



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

FläktGroup Ceiling and Wall Air Diffusers

- reference product: KHDA

- Included products: KHAA, NWPA, NWPP, PSEG, PWKA, PZKA



EPD HUB, HUB-5218

Published on 06.02.2026, last updated on 06.02.2026, valid until 05.02.2031

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

FläktGroup

GENERAL INFORMATION

MANUFACTURER

Manufacturer	FläktGroup AB
Address	Slovanská 781, 463 12 Liberec - Vesec, Czech Republic
Contact details	info-cz@flaktgroup.com
Website	www.flaktgroup.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	Doubravka Šimánková
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Yazan Badour 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	FläktGroup Ceiling and Wall Air Diffusers - reference product: KHDA - Included products: KHAA, NWPA, NWPP, PSEG, PWKA, PZKA
Product reference	KHDA-25-1-1
Place(s) of raw material origin	Europe
Place of production	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
A1-A3 Specific data (%)	13,5

ENVIRONMENTAL DATA SUMMARY

Declared unit	1kg of KHDA diffuser
Declared unit mass	1 kg
Mass of packaging	0,54 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3,59
GWP-total, A1-A3 (kgCO ₂ e)	3,28
Secondary material, inputs (%)	46,4
Secondary material, outputs (%)	79
Total energy use, A1-A3 (kWh)	12,6
Net freshwater use, A1-A3 (m ³)	0,11

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

ABOUT FLÄKTGROUP

FläktGroup is a leader in air technology, delivering best-in-class, innovative, and energy-efficient solutions to ensure comfort, safety, and performance, whilst reducing customers' carbon footprint. FläktGroup's premier brands have been setting technological standards for more than 100 years and can fulfil the most demanding customer requirements. Headquartered in Germany, FläktGroup operates all over the world with production sites across Europe, Asia, and the USA.

FOR WELLBEING, SAFETY, AND ENVIRONMENT

Today, we spend more than 90% of our time indoors, and the air we breathe has a big impact on our performance, well-being, and comfort. Our buildings need mechanical ventilation and air treatment to deliver safe and comfortable building spaces. At the same time, buildings account for up to 40% the energy consumption, where ventilation systems play a big part. The challenge is to lower the energy consumption, and here FläktGroup is one of the key drivers providing superior quality products whilst protecting the environment.

OUR PURPOSE

Our purpose is simple: we care for your air whilst protecting the environment.

BEING AN EMPLOYER OF CHOICE

As we aim to be an employer of choice, this comes with a responsibility. We need to act and care as responsible Corporate Citizen for our people, our community, and our shared environment. We also must deliver sustainable solutions to help our customers to fulfil or exceed environmental demands and legislation. FläktGroup is committed to delivering smart energy-efficient ventilation solutions that make buildings

sustainable, comfortable, healthy, and safe. FläktGroup delivers on this commitment while creating an environment of equality, respect, and fairness, and by adhering to the highest level of ethical and compliance standards. FläktGroup's roadmap is aligned with the UN sustainability goals and the European Green Deal objectives and is translated into annual investments that support our objectives.

PRODUCT DESCRIPTION

All diffusers included in this EPD are designed to be used as terminals of the ventilation ductwork. Depending on the type, they can supply air, extract air, or perform both functions. They are available in multiple designs and sizes and can be mounted on ceilings or walls, or connected to a plenum box for precise airflow control. Diffusers can be adjusted manually, while certain models also allow control via an electric actuator. The standard finish is white (RAL 9003), with custom colors available upon request from the RAL palette.

The reference product KHDA is available in five sizes and is designed for use as a supply air terminal device in large, high-ceiling spaces. The wall diffuser features a long throw, enabling the air to reach the occupied zone or cover extensive areas. It can be installed at the end of a circular duct to provide horizontal air distribution.

KHAA is a Ceiling conical diffuser with a 360° diffusion pattern for mixing ventilation, suitable for both heating and cooling. Adjustable airflow direction (horizontal or vertical), installed in ceilings or freely suspended.

NWPA/NWPP are Ceiling swirl diffusers for mixing ventilation, recommended for commercial buildings (offices, conference rooms, shops, etc.). They can be mounted in a false ceiling. Available in round or square shapes (except size 50).

