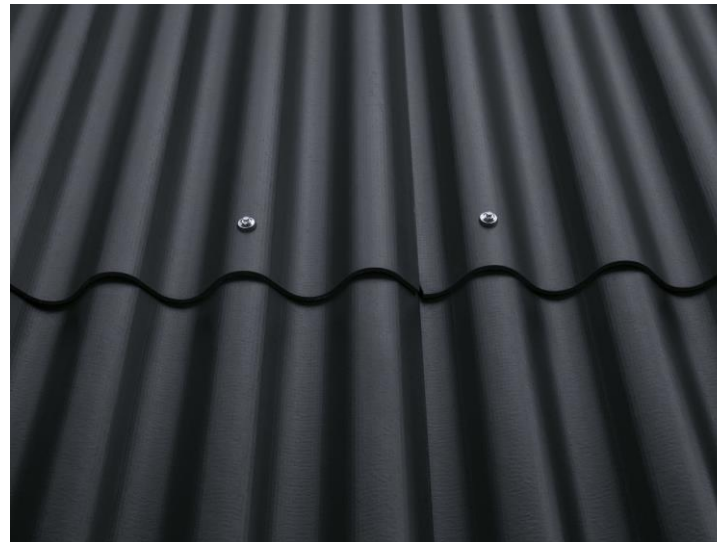


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Corrugated sheets with thickness 6mm (non-coated / coated)

Eternit Baltic



EPD HUB, EPD number HUB-4030

Published on 28.09.2025, last updated on 28.09.2025, valid until 28.09.2030

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.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Eternit Baltic
Address	J. Dalinkevičiaus str. 2H Naujoji Akmenė, 85118, Lithuania
Contact details	eternit@eternit.lt
Website	https://www.etexgroup.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-B7, and modules C1-C4, D
EPD author	Peggy Van De Velde, PRTC N.V., Etex Group
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Magaly Gonzalez Vazquez 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	Corrugated sheets with thickness 6mm (non-coated / coated)
Additional labels	CB40 P75 Gotika Banga Villa Urban Pro
Place(s) of raw material origin	Mainly Europe
Place of production	Akmene, Lithuania
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% / +4%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m2 of corrugated sheets with a thickness of 6mm
Declared unit mass	12,0 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	8,00E+00
GWP-total, A1-A3 (kgCO ₂ e)	7,33E+00
Secondary material, inputs (%)	4,4
Secondary material, outputs (%) Landfill / recycling scenario	0 / 100
Total energy use, A1-A3 (kWh)	23,1
Net freshwater use, A1-A3 (m ³)	0,03

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Eternit Baltic is a leading supplier of quality products for roofs and facades made of fibre cement. Eternit Baltic has an environment, health and safety management system which is ISO 14001 and ISO 45001 certified. The quality management system of the company and the production facility are certified according to ISO 9001.

Eternit Baltic is part of the global Etex Group of Companies, which operates across Europe, Africa, Near & Middle East and South America. The Etex group operates more than 160 sites in 45 countries and employs over 13 500 people worldwide.

PRODUCT DESCRIPTION

Corrugated sheets are manufactured using the Hatschek process, resulting in durable and high-performance fibre cement panels. Available in natural grey and a range of coated colours, they feature a smooth, even surface and are designed for use as roofing or cladding.

These unique characteristics offer a range of functional benefits:

- **Breathable and climate-regulating:** Helps maintain a balanced indoor environment.
- **Moisture-absorbing:** Semi-compressed design absorbs up to 25% of its weight in moisture, significantly reducing condensation.
- **Thermal efficiency:** Keeps buildings cooler in summer and warmer in winter, with reduced surface condensation compared to metal alternatives.
- **Sound-suppressing:** Enhances acoustic comfort by dampening noise.
- **Weather-resistant:** Provides long-term protection against harsh environmental conditions.
- **Lightweight:** Reinforced with fibres for easy handling and installation.
- **Fire-safe:** Classified as A2-s1,d0 according to EN 13501-1 standards.

