ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Lindab Polyester Sound Attenuators - KVDPX, KVDP-90L/-90K, PVD, PVDP, LRLS, DACKA/-A/-V
Lindab AS & Oy Lindab AB

EPD HUB, HUB-3988
Published on 13.09.2025, last updated on 13.09.2025, valid until 12.09.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Lindab AS & Oy Lindab AB
Address	Tallinn, Estonia & Jyväskylä, Finland
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 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Sister EPD
Parent EPD number	HUB-1698
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Mitra Mohebi Nouraldin Vand, Lindab Ventilation AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: o Internal verification þ External verification
EPD verifier	#VERIFIER#

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	Lindab Polyester Sound Attenuators
Additional labels	KVDPX, KVDP-90L, KVDP-90K, PVD, PVDP, LRLS, DACKA, DACKA-A, DACKA-V Onninen: OKVDPX, Ahlsell: KVDPXAC, PVDAC
Product reference	KVDPX-125-600-3
Place(s) of raw material origin	Europe
Place of production	Tallinn, Estonia & Jyväskylä, Finland
Place(s) of installation and use	Europe
Period for data	Calendar year 2024
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3 (%)	<10%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	100

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Lindab polyester sound attenuator
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	3,03E+00
GWP-total, A1-A3 (kgCO2e)	2,75E+00
Secondary material, inputs (%)	10,1
Secondary material, outputs (%)	76,7
Total energy use, A1-A3 (kWh)	11,3
Net freshwater use, A1-A3 (m3)	0,01

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

KVDPX, KVDP-90L, KVDP-90K, PVD, PVDP, LRLS, DACKA, DACKA-A, DACKA-V are sound attenuators used for sound reduction in ventilation systems. The main materials are galvanized steel (Z275) and Acutec® or Acutec® Plus acoustic material.

This EPD covers alla sizes of KVDPX, KVDP-90L, KVDP-90K, PVD, PVDP, LRLS, but for DACKA, DACKA-A and DACKA-V only sizes where overall dimension a + b + l < 5m.

The space between the inner and outer ducts is filled with polyester and the inner duct is covered with a nonwoven cloth to prevent fibers from getting into the duct system. Certain models have also a perforated metal sheet to protect the acoustic material. Some models are equipped with baffles (splitters), one in the middle (PVDP and specific KVDPX models) or multiple (DACKA).

KVDPX, PVD, PVDP, LRLS, DACKA, DACKA-A are straight sound attenuators where as DACKA-V, KVDP-90L, KVDP-90K are curved. Sound attenuators are with standard circular duct connection or with rectangular duct joining profile.

The products with the Safe gasket achieve airtightness class D according to Eurovent certification. The products achieve airtightness class C as components. Acoustic testing is made according to ISO EN-7235 standard.

For product specific GWP calculations see additional document [EPD values for galvanized steel (file type: xlsx)] which is presented for these products on https://www.lindab.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	87	Europe
Minerals	-	-
Fossil materials	13	Europe
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	0,08

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Lindab polyester sound attenuator
Mass per declared unit	1 kg
Functional unit	-
Reference service life	50

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	MND	MND	MND	MND	MND	MND	MND	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 = MND. 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 center, Lindab Steel AB and afterwards transported to Production unit. Together with all other components the material is quality inspected at arrival at the manufacturing facility.
The steel parts and insulation are cut to size. The waste from these processes, pure steel scrap and polyester, is recycled. Next the sheets go through reinforcement to strengthen the structure. Seaming and mangling machines are used to form the round shape and close the seam. Insulation is placed between inner and outer sheet. All pieces are assembled using spotwelding, screws or rivets. Finally, the ends are sealed with a sealing compound. A market based approach is used for electricity modelling. 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.

Installation spills and handling of packaging material are considered. Material loss during installation is estimated to be zero. Packaging waste scenarios according to Eurostat.

Transport from production site to construction site is calculated based on the market share. The following estimated distances and transportation methods have been used for the scenario in this EPD.

