Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Ventilation strip

from

Bygtjek A/S

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-13862
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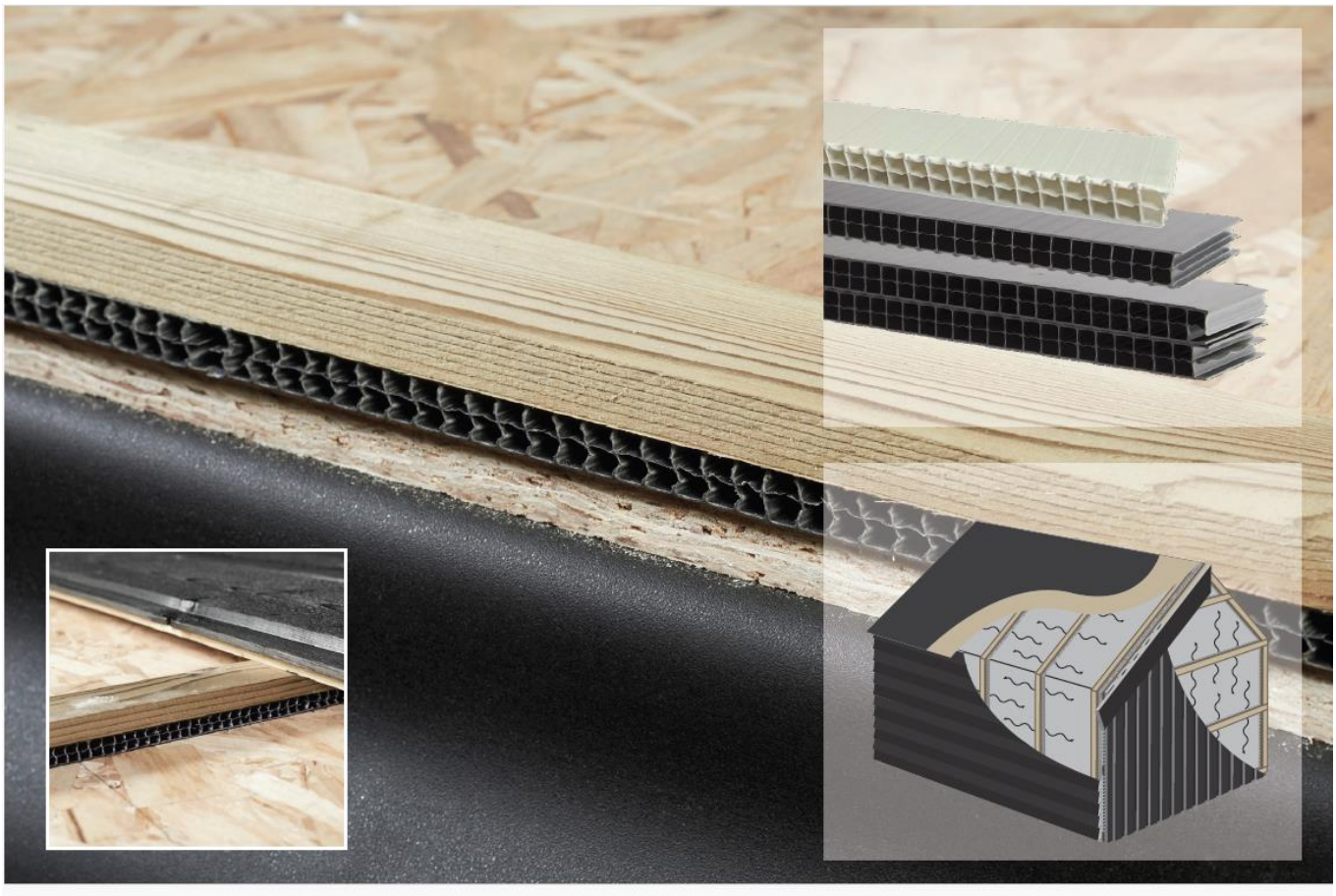
Valid until:	2029-05-23
	EPD of multiple products, based on average result

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

Programme information

Programme:	The International EPD® System
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Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction products, 2019:14, Version 1.3.3
PCR review was conducted by: *Martin Erlandsson, IVL Swedish Environmental Research Institute, Martin.Erlandsson@ivl.se*
Life Cycle Assessment (LCA)
LCA accountability: *Amy Stockwell, CarbonZero AB*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Vladimír Kočí, LCA Studio* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Bygtjek A/S
Contact: Rasmus Jensen rje@jual.dk
Description of the organisation: BYGTJEK A/S is a company located in Juelsminde in Denmark, which produces accessories for roofs and facades for the construction industry in Denmark and large parts of Europe. Our standard assortment is broad and we also produce special products in large quantities.
Name and location of production site(s): Denmark