PWKA / PZKA are Supply and extract swirl diffusers for commercial buildings. Supply units feature adjustable deflectors for diffusion pattern control. Extract units are delivered without blades.

PSEG is an Egg-crate circular extract air grille suitable for both ceiling and wall installation in commercial buildings.

All sizes and weights of the included products are listed in the table below.

Further information can be found at:
www.flaktgroup.com

Table of included products and their weights.

Product Name	Size	Product code	Total weight (kg)
KHDA (reference product)	20	KHDA-20-1-1	1
	25	KHDA-25-1-1	1,6
	31	KHDA-31-1-1	1,9
	40	KHDA-40-1-1	2,7
	50	KHDA-50-1-1	5,3
KHAA	12	KHAA-12-1-1	1,1
	16	KHAA-16-1-1	1,6
	20	KHAA-20-1-1	2,4
	25	KHAA-25-1-1	3,7
	31	KHAA-31-1-1	5,1
	40	KHAA-40-1-1	9,1
NWPA (circular/rectangular)	12	NWPA-12-1-1/ NWPA-12-2-1	0,4/3,1
	16	NWPA-16-1-1/ NWPA-16-2-1	0,6/3,3
	18	NWPA-18-1-1/ NWPA-18-2-1	0,8/3,4
	20	NWPA-20-1-1/ NWPA-20-2-1	1,0/3,5
	25	NWPA-25-1-1/ NWPA-25-2-1	1,4/3,7
	31	NWPA-31-1-1/ NWPA-31-2-1	1,8/3,8
	35	NWPA-35-1-1/ NWPA-35-2-1	2,4/4,2
	40	NWPA-40-1-1/ NWPA-40-2-1	2,9/4,4
	50	NWPA-50-2-1	3,5

NWPP (circular/rectangular)	16	NWPP-16-1-1/ NWPP-16-2-1	1,1/3,6
	18	NWPP-18-1-1/ NWPP-18-2-1	1,3/3,7
	20	NWPP-20-1-1/ NWPP-20-2-1	1,6/3,9
	25	NWPP-25-1-1/ NWPP-25-2-1	2,1/4,1
	31	NWPP-31-1-1/ NWPP-31-2-1	3,0/4,6
	35	NWPP-35-1-1/ NWPP-35-2-1	3,5/4,7
	40	NWPP-40-1-1/ NWPP-40-2-1	4,4/5,0
	50	NWPP-50-1-1/ NWPP-50-2-1	6,8
PSEG	10	PSEG-10-1	0,3
	12	PSEG-12-1	0,4
	16	PSEG-16-1	0,6
	20	PSEG-20-1	0,8
	25	PSEG-25-1	1,1
	31	PSEG-31-1	1,5
	40	PSEG-40-1	2,3
	50	PSEG-50-1	3,1
PWKA/PZKA	40	PWKA-40-1-1-1/ PZKA-40-1-1-1	1,3
	50	PWKA-50-1-1-1/ PZKA-50-1-1-1	2
	60	PWKA-60-1-1-1/ PZKA-60-1-1-1	2,9
	62	PWKA-62-1-1-1/ PZKA-62-1-1-1	3,2

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	89	Europe
Minerals	-	
Fossil materials	11	Europe
Bio-based materials	-	

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,0027
Biogenic carbon content in packaging, kg C	0,0873

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1kg of KHDA-25-1-1 diffuser
Mass per declared unit	1 kg
Functional unit	Not applicable
Reference service life	25 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)

A market-based approach is used in modelling the electricity mix utilized in the factory.

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.

The manual air diffuser is manufactured from steel sheets that are cut and processed to form the body components. These components are then welded or assembled with supplied parts and subsequently coated with white powder paint (RAL 9003).

Waste generated during production includes steel scrap, which is sent for material recycling.

After production, the diffuser is carefully packaged in a cardboard box, cushioned with bubble wrap, and placed on a custom-made wooden pallet for shipping.

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.

The transport distance is calculated as a weighted average of 2024 sales, ensuring a representative distribution of transportation impacts.