Manufacturing site:	Tallinn, Estonia & Jyväskylä, Finland

	Transportation distance	
	Production site to distribution center (km)	Distribution center to construction site (km)
Transportation mode (lorry)	149	69
Transportation mode (ferry)	82	

PRODUCT USE AND MAINTENANCE (B1-B7)

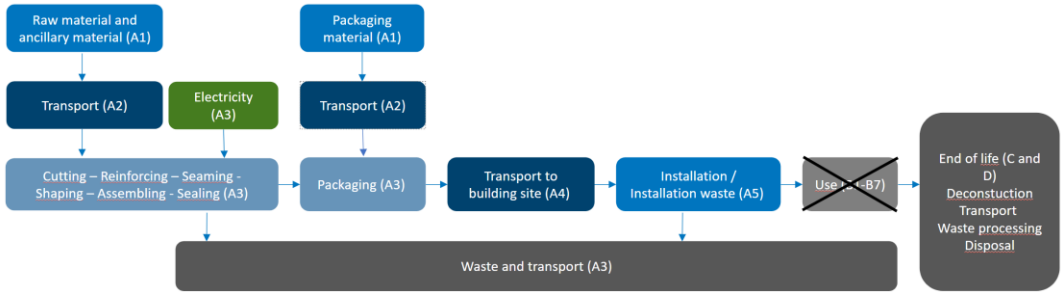
This EPD does not cover the use phase. These life cycle stages are dependent on how the product is used and should be developed and included as part of a holistic assessment of specific construction works.

The reference service life of the product is highly dependent on the conditions of use, average lifespan under normal conditions is minimum 50 years. This is an estimated value based on experience and scientific facts.

PRODUCT END OF LIFE (C1-C4, D)

Energy (0,1kWh) for deconstruction is included in C1. Activities related to steel recycling are included in C3. A recycling rate of 85% and landfill rate of 15% has been assumed for the steel (according to World Steel Association, 2020). For plastic components Plastic Europe, 2020 has been used.

MANUFACTURING PROCESS



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	Allocated by mass or volume
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 and multiple factories
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	<10%

This EPD is represented by the most sold item in the product group and has been used as the representative product. All articles included in this EPD are manufactured in Oy Lindab Ab, Finland or Lindab AS, Estonia. Production processes are similar in all other aspects but the geographical location. Transportation, installation, demolition, and waste treatment are the same for all articles.

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'.

World Steel, 2020
Plastics Europe, 2020
Eurostat:
https://ec.europa.eu/eurostat/databrowser/view/env_waspac__custom_8519259/default/table?lang=en