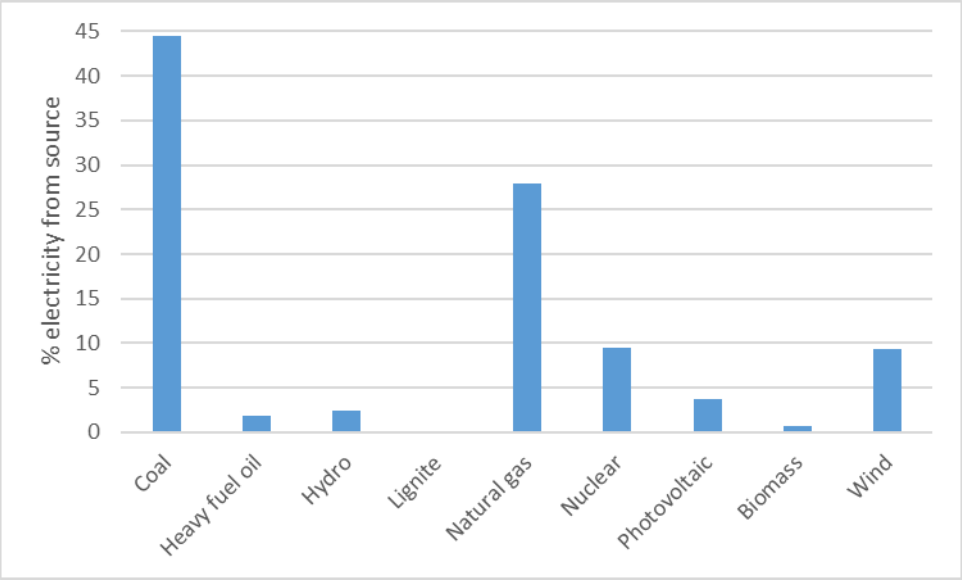
Product information

Product name: Ventilation strip
Product description: For constructions where improved ventilation is desired, the Bygtjek ventilation list has been developed to make the assembly process easier and faster. The ventilation strip can be used, for both flat roofs and facades. For facades, it can be used for both horizontal and vertical cladding. The ventilation strip can be purchased in several different variants, in different sizes and material compositions.
Shaped parts made from plastic are purchased from suppliers. They are then cut to size and assembled to produce ventilations strips.
Products included: The products included in this EPD are 2VW-210, 2VW-210-FR and 2VW-2-210. The ventilation strip is manufactured from recyclable polypropylene, that can be purchased in both 10 and 20 mm thickness in lengths of 2100 mm.
UN CPC code: 54530 roofing and waterproofing services
Geographical scope: The product is made in Denmark. It was assumed to be sold in Denmark and Danish statistics were used to calculate the end of life scenario.

LCA information

Functional unit / declared unit: 1 kg ventilation strip
Reference service life: Not applicable. There is a large variation in the conditions in which the product is used, so no RSL can be estimated.
Time representativeness: 2022
Database(s) and LCA software used: LCA for Experts v 10.7.1.28 (GaBi) and Ecoinvent 3.8
Allocation: this EPD covers a range of products. The EPD was calculated on a mass basis. The allocation of manufacturing was based on mass.
Cut off criteria: The general rules for the exclusion of inputs and outputs follow the requirements in EN 15804. The plants, production of machines and transportation systems are excluded since the related flows are supposed to be negligible compared to the potential environmental impacts through the life cycle of the product, as well as flows related to human activities, such as employee transport.
Description of system boundaries: Cradle to gate with options: A1-A3, A4, A5 modules C1–C4 and module D.

Module A3: From AIB, the 2022 Danish electricity grid mix has a GWP-GHG impact of 5.22E-01 kg CO_2e per kWh. The grid mix is shown in the figure below:



Transport A4 and C2: products and waste are transported by truck using the datasets listed. This EPD assumes the products are sold within Denmark with an average transport distance of 350 km. It was assumed that waste is transported 100 km.

Type	Capacity utilisation %	Type of vehicle
Truck	61%	Average truck trailer with a 27 t payload

Fuel type	Database	Regional coverage	Time reference
EU 28: Diesel mix (6,35% bio-content)	Sphera	EU	2017

