air pollutants.

SUSTAINABILITY PLAN

For us, sustainability is a way of thinking and working. This affects how we work with Lindab's strategy in all areas. Everything from the purchases we make, to the deliveries and the service we offer our customers. Lindab has three long-term, non-financial targets for the business, one that focuses on increasing our attractiveness as an employer, one for reducing our own carbon dioxide emissions, and one for a better working environment.

Read more about Lindab Groups sustainability work and non-financial targets on www.lindabgroup.com

PRODUCT DESCRIPTION

Lindab ceiling diffusers are a series of different diffuser models, intended for the supply and extract of air from the room and are typically installed in suspended ceilings, either modular T-bar ceiling or fixed plasterboard ceiling.

The construction and design of Lindab ceiling diffusers are made with the aim of providing a good indoor climate with low risk of drafts and low sound level.
Ceiling diffusers are made from galvanized steel and punched, bended or pressed and finally powder coated on all visible parts.

Ceiling diffusers consist of a diffuser overpart with a pressed inlet for connection to a plenum box or directly to a duct, as well as a diffuser front plate with different functionalities and designs.
For all diffusers it is possible to open the front plate for easy access for inspection and maintenance.
Installing ceiling diffusers in combination with a plenum box type MB or CB can contribute to achieving a stable airflow to the diffuser, as well as realizing the potential for individual adjustment.

For product specific GWP calculations see additional document [EPD values Galvanized steel (file type: xlsx] which is presented for each product on www.lindab.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	97	Europe
Minerals	0	-
Fossil materials	3	Europe
Bio-based materials	0	-

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	0,37

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Ceiling Diffuser
Mass per declared unit	1 kg
Functional unit	-
Reference service life	50 years

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	x	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

Modules not declared = ND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in 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.

The steel raw material is received by Lindab Group's own steel service centre, Lindab Steel AB and afterwards transported to Production unit. Together with all other components the material is quality inspected at arrival to the manufacturing facility. The product parts are cut with a laser cut and punching machine. Waste from these processes is pure steel scrap, which is recycled. Parts are formed by pressing and bending (Some metal scrap may also come from pressing.) Some parts must be welded (Front plate and welding stud). Front plate and Over part are painted (In this process wastewater comes out, this is treated by the subdivider.) The manufactured and purchased parts are assembled. For protection and transport, the units are protected with a mixture of paper, cardboard and wooden pallets. Lubricating oil is used for the above machines.

A market-based approach is used in modelling the electricity mix utilized in the factory. The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.
Transport from production site to customer is calculated based on the market share per country.
Transportation to waste facility is assumed to be 50 km.

Activities related to packaging recycling are included and modelled based on a European scenario. Only handling of packaging material is included in the calculations.

Products are ready to be installed with no expected losses during the installation. For installation, mounting equipment according to installation instructions is recommended. During installation, the diffuser is often attached to a plenum box with screws with a screwdriver.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. These life cycle stages are dependent on how the product is used and should be developed and included as part of a holistic assessment of specific construction works.
The reference service life of the product is highly dependent on the conditions of use, average lifespan under normal conditions is minimum 25 years.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