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	2,87E+00	1,13E-01	-2,33E-01	2,75E+00	4,18E-02	4,18E-01	MND	MND	MND	MND	MND	MND	MND	3,74E-03	9,40E-03	2,27E-01	5,33E-03	-1,05E+00
GWP – fossil	kg CO_2e	2,85E+00	1,13E-01	6,76E-02	3,03E+00	4,17E-02	9,86E-03	MND	MND	MND	MND	MND	MND	MND	3,30E-03	9,40E-03	2,27E-01	5,33E-03	-1,07E+00
GWP – biogenic	kg CO_2e	1,62E-02	2,10E-05	-3,01E-01	-2,85E-01	7,97E-06	4,08E-01	MND	MND	MND	MND	MND	MND	MND	6,00E-05	2,05E-06	-3,89E-05	-2,59E-06	1,63E-02
GWP – LULUC	kg CO_2e	8,49E-04	4,61E-05	4,77E-04	1,37E-03	1,71E-05	8,16E-06	MND	MND	MND	MND	MND	MND	MND	3,71E-04	4,13E-06	2,31E-05	7,38E-07	-3,33E-04
Ozone depletion pot.	kg CFC-$_{11}$e	6,81E-07	2,09E-09	1,64E-09	6,85E-07	7,70E-10	9,46E-11	MND	MND	MND	MND	MND	MND	MND	9,90E-11	1,34E-10	2,65E-10	3,42E-11	-5,19E-09
Acidification potential	mol H^+e	8,31E-03	1,23E-03	3,72E-04	9,92E-03	4,61E-04	3,30E-05	MND	MND	MND	MND	MND	MND	MND	4,05E-05	3,13E-05	2,32E-04	8,73E-06	-4,33E-03
EP-freshwater[2)]	kg Pe	1,91E-05	6,34E-06	3,15E-05	5,69E-05	2,34E-06	1,60E-06	MND	MND	MND	MND	MND	MND	MND	2,93E-06	7,27E-07	1,15E-05	1,11E-07	-4,61E-04
EP-marine	kg Ne	1,84E-03	3,34E-04	1,15E-04	2,29E-03	1,25E-04	3,78E-05	MND	MND	MND	MND	MND	MND	MND	5,97E-06	1,02E-05	6,07E-05	2,30E-05	-9,30E-04
EP-terrestrial	mol Ne	1,95E-02	3,69E-03	1,18E-03	2,43E-02	1,38E-03	1,30E-04	MND	MND	MND	MND	MND	MND	MND	6,10E-05	1,11E-04	6,51E-04	3,60E-05	-1,01E-02
POCP ("smog")[3)]	kg NMVOC	6,37E-03	1,16E-03	4,87E-04	8,02E-03	4,31E-04	4,33E-05	MND	MND	MND	MND	MND	MND	MND	1,62E-05	4,39E-05	1,87E-04	1,38E-05	-3,53E-03
ADP-minerals & metals[4)]	kg Sbe	1,70E-04	2,50E-07	4,72E-07	1,71E-04	9,22E-08	2,24E-08	MND	MND	MND	MND	MND	MND	MND	3,97E-07	3,06E-08	1,22E-06	2,22E-09	-9,78E-06
ADP-fossil resources	MJ	3,29E+01	1,56E+00	1,22E+00	3,57E+01	5,77E-01	8,22E-02	MND	MND	MND	MND	MND	MND	MND	4,42E-01	1,32E-01	2,56E-01	2,91E-02	-1,09E+01
Water use[5)]	m^3e depr.	6,94E-01	6,98E-03	4,08E-02	7,42E-01	2,57E-03	2,30E-03	MND	MND	MND	MND	MND	MND	MND	2,44E-02	6,16E-04	8,97E-03	1,03E-04	-1,96E-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	1,24E-08	8,93E-09	5,85E-09	2,71E-08	3,29E-09	5,57E-10	MND	MND	MND	MND	MND	MND	MND	3,37E-10	7,56E-10	2,94E-09	1,98E-10	-6,82E-08
Ionizing radiation[6)]	kBq U235e	4,35E-02	1,56E-03	8,03E-03	5,31E-02	5,75E-04	2,62E-04	MND	MND	MND	MND	MND	MND	MND	3,17E-02	1,09E-04	2,03E-03	2,19E-05	8,98E-04
Ecotoxicity (freshwater)	CTUe	4,86E+00	1,65E-01	3,42E-01	5,37E+00	6,09E-02	6,64E-02	MND	MND	MND	MND	MND	MND	MND	5,54E-02	2,06E-02	9,35E-01	1,53E-02	-2,56E+00
Human toxicity, cancer	CTUh	2,03E-10	2,00E-11	2,48E-10	4,71E-10	7,39E-12	3,51E-12	MND	MND	MND	MND	MND	MND	MND	6,53E-12	1,60E-12	2,72E-11	3,80E-13	-1,73E-10
Human tox. non-cancer	CTUh	3,14E-09	8,49E-10	8,95E-10	4,88E-09	3,13E-10	1,88E-10	MND	MND	MND	MND	MND	MND	MND	3,41E-10	8,28E-11	1,51E-09	4,23E-11	-8,43E-09
SQP[7)]	-	4,70E+00	1,20E+00	2,42E+01	3,01E+01	4,41E-01	7,48E-02	MND	MND	MND	MND	MND	MND	MND	1,04E-01	8,17E-02	4,64E-01	6,07E-02	-3,32E+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 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	2,82E+00	2,17E-02	2,57E+00	5,41E+00	7,98E-03	-2,66E+00	MND	MND	MND	MND	MND	MND	MND	3,03E-01	1,83E-03	4,41E-02	3,39E-04	-4,78E-01
Renew. PER as material	MJ	4,47E-01	0,00E+00	2,70E+00	3,15E+00	0,00E+00	-2,72E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-2,91E-01	-1,35E-01	1,25E-01
Total use of renew. PER	MJ	3,27E+00	2,17E-02	5,27E+00	8,56E+00	7,98E-03	-5,39E+00	MND	MND	MND	MND	MND	MND	MND	3,03E-01	1,83E-03	-2,47E-01	-1,35E-01	-3,53E-01
Non-re. PER as energy	MJ	3,28E+01	1,56E+00	8,71E-01	3,52E+01	5,77E-01	-3,88E-02	MND	MND	MND	MND	MND	MND	MND	4,42E-01	1,32E-01	-2,82E+00	-1,41E+00	-1,10E+01