This EPD is representative and relevant for all the corrugated sheets with thickness 6mm produced by Eternit Baltic, this includes all non-coated and coated 6mm corrugated sheets in profile P75 and CB40.

The results declared in this EPD are for the production and the installation of coated CB40 with thickness of 6mm, which was chosen as representative product for the covered group. The representativeness of coated CB40 6mm has been checked by comparing its results with the results of all the other 6mm corrugated sheets covered in the EPD. The comparative analysis confirmed that the maximal variation is below the allowable limit for the GWP-fossil for A1-A3 and as a result, it can be considered as representative.

Further information can be found at:
<https://www.etexgroup.com>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	/	/
Minerals	95.6	Europe
Fossil materials	2.2	World
Bio-based materials	2.2	World

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.12
Biogenic carbon content in packaging, kg C	0.07

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m2 of corrugated sheets with a thickness of 6mm
Mass per declared unit	12.0 kg
Functional unit	1m2 of corrugated sheets with a thickness of 6mm, installed, having a reference service life of 50 years and its related impacts over the cradle to grave life-cycle modules
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	x	x	x	x	x	x	x	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 the production as well as packaging materials for the final product (packaging for raw materials was neglectable) and other ancillary materials (such as the process water and lubricant; other consumables used during production were neglectable). 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 (fibre cement waste is sent to recycling by truck over 50km) as well as losses

during electricity transmission (uplift of 14% was applied to consider transmission and distribution losses).

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

Transport for raw materials considers the distance from the manufacturing location of the raw material to the production plant and the modelling of the relevant transportation type (e.g. bulk sea freight, road lorry, train, ...) for each raw material. Over 65% of our raw materials are sourced from suppliers within a radius of 150 km from our factories.

Regarding the energy used, natural gas, steam and electricity were consumed during manufacturing. The electricity used in the manufacturing plant is 100% sourced from the renewable sources.

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.

For the transportation from the production plant to the building site, a scenario was assumed with a transportation distance of 100 km and using a lorry as transportation method. For other transportation distances with lorry the impacts can be easily calculated by multiplying the impacts in module A4 with the lorry transport distance to the specific location and dividing by 100.

Installation (A5) of the product is according to the following scenario(s): fixation of the corrugated sheets to the roof substructure. This EPD declares

the use of screws and energy consumption to fixate the corrugated sheets but does not include the substructure. Except on the edges of the roof, no cutting is needed during the installation, the loss rate considered is therefore only 0.8%.

All packaging material for the corrugated sheets is transported to EoL (scenario: truck; landfill 50km/recycling 100km) and waste treatment is included.

Note that this EPD declares 1m² of corrugated sheets. When the corrugated sheets are installed on a roof, a certain overlap of corrugated sheets will be occur depending on the size of the corrugated sheet. To calculate the impacts of the corrugated sheet for a roof, one should consider the total amount of square meter corrugated sheet needed to cover the full roof and multiply this amount with the results declared in this EPD.

PRODUCT USE AND MAINTENANCE (B1-B7)

The product has an estimated reference service life in excess of 50 years, providing the product is installed as per Etex recommendations. In such case, the product will last during its life of use generally without any requirements for maintenance, repair, replacement, or refurbishment, providing normal and no accidental conditions of usage are encountered. The product will also not need any operational energy nor operational water to fulfil its duty, once installed in the building.

The only impact during the use phase is that of carbonation, where some CO₂ is adsorbed from the atmosphere over the lifetime of the corrugated sheets. Depending on the application where the materials are used, the degree of carbonation will vary. The carbonation was calculated for the outdoor use exposed to rain scenario and reported in the B1 module. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Two possible end-of-life scenarios are considered for the corrugated sheets:

Scenario 1: 100% landfilling scenario: 100% of sheets + screws from demolition wastes are going to landfill at end of life.

Scenario 2: 100% recycling scenario: 100% of sheets + screws from demolition wastes are going to recycling at end of life.