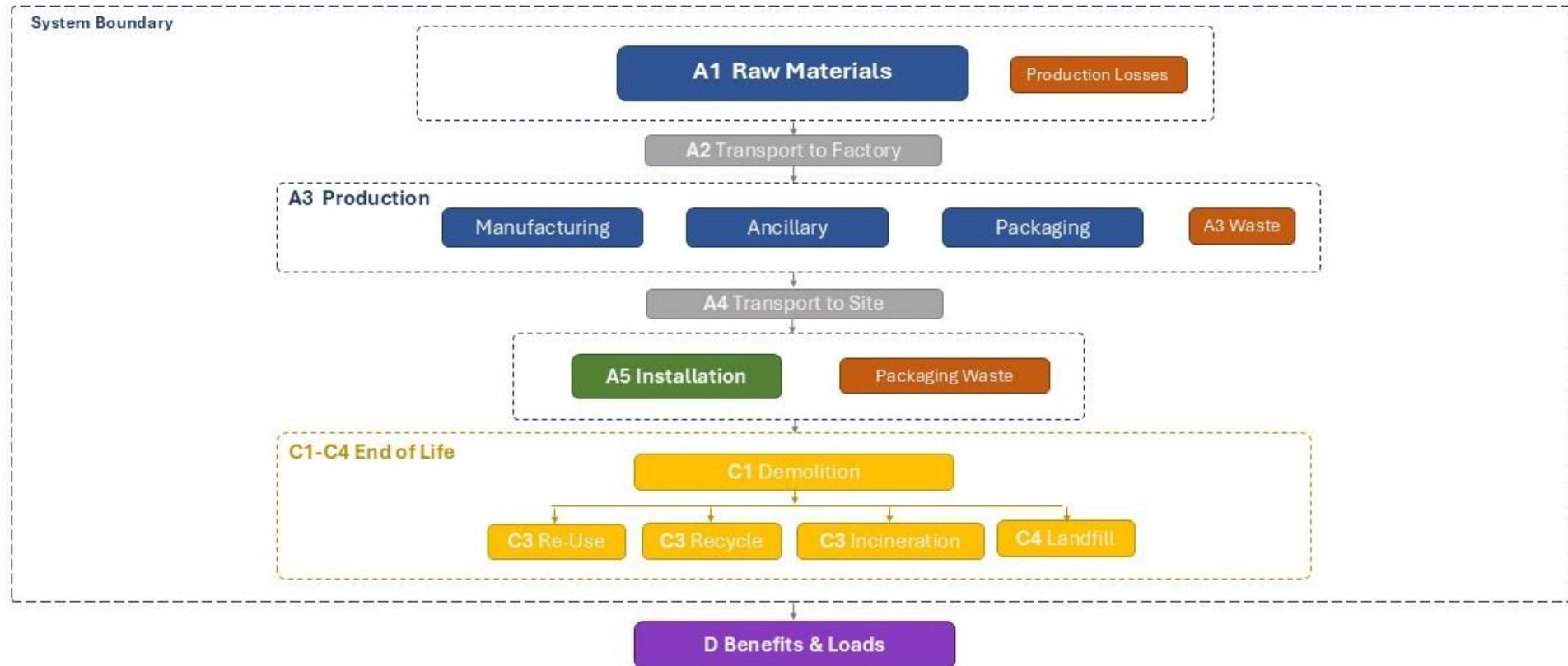
The product is supplied ready for installation (A5), with no raw material waste generated during the installation process. Installation is performed manually or with power tools, requiring only a negligible amount of energy. Packaging materials used for transport, such as cardboard, bubble wrap, and wooden pallets, are sent to waste treatment and managed according to the average end-of-life scenario in the EU.

Based on EUROSTAT data from 2021, 32% of wooden pallets are recycled, 30% are incinerated with energy recovery, and the remaining 38% are landfilled. For cardboard waste, 83% is recycled, 8% is incinerated, and the remaining 9% is landfilled. Plastic packaging is in 40% recycled, 37% incinerated, and 23% is landfilled.

PRODUCT END OF LIFE (C1-C4, D)

At the end of its life, the diffuser is assumed to be manually dismantled and then transported 50 km to a local recycling facility. 50km is used because the real-life scenario is unknown and highly dependent on the location in which the unit is placed (C2). Waste processing (C3) and disposal (C4) are modelled with pre-made groups for EOL by OneClickEPD. The paint is assumed to be incinerated and the recycling rate for steel is based on the World Steel Association (85% recycling rate), Recycled materials are then credited in module D.