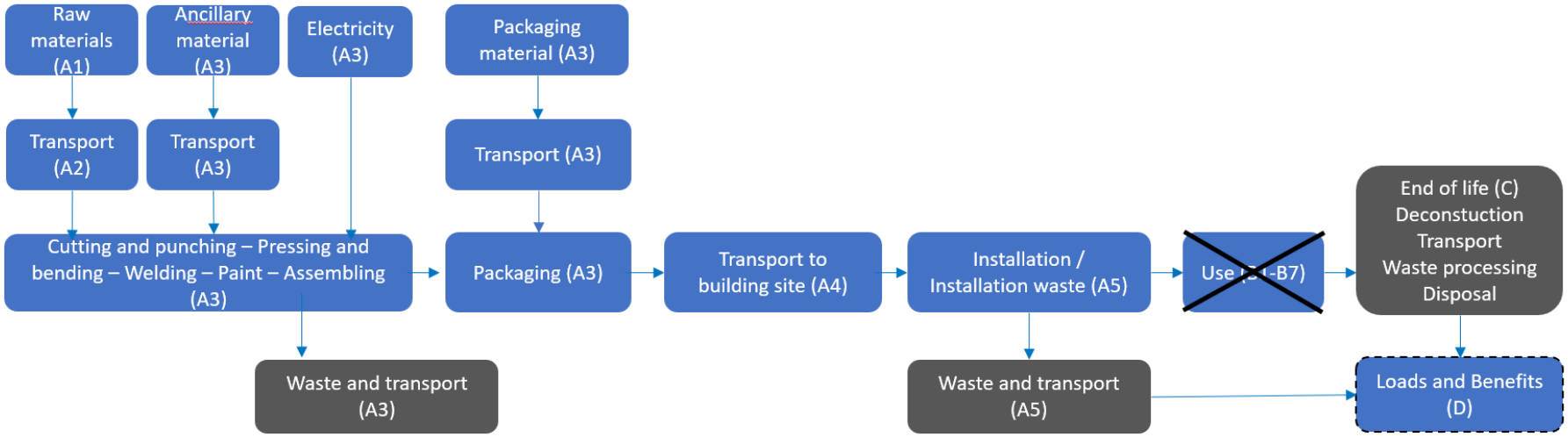
Energy (0,1kWh) for demounting is included in C1. The distance for transportation to disposal is assumed as 50 km and the transportation method is assumed to be lorry in C2. Activities related to recycling are included in C3 and C4 and modelled based on a European scenario. Recycling rates according to the following table below.

End of Life Scenarios (A3, A5, C1-C4, D)

Name	Recycling	Incineration	Landfill	Source
Steel	85		15	World Steel 2020
Aluminum	90		10	Eurostat 2020
Stainless steel	95		5	World Stainless 2024
Plastics & rubber	23	50	27	Plastics Europe, 2020
Powder coating			100	Conservative scenario
Cardboard packaging	83	8	9	EUROSTAT, 2021
Paper packaging	83	8	9	EUROSTAT, 2021
Plastic packaging	4	37	23	EUROSTAT, 2020
Wood packaging	32	30	38	EUROSTAT, 2020
Steel Packaging	81		19	EUROSTAT, 2020

Benefits and loads from recycling and recovery are included in module D. Benefits and loads in module D correspond to recycling and recovery rates modelled in packaging and product end of life modules A5 and C1-C4. Recycled raw material content has been subtracted from benefits and loads to avoid double counting. Avoided burdens from substituted processes, such as production of virgin raw materials and conventional energy generation, is accounted for. Benefits and loads do not include manufacturing losses or co-products from A3.

SYSTEM 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	No allocation
Packaging material	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	<10%

This EPD is represented by the most sold article LCP-200. The products in the scope vary in sizes and shapes, with duct dimensions from 100-400 mm.
Production process, transportation, installation, demolition and waste treatment are similar for all products. Material compositions are similar but vary in models and sizes. GWP-fossil A1-A3 per kilo of product varies less than 10%.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

Recycling scenario references:

World Steel, 2020

Plastics Europe, 2020 ,

Eurostat:

https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519259/default/table?lang=en

Third-party verified and compliant with EN15804+A2 EPDs:

HUB-0463 - Hot-dip galvanized steel with zinc coating, 0.4 mm, 3.14 kg/m2 (Lindab Steel AB)

NEPD-6405-5664-EN - Guard Style D, Jotun Czech a.s.