For the dismantling of the corrugated sheets in C1, the same amount of energy was assumed as for the installation.

The transport of the waste to the end-of-life (C2) is considered to be 50km from the plant in the landfilling scenarios and 100 km from the plant in the recycling scenario.

Outside the system boundaries, module D shows benefits and loads from the recycling processes. In scenario 1 these are related to the recycling of the packaging materials. In scenario 2 these are related to the recycling of the fibre cement sheets, the packaging materials and the screws.

MANUFACTURING PROCESS

DESCRIPTION

Corrugated sheets are made from fibre cement, a durable material produced using the Hatschek process. This involves mixing cement, cellulose, polyvinyl alcohol (PVA) fibres, and water into a slurry. PVA fibres serve as the strengthening agent, enhancing the mechanical properties of the final product.

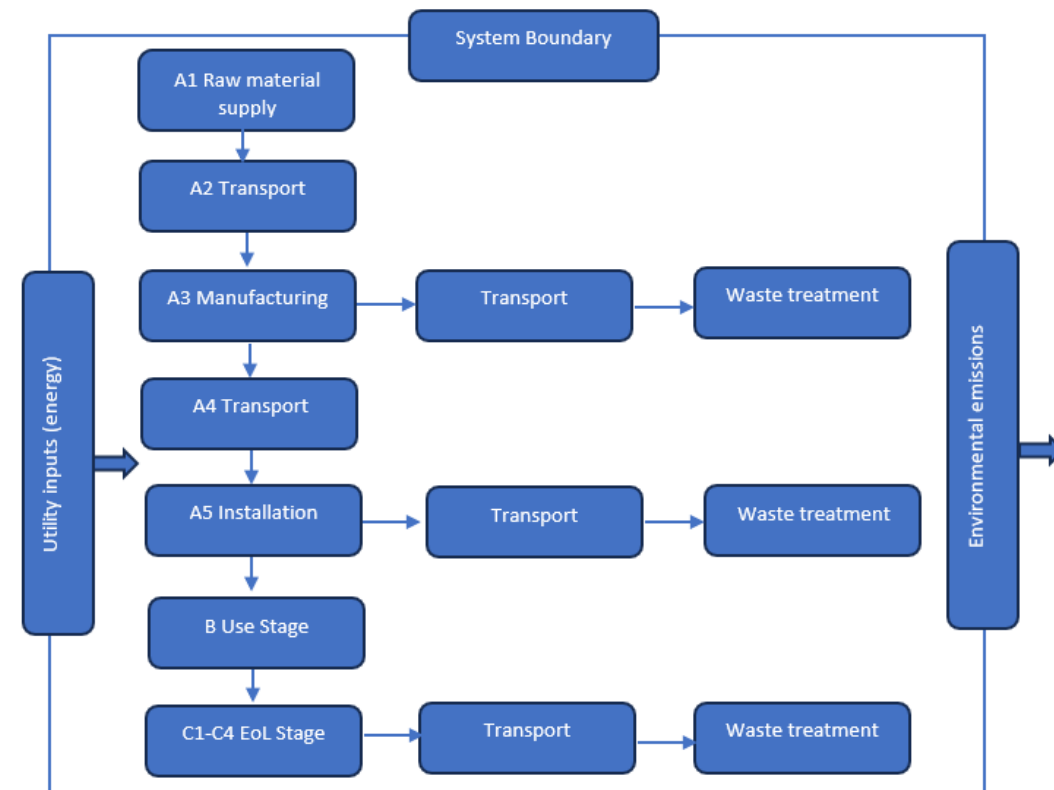
The slurry is introduced into the vats of the Hatschek machine, where rotating sieve cylinders extract thin layers of solid material. These layers are dewatered, transferred onto a felt, and then accumulated on a format roller until the desired thickness is achieved. The formed fibre cement sheet is then moved to a conveyor belt, where its thickness is verified.

Once it meets specifications, the material is cut to size and shaped into corrugated sheets using a corrugation machine. The sheets pass between metal forms to ensure consistent shaping, while any offcuts are recycled back into the production process.