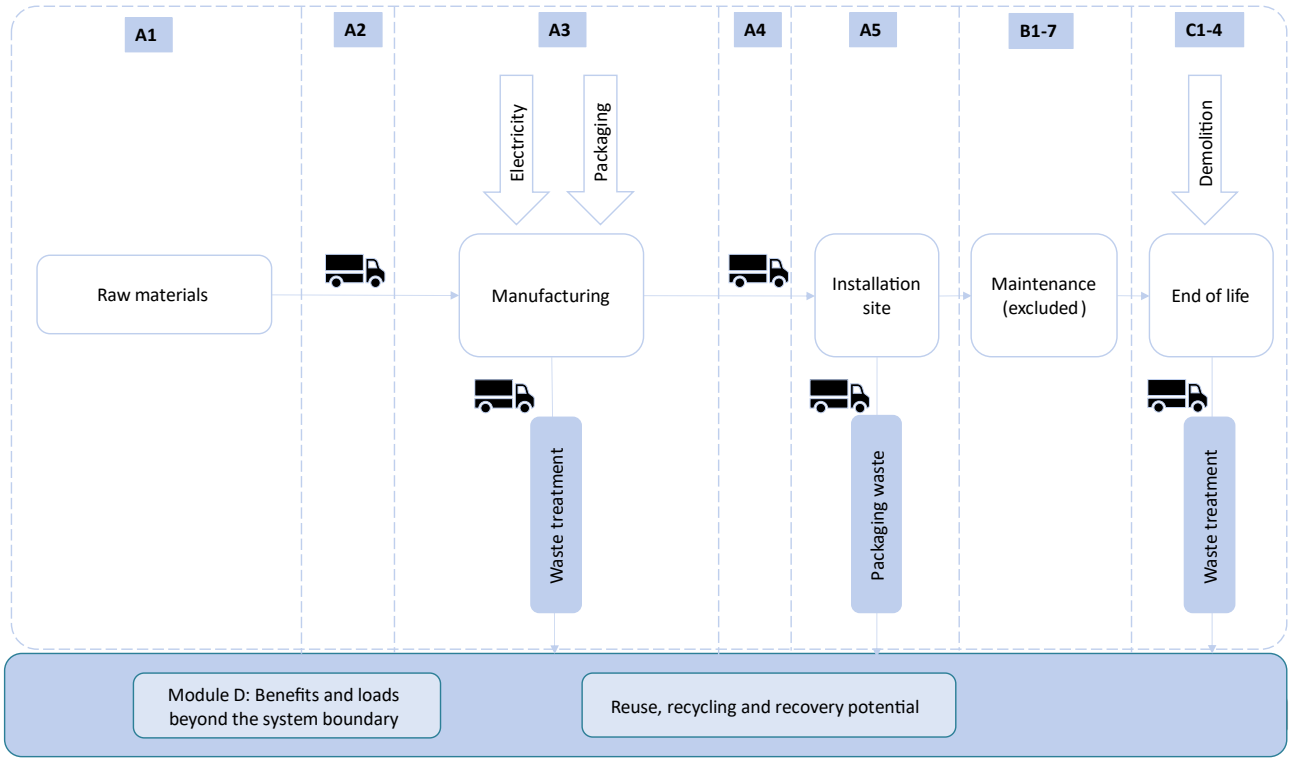
The biogenic carbon impact of this dataset was deducted in the model.

Module A5:it is assumed that the products are installed by hand, so the impact is negligible. Pallets are assumed to be reused and plastic packaging is treated as per Danish statistics. As there are no recycling datasets available, the impact is assumed to be 0 and that there is a 10% loss of material quality/quantity.

Material	Recycling rate	Incineration rate	Landfill rate
Mixed construction waste	93 %	3 %	4 %
Plastic packaging	99 %	1 %	0

Modules C and D: Based on data from Danish Statistics 2020 in the table above, most of the construction waste is recycled. The plastic is credited with PP granulate. The rest was incinerated and landfilled and credited electricity and thermal energy as per the datasets.

System diagram:



Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Plastic	9.9E-01	0	0
Metal	2.9E-03	0	0
TOTAL	1	0	0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Pallet	7.8E-02	8%	3.0E-02
PE film	3.1E-03	0.3%	0
PP film	2.6E-04	0.02%	0
TOTAL	8.2E-02	8%	3.0E-02

There are no dangerous substances from the candidate list of SVHC for authorisation.

Biogenic carbon content

Biogenic carbon content	Unit per FU	Amount
Biogenic carbon content in the product	kg C	0
Biogenic carbon content in packaging	kg C	3.0E-02

1 kg biogenic carbon is equivalent to 44/12 kg CO2.

Disclaimers

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

It is discouraged to use the results of modules A1-A3 without considering the results of module C.

ILCD classification	Indicator	Disclaimer
ILCD Type 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD Type 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD Type 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – 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.		
Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.		