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, PEF

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	4,02E+00	2,72E-01	-6,84E-01	3,61E+00	3,03E-01	1,71E+00	ND	ND	ND	ND	ND	ND	ND	3,62E-02	4,28E-02	3,36E-02	1,29E-03	-1,17E+00
GWP – fossil	kg CO_2e	4,04E+00	2,72E-01	6,37E-01	4,95E+00	3,03E-01	1,39E-02	ND	ND	ND	ND	ND	ND	ND	3,62E-02	4,28E-02	3,37E-02	1,29E-03	-1,17E+00
GWP – biogenic	kg CO_2e	-2,14E-02	5,24E-05	-1,36E+00	-1,38E+00	5,97E-05	1,69E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,35E-06	-4,09E-05	-5,07E-07	7,50E-03
GWP – LULUC	kg CO_2e	1,28E-03	9,85E-05	3,93E-02	4,07E-02	1,08E-04	1,48E-05	ND	ND	ND	ND	ND	ND	ND	7,34E-05	1,90E-05	2,38E-05	5,69E-07	-1,28E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	3,96E-08	5,30E-09	2,09E-08	6,58E-08	5,99E-09	1,88E-10	ND	ND	ND	ND	ND	ND	ND	5,19E-10	5,99E-10	2,60E-10	2,81E-11	-4,39E-09
Acidification potential	mol H^+e	1,14E-02	1,36E-03	2,46E-03	1,52E-02	1,13E-03	6,75E-05	ND	ND	ND	ND	ND	ND	ND	1,85E-04	1,43E-04	2,30E-04	6,92E-06	-4,73E-03
EP-freshwater[2)]	kg Pe	2,31E-04	1,73E-05	2,15E-04	4,63E-04	1,98E-05	3,42E-06	ND	ND	ND	ND	ND	ND	ND	3,85E-05	3,33E-06	1,24E-05	8,19E-08	-5,16E-04
EP-marine	kg Ne	2,33E-03	4,09E-04	9,81E-04	3,72E-03	3,63E-04	8,78E-05	ND	ND	ND	ND	ND	ND	ND	3,09E-05	4,62E-05	5,16E-05	3,32E-06	-1,04E-03
EP-terrestrial	mol Ne	2,45E-02	4,48E-03	7,79E-03	3,68E-02	3,95E-03	2,51E-04	ND	ND	ND	ND	ND	ND	ND	2,50E-04	5,03E-04	5,80E-04	2,88E-05	-1,14E-02
POCP ("smog")[3)]	kg NMVOCe	8,18E-03	1,67E-03	3,15E-03	1,30E-02	1,60E-03	8,71E-05	ND	ND	ND	ND	ND	ND	ND	8,53E-05	1,99E-04	1,71E-04	1,04E-05	-3,87E-03
ADP-minerals & metals[4)]	kg Sbe	1,17E-04	8,43E-07	2,60E-06	1,21E-04	9,75E-07	6,20E-08	ND	ND	ND	ND	ND	ND	ND	7,25E-08	1,40E-07	1,35E-06	1,59E-09	-1,10E-05
ADP-fossil resources	MJ	4,72E+01	3,78E+00	9,72E+00	6,07E+01	4,24E+00	1,65E-01	ND	ND	ND	ND	ND	ND	ND	8,20E-01	6,00E-01	2,59E-01	2,39E-02	-1,10E+01
Water use[5)]	m^3e depr.	1,83E+00	1,80E-02	1,27E+00	3,12E+00	2,07E-02	4,48E-03	ND	ND	ND	ND	ND	ND	ND	1,55E-02	2,79E-03	5,02E-03	7,36E-05	-1,94E-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.