After corrugation, the sheets undergo pre-curing and are stored under controlled temperature and humidity conditions to ensure optimal quality



See below the included life cycle stages within the system boundary of this study:



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.

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% / +4%

The corrugated sheets declared in this EPD are all produced in the same factory. All products covered in this EPD have similar recipe and exist in coated and non coated versions and with different wave pattern.

The results declared in this EPD are for 1m² of coated CB40 corrugated sheets with a thickness of 6mm which was chosen as representative product for the group as it represents the highest volume of the grouped products. LCA calculations were performed for both the lowest and highest impact product of the covered products and the results were compared to the results for the representative product. The variation analysis confirmed that the maximal variation was below the allowable limit for the GWP-fossil for A1-A3.

The corrugated sheets also exist in 6.5 mm, the environmental impacts of these are covered in a separate EPD.

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'.

- Electricity transmission and distribution losses :

<https://data.worldbank.org/indicator/EG.ELC.LOSS.ZS>

- CO2 uptake by carbonation :

EN16757 Sustainability of construction works - Environmental product declarations - Product Category rules for concrete and concrete elements; annex BB

https://www.greenbooklive.com/filelibrary/EN_15804/BRE-PN514-EN15804-A2-PCR-V3.1.pdf

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.

Two end-of-life scenarios have been calculated: “100% landfill” (referred in the tables as modules C2/1, C3/1, C4/1 and D/1) and “100% recycling” (referred in the tables as modules C2/2; C3/2; C4/2 and D/2).

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
GWP – total ¹⁾	kg CO ₂ e	7,33E+00	2,35E-01	6,37E-01	-2,77E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,06E-03	1,17E-01	2,30E-01	0,00E+00	4,45E-01	4,97E-01	0,00E+00	-2,67E-01	-7,16E-01
GWP – fossil	kg CO ₂ e	8,00E+00	2,35E-01	3,87E-01	-2,77E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,05E-03	1,17E-01	2,29E-01	0,00E+00	2,35E-02	7,54E-02	0,00E+00	-1,05E-03	-2,83E-02
GWP – biogenic	kg CO ₂ e	-6,72E-01	4,66E-05	2,49E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,43E-06	2,32E-05	4,61E-05	0,00E+00	4,21E-01	4,21E-01	0,00E+00	-1,49E-02	-1,48E-02
GWP – LULUC	kg CO ₂ e	1,92E-03	8,31E-05	3,28E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,00E-05	4,13E-05	8,23E-05	0,00E+00	5,61E-05	4,31E-05	0,00E+00	-2,51E-01	-6,73E-01
Ozone depletion pot.	kg CFC-11e	1,01E-07	4,68E-09	9,95E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,97E-11	2,32E-09	4,56E-09	0,00E+00	4,02E-10	2,19E-09	0,00E+00	-2,56E-11	-1,50E-10
Acidification potential	mol H ⁺ e	1,28E-02	7,36E-04	2,29E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,23E-06	3,65E-04	4,77E-04	0,00E+00	1,58E-04	5,35E-04	0,00E+00	-3,82E-06	-6,20E-04
EP-freshwater ²⁾	kg Pe	3,49E-04	1,56E-05	5,04E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,55E-07	7,75E-06	1,54E-05	0,00E+00	1,74E-05	6,20E-06	0,00E+00	-1,16E-06	-1,69E-07
EP-marine	kg Ne	1,14E-02	2,48E-04	3,34E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,97E-07	1,23E-04	1,15E-04	0,00E+00	3,73E-05	2,04E-04	0,00E+00	-1,45E-06	-2,21E-04
EP-terrestrial	mol Ne	2,59E-02	2,70E-03	2,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,17E-06	1,34E-03	1,24E-03	0,00E+00	3,78E-04	2,23E-03	0,00E+00	-1,17E-05	-3,15E-03
POCP (“smog”) ³⁾	kg NMVOCe	1,23E-02	1,15E-03	8,26E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,37E-06	5,73E-04	7,94E-04	0,00E+00	1,18E-04	7,98E-04	0,00E+00	-2,07E-05	-7,12E-04
ADP-minerals & metals ⁴⁾	kg Sbe	3,59E-05	7,69E-07	2,61E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,20E-08	3,82E-07	7,64E-07	0,00E+00	3,32E-07	1,20E-07	0,00E+00	-3,80E-09	-2,72E-07
ADP-fossil resources	MJ	6,71E+01	3,30E+00	8,35E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E-02	1,64E+00	3,23E+00	0,00E+00	4,84E-01	1,85E+00	0,00E+00	-2,20E-02	-2,02E-01
Water use ⁵⁾	m ³ e depr.	2,89E+02	1,62E-02	2,37E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,07E-04	8,06E-03	1,60E-02	0,00E+00	1,16E-02	5,34E-03	0,00E+00	-8,25E-04	-2,57E-03