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

X=included, - = excluded

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal*	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	-	-	-	-	-	-	-	X	X	X	X	X
Geography	EU	DK	DK	DK	DK	-	-	-	-	-	-	-	DK	DK	DK	DK	DK
Specific data used	12 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<5 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Module C4 also includes the biogenic carbon balance

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804, EF 3.1

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.80E+00	2.97E-02	8.58E-03	6.50E-04	7.85E-03	1.27E-02	4.55E-03	-1.29E-02
GWP-biogenic	kg CO_2 eq.	1.89E-02	1.24E-03	3.55E-04	-1.55E-05	3.28E-04	1.55E-02	-3.63E-02	4.74E-01
GWP-luluc	kg CO_2 eq.	2.72E-03	4.86E-04	1.39E-04	1.05E-05	1.28E-04	1.54E-06	3.88E-06	-4.09E-05
GWP-total	kg CO_2 eq.	2.81E+00	3.15E-02	9.07E-03	6.45E-04	8.31E-03	2.82E-02	-3.17E-02	4.61E-01
ODP	kg CFC 11 eq.	1.68E-11	4.26E-15	1.24E-15	9.19E-17	1.13E-15	6.67E-15	4.11E-15	-1.02E-13
AP	mol H^+ eq.	4.33E-03	3.80E-05	1.09E-05	3.22E-06	1.00E-05	1.57E-05	1.09E-05	-3.34E-05
EP-freshwater	kg P eq.	5.04E-06	1.24E-07	3.53E-08	2.66E-09	3.26E-08	2.51E-09	8.38E-07	-3.36E-08
EP-marine	kg N eq.	1.11E-03	1.40E-05	3.99E-06	1.52E-06	3.69E-06	6.10E-06	9.50E-06	-1.42E-05
EP-terrestrial	mol N eq.	1.18E-02	1.63E-04	4.65E-05	1.68E-05	4.30E-05	7.65E-05	3.99E-05	-1.55E-04
POCP	kg NMVOC eq.	4.43E-03	3.85E-05	1.10E-05	4.30E-06	1.02E-05	1.59E-05	2.27E-05	-3.91E-05
ADP-minerals&metals*	kg Sb eq.	6.02E-07	2.52E-09	7.20E-10	5.44E-11	6.66E-10	1.38E-11	8.95E-11	-1.32E-09
ADP-fossil*	MJ	8.54E+01	3.81E-01	1.09E-01	8.22E-03	1.01E-01	1.58E-02	3.17E-02	-2.20E-01
WDP*	m^3	1.94E-01	4.48E-04	1.36E-04	9.66E-06	1.18E-04	4.70E-03	1.51E-04	-1.29E-03
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Resource use indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	7.03E+00	3.28E-02	-1.55E+00	7.08E-04	8.67E-03	3.83E-03	3.23E-03	6.70E-01
PERM	MJ	3.13E+00	0	1.56E+00	0	0	0	0	-5.69E+00
PERT	MJ	1.02E+01	3.28E-02	9.39E-03	7.08E-04	8.67E-03	3.83E-03	3.23E-03	-5.02E+00
PENRE	MJ	3.80E+01	3.81E-01	1.09E-01	8.22E-03	1.01E-01	1.58E-02	3.17E-02	-2.20E-01
PENRM	MJ	4.73E+01	0	0	0	0	0	0	0
PENRT	MJ	8.54E+01	3.81E-01	1.09E-01	8.22E-03	1.01E-01	1.58E-02	3.17E-02	-2.20E-01
SM	kg	0	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	1.09E-02	3.66E-05	1.06E-05	7.89E-07	9.66E-06	1.10E-04	4.58E-06	-7.56E-05
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	2.28E-08	1.46E-11	4.19E-12	3.15E-13	3.86E-12	8.33E-12	5.49E-12	-1.72E-10
Non-hazardous waste disposed	kg	2.71E-02	6.22E-05	2.54E-05	1.34E-06	1.64E-05	3.47E-03	3.22E-02	-1.29E-04
Radioactive waste disposed	kg	1.82E-03	6.94E-07	2.00E-07	1.50E-08	1.83E-07	6.83E-07	3.84E-07	-1.59E-05

Output flow indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	7.81E-02	0	7.81E-02	0	0	0	0	0
Material for recycling	kg	3.00E-02	0	3.35E-03	0	0	9.30E-01	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	1.53E-04	0	0	3.69E-02	1.19E-02	0
Exported energy, thermal	MJ	0	0	2.74E-04	0	0	8.42E-02	0	0

Additional mandatory and voluntary impact category indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.81E+00	3.03E-02	8.74E-03	6.62E-04	8.01E-03	1.28E-02	3.27E-02	-1.30E-02

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

References

AIB 2023	European Residual Mixes 2022
EN 15804:2012+A2	Sustainability of construction works – Environmental product declaration – Core rules for the product category of constructions products
EPD International (2021)	General Programme Instructions of the International EPD® System, version 4.0
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ISO 14020:2022	International Standard ISO 14020 – Environmental statements and programmes for products – Principles and general requirements
ISO 14025:2006	International Standard ISO 14025 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006	International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01.
ISO 14044:2006	International Standard ISO 14044: Environmental Management – Life cycle assessment – Requirements and Guidelines.
PCR 2019:14	PCR 2019:14 Construction products (EN 15804:A2) v1.3.3
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