Non-re. PER as material	MJ	2,45E+00	0,00E+00	1,79E-01	2,63E+00	0,00E+00	-2,69E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,63E+00	-7,27E-01	5,20E-01
Total use of non-re. PER	MJ	3,52E+01	1,56E+00	1,05E+00	3,78E+01	5,77E-01	-3,08E-01	MND	MND	MND	MND	MND	MND	MND	4,42E-01	1,32E-01	-4,45E+00	-2,14E+00	-1,05E+01
Secondary materials	kg	1,01E-01	6,78E-04	2,20E-02	1,24E-01	2,50E-04	7,02E-05	MND	MND	MND	MND	MND	MND	MND	8,64E-05	5,92E-05	3,61E-04	8,34E-06	5,51E-01
Renew. secondary fuels	MJ	1,87E-02	6,72E-06	7,28E-02	9,16E-02	2,47E-06	6,11E-07	MND	MND	MND	MND	MND	MND	MND	3,93E-07	7,54E-07	1,35E-05	1,66E-07	-7,83E-05
Non-ren. secondary fuels	MJ	6,00E-22	0,00E+00	0,00E+00	6,00E-22	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	7,44E-03	1,97E-04	9,82E-04	8,62E-03	7,25E-05	-1,88E-04	MND	MND	MND	MND	MND	MND	MND	5,80E-04	1,76E-05	1,80E-04	-1,16E-04	-3,29E-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	5,91E-02	2,17E-03	4,97E-03	6,62E-02	8,00E-04	6,80E-04	MND	MND	MND	MND	MND	MND	MND	4,51E-04	2,29E-04	3,54E-03	3,83E-05	-3,29E-01
Non-hazardous waste	kg	6,82E-01	4,02E-02	1,75E-01	8,97E-01	1,48E-02	3,44E-01	MND	MND	MND	MND	MND	MND	MND	1,49E-02	4,30E-03	1,32E-01	1,84E-01	-2,91E+00
Radioactive waste	kg	4,79E-04	3,86E-07	2,07E-06	4,82E-04	1,42E-07	6,59E-08	MND	MND	MND	MND	MND	MND	MND	6,78E-06	2,68E-08	5,19E-07	5,34E-09	1,01E-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	4,00E-06	0,00E+00	0,00E+00	4,00E-06	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,86E-02	0,00E+00	5,97E-02	9,83E-02	0,00E+00	7,62E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,67E-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	2,90E-03	MND	MND	MND	MND	MND	MND	MND	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	2,57E-01	MND	MND	MND	MND	MND	MND	MND	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	1,08E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,50E-01	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	1,48E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,40E-01	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – 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	2,85E+00	1,13E-01	6,81E-02	3,03E+00	4,18E-02	9,86E-03	MND	MND	MND	MND	MND	MND	MND	3,68E-03	9,40E-03	2,27E-01	5,33E-03	-1,07E+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, run-of-river (Reference product: electricity, high voltage)
Electricity CO2e / kWh	0,004
District heating data source and quality	-
District heating CO2e / kWh	0

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Transport, freight, lorry >32 metric ton, EURO5 & Transport, freight, sea, ferry (Global)
Average transport distance, km	300
Capacity utilization (including empty return) %	50
Bulk density of transported products	0
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	0
Water use / m³	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
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	% are for recycling, incineration w. energy recovery, landfill respectively. Polyethylene film: 83%,8%,9% Cardboard: 32%,30%,38% Wood pallet: 40%,37%,23%
Direct emissions to ambient air, soil and water / kg	0

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	% are for recycling, incineration w. energy recovery, landfill respectively. Steel: 85%,0%,15% Sealant: 23%,50%,27% Insulation: 9%,59%,32%
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	0,84
Recovery process – kg for energy recovery	0,12
Disposal (total) – kg for final deposition	0,1
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

Sarah Curpen, as an authorized verifier acting for EPD Hub Limited
13.09.2025