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
Particulate matter	Incidence	1,07E-07	1,85E-08	1,50E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,00E-11	9,19E-09	1,69E-08	0,00E+00	1,69E-09	1,22E-08	0,00E+00	-4,62E-11	-8,40E-09
Ionizing radiation ⁶⁾	kBq U235e	5,26E-02	4,21E-03	1,57E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,94E-04	2,09E-03	4,16E-03	0,00E+00	1,14E-02	1,16E-03	0,00E+00	-4,18E-04	8,21E-03
Ecotoxicity (freshwater)	CTUe	4,52E+00	4,34E-01	8,79E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,59E-03	2,15E-01	4,29E-01	0,00E+00	7,69E-02	1,55E-01	0,00E+00	-8,16E-03	-2,98E-01
Human toxicity, cancer	CTUh	6,47E-10	4,01E-11	7,01E-12	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,21E-13	1,99E-11	3,85E-11	0,00E+00	8,64E-12	1,39E-11	0,00E+00	-1,88E-12	1,39E-10
Human tox. non-cancer	CTUh	2,25E-08	2,07E-09	2,84E-10	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,37E-11	1,03E-09	2,04E-09	0,00E+00	4,22E-10	3,19E-10	0,00E+00	-1,04E-11	1,04E-10
SQP ⁷⁾	-	1,04E+02	1,97E+00	9,32E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,22E-03	9,77E-01	1,95E+00	0,00E+00	3,15E-01	3,65E+00	0,00E+00	1,26E+00	1,13E+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-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
Renew. PER as energy ⁸⁾	MJ	2,08E+01	5,71E-02	2,19E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,17E-03	2,84E-02	5,65E-02	0,00E+00	1,13E-01	1,79E-02	0,00E+00	5,41E-01	5,87E-01
Renew. PER as material	MJ	5,63E+00	0,00E+00	-2,18E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,46E+00	-3,46E+00	0,00E+00	1,41E+00	4,84E+00
Total use of renew. PER	MJ	2,64E+01	5,71E-02	6,74E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,17E-03	2,84E-02	5,65E-02	0,00E+00	-3,34E+00	-3,44E+00	0,00E+00	1,95E+00	5,43E+00
Non-re. PER as energy	MJ	6,17E+01	3,30E+00	8,26E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E-02	1,64E+00	3,23E+00	0,00E+00	4,84E-01	1,85E+00	0,00E+00	-2,20E-02	-2,02E-01
Non-re. PER as material	MJ	3,73E+00	0,00E+00	-5,60E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,17E+00	-3,17E+00	0,00E+00	1,45E-01	6,21E-01
Total use of non-re. PER	MJ	6,55E+01	3,30E+00	7,70E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E-02	1,64E+00	3,23E+00	0,00E+00	-2,69E+00	-1,32E+00	0,00E+00	1,23E-01	4,20E-01
Secondary materials	kg	5,46E-01	1,51E-03	1,31E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,69E-06	7,52E-04	1,50E-03	0,00E+00	1,78E-04	4,65E-04	0,00E+00	-1,35E-05	8,13E-02
Renew. secondary fuels	MJ	7,53E-02	1,91E-05	6,03E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,95E-08	9,49E-06	1,89E-05	0,00E+00	1,86E-06	9,64E-06	0,00E+00	-1,04E-07	-2,63E-06
Non-ren. secondary fuels	MJ	5,84E-01	0,00E+00	4,67E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m³	3,31E-02	4,45E-04	3,83E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,52E-05	2,21E-04	4,40E-04	0,00E+00	3,65E-04	1,93E-03	0,00E+00	-2,19E-05	1,30E-04