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, 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.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD System Verification v3.2.3. 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 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11

environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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 covers multiple products manufactured in a single factory. The products are mostly made from the same material and follow a similar production process. The average product was defined using a weighted average of the products sold in 2024. To investigate potential variations in the results, two extreme product cases were modelled and analysed (MIN and MAX, MAX being the reference product). The results showed that the difference between the two extreme products was less than 10%.

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. The results are based on the declared unit.

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	2,47E+00	1,01E-01	7,14E-01	3,28E+00	2,96E-01	4,86E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,10E-02	1,87E-02	2,64E-01	-1,07E+00
GWP – fossil	kg CO ₂ e	2,47E+00	1,01E-01	1,02E+00	3,59E+00	2,96E-01	1,70E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,10E-02	1,87E-02	2,64E-01	-1,07E+00
GWP – biogenic	kg CO ₂ e	-6,52E-03	2,09E-05	-3,17E-01	-3,24E-01	5,90E-05	3,16E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,72E-06	-3,79E-05	-2,89E-07	0,00E+00
GWP – LULUC	kg CO ₂ e	4,04E-03	3,80E-05	1,13E-02	1,54E-02	1,07E-04	1,87E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,81E-05	2,21E-05	1,16E-06	-1,68E-04
Ozone depletion pot.	kg CFC-11e	2,47E-07	2,06E-09	3,18E-08	2,81E-07	5,84E-09	2,40E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,80E-10	2,40E-10	7,01E-11	-3,55E-09
Acidification potential	mol H ⁺ e	9,51E-03	2,53E-04	4,20E-03	1,40E-02	8,13E-04	1,05E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,36E-04	2,13E-04	2,87E-05	-4,34E-03
EP-freshwater ²⁾	kg Pe	9,39E-04	6,92E-06	6,52E-04	1,60E-03	1,96E-05	4,99E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,18E-06	1,15E-05	4,71E-07	-7,74E-04
EP-marine	kg Ne	2,06E-03	7,19E-05	1,24E-03	3,37E-03	1,98E-04	1,15E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,43E-05	4,71E-05	1,28E-05	-9,65E-04
EP-terrestrial	mol Ne	2,16E-02	7,79E-04	1,01E-02	3,25E-02	2,15E-03	4,10E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,82E-04	5,32E-04	1,40E-04	-1,05E-02
POCP (“smog”) ³⁾	kg NMVOCe	7,94E-03	4,27E-04	3,65E-03	1,20E-02	1,16E-03	1,35E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,91E-04	1,58E-04	3,82E-05	-3,58E-03
ADP-minerals & metals ⁴⁾	kg Sbe	1,44E-05	2,98E-07	1,66E-05	3,13E-05	9,67E-07	1,02E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,35E-07	1,27E-06	8,47E-09	-1,17E-05
ADP-fossil resources	MJ	3,10E+01	1,48E+00	1,01E+01	4,26E+01	4,15E+00	2,19E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,75E-01	2,40E-01	4,55E-02	-9,88E+00
Water use ⁵⁾	m ³ e depr.	4,31E+00	7,48E-03	5,32E-01	4,85E+00	2,04E-02	8,98E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,67E-03	4,33E-03	3,64E-03	-2,41E-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	1,44E-07	9,15E-09	3,36E-08	1,87E-07	2,15E-08	2,89E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,25E-09	2,89E-09	3,35E-10	-7,91E-08
Ionizing radiation ⁶⁾	kBq 11235e	1,22E-01	1,84E-03	1,85E-01	3,09E-01	5,27E-03	9,06E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,73E-04	2,03E-03	6,49E-05	4,02E-02
Ecotoxicity (freshwater)	CTUe	5,03E+01	1,82E-01	7,62E+01	1,27E+02	5,46E-01	3,51E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,06E-02	1,40E-01	9,84E-02	-4,92E+01
Human toxicity, cancer	CTUh	3,35E-09	1,67E-11	5,83E-10	3,95E-09	4,99E-11	2,76E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,97E-12	1,60E-11	3,27E-10	-1,59E-10
Human tox. non-cancer	CTUh	1,03E-08	9,43E-10	7,22E-09	1,85E-08	2,59E-09	8,25E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,60E-10	1,08E-09	9,92E-10	-7,36E-09