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	2,54E+00	6,29E-02	1,07E+01	1,33E+01	7,25E-02	-6,04E+00	ND	ND	ND	ND	ND	ND	ND	1,52E-01	8,23E-03	4,79E-02	2,38E-04	-3,69E-01
Renew. PER as material	MJ	1,71E-02	0,00E+00	1,20E+01	1,20E+01	0,00E+00	-1,20E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,32E-01
Total use of renew. PER	MJ	2,55E+00	6,29E-02	2,27E+01	2,53E+01	7,25E-02	-1,80E+01	ND	ND	ND	ND	ND	ND	ND	1,52E-01	8,23E-03	4,79E-02	2,38E-04	-3,79E-02
Non-re. PER as energy	MJ	4,73E+01	3,78E+00	9,07E+00	6,02E+01	4,24E+00	1,65E-01	ND	ND	ND	ND	ND	ND	ND	8,20E-01	6,00E-01	-5,68E-02	-8,97E-02	-1,10E+01
Non-re. PER as material	MJ	2,74E-01	0,00E+00	6,41E-01	9,14E-01	0,00E+00	-6,41E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,94E-01	-7,17E-02	1,67E-01
Total use of non-re. PER	MJ	4,76E+01	3,78E+00	9,71E+00	6,11E+01	4,24E+00	-4,76E-01	ND	ND	ND	ND	ND	ND	ND	8,20E-01	6,00E-01	-2,51E-01	-1,61E-01	-1,09E+01
Secondary materials	kg	2,07E-01	1,73E-03	1,67E-01	3,76E-01	1,94E-03	1,68E-04	ND	ND	ND	ND	ND	ND	ND	8,29E-05	2,70E-04	3,23E-04	6,10E-06	6,33E-01
Renew. secondary fuels	MJ	1,37E-03	2,07E-05	3,37E-01	3,39E-01	2,41E-05	1,26E-06	ND	ND	ND	ND	ND	ND	ND	3,72E-07	3,43E-06	1,46E-05	1,25E-07	-7,52E-05
Non-ren. secondary fuels	MJ	9,72E-04	0,00E+00	0,00E+00	9,72E-04	0,00E+00	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	1,33E+00	4,92E-04	2,96E-02	1,36E+00	5,65E-04	-3,10E-04	ND	ND	ND	ND	ND	ND	ND	5,87E-04	7,96E-05	1,39E-04	1,18E-05	-2,78E-03

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	7,08E-02	5,37E-03	3,22E-02	1,08E-01	6,07E-03	1,69E-03	ND	ND	ND	ND	ND	ND	ND	1,74E-03	1,05E-03	1,82E-03	2,78E-05	-3,76E-01
Non-hazardous waste	kg	1,26E+00	1,11E-01	1,44E+00	2,82E+00	1,27E-01	5,98E-01	ND	ND	ND	ND	ND	ND	ND	1,89E-01	1,96E-02	6,69E-02	1,70E-02	-3,07E+00
Radioactive waste	kg	2,91E-04	1,15E-06	9,16E-06	3,01E-04	1,33E-06	1,67E-07	ND	ND	ND	ND	ND	ND	ND	5,70E-06	1,19E-07	5,58E-07	3,78E-09	8,26E-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	2,42E-06	0,00E+00	0,00E+00	2,42E-06	0,00E+00	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	1,49E-02	0,00E+00	4,19E-01	4,34E-01	0,00E+00	2,19E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,47E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	5,78E-05	0,00E+00	0,00E+00	5,78E-05	0,00E+00	7,90E-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	MJ	1,37E-03	0,00E+00	0,00E+00	1,37E-03	0,00E+00	4,13E-01	ND	ND	ND	ND	ND	ND	ND	REPLACE -	REPLACE -	REPLACE -	REPLACE -	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,70E-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	0,00E+00	2,43E-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 – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

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	4,04E+00	2,72E-01	6,77E-01	4,99E+00	3,03E-01	1,39E-02	ND	ND	ND	ND	ND	ND	ND	3,62E-02	4,28E-02	3,37E-02	1,29E-03	-1,17E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. 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

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, hydro, reservoir, non-alpine region, Czech Republic The manufacturing site uses low voltage electricity, transformation and transmission losses considered.
Electricity CO2e / kWh	0.006 kgCO2e/kWh
District heating data source and quality	-
District heating CO2e / kWh	-

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	EURO5, truck 16-32 metric ton, diesel, 0,00441l/tkm Transport, freight, sea, ferry
Average transport distance, km	Truck 1093 km Lorry 40 km
Capacity utilization (including empty return) %	50
Bulk density of transported products	-
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	
Water use / m³	
Other resource use / kg	
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	
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) / kg	Waste paper, materials for recycling, 0,0095 kg Waste paperboard, materials for recycling, 0.14 kg Waste packaging paper, incineration with energy recovery, 0.015 kg Waste packaging paper, landfill, 0,017 kg Waste wood, materials for recycling, 0.069 kg Waste wood, incineration with energy recovery, 0.065 kg Waste wood, landfill, 0.082 kg
Direct emissions to ambient air, soil and water / kg	

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0,85
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	0,15
Scenario assumptions e.g. transportation	Transported 50 km by lorry

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 15802+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

Vera Durão, as an authorised verifier acting for EPD Hub Limited

27.03.2026