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
Hazardous waste	kg	2,99E-01	4,74E-03	2,66E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,76E-05	2,35E-03	4,69E-03	0,00E+00	1,34E-03	2,04E-03	0,00E+00	-3,71E-05	1,21E-02
Non-hazardous waste	kg	7,85E+00	1,00E-01	2,04E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,77E-03	4,97E-02	9,90E-02	0,00E+00	8,58E-02	4,67E-02	0,00E+00	-2,66E-03	-2,32E-02
Radioactive waste	kg	3,92E-05	1,05E-06	2,29E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,52E-08	5,20E-07	1,03E-06	0,00E+00	2,93E-06	2,84E-07	0,00E+00	-1,03E-07	2,12E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,28E-01	0,00E+00	1,48E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,21E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	1,28E-07	0,00E+00	1,02E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
Global Warming Pot.	kg CO ₂ e	7,45E+00	2,34E-01	3,77E-01	-2,77E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,05E-03	1,16E-01	2,28E-01	0,00E+00	2,35E-02	7,47E-02	0,00E+00	-2,52E-01	-7,01E-01
Ozone depletion Pot.	kg CFC ₁₁ e	1,90E-07	3,72E-09	1,67E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,64E-11	1,85E-09	3,63E-09	0,00E+00	3,33E-10	1,74E-09	0,00E+00	-2,06E-11	-1,42E-10
Acidification	kg SO ₂ e	8,46E-03	5,59E-04	1,89E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,51E-06	2,78E-04	3,83E-04	0,00E+00	1,28E-04	3,96E-04	0,00E+00	-2,97E-06	-4,02E-04
Eutrophication	kg PO ₄ ³ e	1,81E-02	1,42E-04	2,39E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,75E-07	7,06E-05	9,68E-05	0,00E+00	1,96E-05	1,26E-04	0,00E+00	-4,52E-06	-1,03E-04
POCP (“smog”)	kg C ₂ H ₄ e	7,22E-04	5,33E-05	9,93E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,46E-07	2,65E-05	4,06E-05	0,00E+00	7,76E-06	3,74E-05	0,00E+00	-3,22E-06	-3,46E-05
ADP-elements	kg Sbe	3,68E-05	7,52E-07	1,33E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,19E-08	3,73E-07	7,46E-07	0,00E+00	3,31E-07	1,17E-07	0,00E+00	-3,74E-09	-2,78E-07
ADP-fossil	MJ	6,25E+01	3,23E+00	4,32E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,42E-02	1,61E+00	3,16E+00	0,00E+00	2,83E-01	1,83E+00	0,00E+00	-1,48E-02	-3,48E-01

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
GWP-GHG ⁹⁾	kg CO ₂ e	8,00E+00	2,35E-01	3,88E-01	-2,77E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,06E-03	1,17E-01	2,29E-01	0,00E+00	2,35E-02	7,55E-02	0,00E+00	-2,52E-01	-7,02E-01

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.