SQP ⁷⁾	-	4,83E+00	1,32E+00	3,25E+01	3,86E+01	2,46E+00	2,21E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,44E-01	4,66E-01	5,07E-02	-3,39E+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	2,10E+00	2,47E-02	1,05E+00	3,17E+00	7,17E-02	-6,21E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,94E-03	4,47E-02	9,62E-04	-8,61E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	5,21E+00	5,21E+00	0,00E+00	-5,21E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,10E+00	2,47E-02	6,26E+00	8,38E+00	7,17E-02	-1,14E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,94E-03	4,47E-02	9,62E-04	-8,61E-01
Non-re. PER as energy	MJ	3,08E+01	1,48E+00	9,94E+00	4,22E+01	4,15E+00	-5,04E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,75E-01	2,21E-01	-1,08E+00	-9,88E+00
Non-re. PER as material	MJ	1,95E-02	0,00E+00	3,19E-01	3,38E-01	0,00E+00	-3,19E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,42E-02	-5,26E-03	0,00E+00
Total use of non-re. PER	MJ	3,08E+01	1,48E+00	1,03E+01	4,26E+01	4,15E+00	-5,36E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,75E-01	2,07E-01	-1,08E+00	-9,88E+00
Secondary materials	kg	4,64E-01	6,46E-04	2,17E-01	6,81E-01	1,92E-03	3,34E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,59E-04	2,93E-04	5,62E-05	6,05E-01
Renew. secondary fuels	MJ	1,33E-03	8,00E-06	1,04E-01	1,06E-01	2,39E-05	2,86E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,29E-06	1,36E-05	3,42E-07	-9,67E-05
Non-ren. secondary fuels	MJ	8,73E-04	0,00E+00	0,00E+00	8,73E-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	9,63E-02	2,14E-04	1,35E-02	1,10E-01	5,59E-04	-3,65E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,63E-05	1,27E-04	7,27E-05	-3,89E-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	4,56E-01	2,12E-03	2,32E-02	4,82E-01	6,01E-03	3,38E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,98E-04	1,57E-03	5,51E-03	-3,56E-01
Non-hazardous waste	kg	4,81E+00	4,34E-02	2,61E+00	7,47E+00	1,26E-01	7,18E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,88E-02	5,69E-02	1,19E-01	-4,29E+00
Radioactive waste	kg	9,77E-05	4,56E-07	3,75E-05	1,36E-04	1,31E-06	2,25E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,16E-07	5,21E-07	1,64E-08	1,03E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	6,88E-03	0,00E+00	0,00E+00	6,88E-03	0,00E+00	2,86E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	7,90E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	8,17E-05	0,00E+00	0,00E+00	8,17E-05	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
Exported energy	MJ	5,84E-03	0,00E+00	0,00E+00	5,84E-03	0,00E+00	1,17E+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 – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,94E-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	6,78E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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 ₂ e	2,48E+00	1,01E-01	1,03E+00	3,61E+00	2,96E-01	1,70E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,10E-02	1,87E-02	2,64E-01	-1,07E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Market for electricity, high voltage, Czech republic; -based on invoice
Electricity kg CO2e / kWh	0,62
District heating data source and quality	Heat, from municipal waste incineration (71,84%), Heat production, natural gas, at industrial furnace (28,16%); -based on invoice
District heating kg CO2e / kWh	0,271

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Diesel powered Truck (987km), Container Ship (39km)
Average transport distance, km	1026
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 / m ³	-
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	Wooden pallet: 0,2 kg Cardboard: 0,21 kg Bubble wrap: 0,13 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 with energy recovery, and landfill respectively. Wood: 32%, 30%, 38% Cardboard: 83%, 8%, 9% PP wrap: 23%, 50%, 27%
Direct emissions to ambient air, soil and water / kg	-

End of life scenario documentation (C1-C4)

Scenario information	Value
Collection process – kg collected separately	-
Collection process – kg collected with mixed construction waste	1
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0,79
Recovery process – kg for energy recovery	0,0003
Disposal (total) – kg for final deposition	0,21
Scenario assumptions e.g. transportation	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 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

Yazan Badour as an authorized verifier for EPD Hub Limited 06.02.2026