ENVIRONMENTAL IMPACTS – BEPALINGSMETODE, NETHERLANDS

Impact category	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2/1	C2/2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
Shadow price	€	6,13E-01	2,75E-02	3,00E-02	-1,39E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,70E-04	1,37E-02	2,59E-02	0,00E+00	4,84E-03	1,14E-02	0,00E+00	-1,28E-02	-3,83E-02
Terrestrial ecotoxicity	DCB eq	9,92E-03	7,87E-04	1,16E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,77E-06	3,91E-04	7,75E-04	0,00E+00	1,46E-04	2,68E-04	0,00E+00	-2,40E-05	-9,56E-05
Seawater ecotoxicity	DCB eq	2,54E+02	3,05E+01	3,78E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,96E-01	1,51E+01	3,01E+01	0,00E+00	1,01E+01	1,15E+01	0,00E+00	-8,77E-02	-2,04E+00
Freshwater ecotoxicity	DCB eq	2,39E-02	2,75E-03	3,42E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,65E-05	1,37E-03	2,70E-03	0,00E+00	4,11E-04	9,17E-04	0,00E+00	-7,34E-05	1,89E-03
Human ecotoxicity	DCB eq	7,48E-01	9,74E-02	1,02E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,45E-04	4,84E-02	9,60E-02	0,00E+00	2,12E-02	3,90E-02	0,00E+00	-1,77E-03	-4,55E-03
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP Fossil Fuels	kg Sbe	2,60E-02	1,56E-03	2,05E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,83E-06	7,73E-04	1,52E-03	0,00E+00	1,36E-04	8,82E-04	0,00E+00	-7,11E-06	-1,67E-04

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, wind, 1-3MW turbine, onshore; Lithuania; Ecoinvent 3.10.1 / 0.0139kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, wind, 1-3MW turbine, onshore; Spain; Ecoinvent 3.10.1 / 0.0154 kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, wind, 1-3MW turbine, onshore; Italy; Ecoinvent 3.10.1/ 0.0203 kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, wind, 1-3MW turbine, onshore; Finland; Ecoinvent 3.10.1 / 0.0195 kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Heat and power co-generation, wood chips, 6667 kW; Lithuania; Ecoinvent 3.10.1/ 0.0524 kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted; Lithuania; Ecoinvent 3.10.1 / 0.0981 kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, photovoltaic, 570kWp open ground installation, multi-Si; Spain; Ecoinvent 3.10.1 / 0.067 kg CO _{2e} /kWh
Electricity data source and quality / Electricity CO _{2e} / kWh	Electricity production, hydro, run-of-river; Lithuania; Ecoinvent 3.10.1 / 0.0044 kg CO _{2e} /kWh
District heating data source and quality / District heating CO _{2e} / MJ	Heat production, natural gas, at industrial furnace >100kW (Reference product: heat, district or industrial, natural gas) / 0.0773 kg CO _{2e} /MJ

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	diesel powered truck
Average transport distance, km	100
Capacity utilization (including empty return) %	Ecoinvent scenario
Bulk density of transported products	Ecoinvent scenario
Volume capacity utilization factor	<1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation	0,075 kg stainless steel screws
Water use / m ³	/
Other resource use / kg	/
Description of energy type and consumption during the installation process	0,0025 kWh low voltage electricity
Waste materials on the building site before waste processing, generated by the product's installation	0.15kg wooden pallet packaging 0.01kg PE packaging 0.1kg corrugated sheet
Output materials	0.15kg collection for recycling 0.11kg collection for disposal
Direct emissions to ambient air, soil and water / kg	/

End of life scenario documentation

Scenario information in landfill scenario	Value
Collection process – kg collected separately	/
Collection process – kg collected with mixed waste	12.09 kg
Recovery process – kg for re-use	/
Recovery process – kg for recycling	/
Recovery process – kg for energy recovery	/
Disposal (total) – kg for final deposition	12.09 kg
Scenario assumptions for transport to landfill	Diesel powered truck, 50km

Scenario information in recycling scenario	Value
Collection process – kg collected separately	12.09 kg
Collection process – kg collected with mixed waste	/
Recovery process – kg for re-use	/
Recovery process – kg for recycling	12.09 kg
Recovery process – kg for energy recovery	/
Disposal (total) – kg for final deposition	/
Scenario assumptions for transport to recycling	Diesel powered truck, 100km

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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
28.09.2025

