



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Duripanel B1

Etex Germany Exteriors GmbH



EPD HUB, HUB-4690

Published on 18.12.2025, last updated on 18.12.2025, valid until 18.12.2030

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	Etex Germany Exteriors GmbH
Address	Dyckerhoffstraße 95-105, 59269 Beckum, Germany
Contact details	info@etexgroup.com
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: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> 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	Duripanel B1
Additional labels	-
Product reference	-
Place(s) of raw material origin	mainly Germany
Place of production	Beckum, Germany
Place(s) of installation and use	Europe
Period for data	calendar year 2022
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	Not applicable
A1-A3 Specific data (%)	14.2

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m ² Duripanel B1 with thickness 8 mm
Declared unit mass	10,24 kg
Mass of packaging	0,06 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	5,6
GWP-total, A1-A3 (kgCO ₂ e)	2,32
Secondary material, inputs (%)	9,06
Secondary material, outputs (%) - landfilling scenario	0
Secondary material, outputs (%) - recycling scenario	98.2
Total energy use, A1-A3 (kWh)	21,6
Net freshwater use, A1-A3 (m ³)	0,09

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Etex Germany Exteriors GmbH is a leading supplier of quality products for architecturally sophisticated facades and roofs made of fibre cement and building boards made of fibre cement and cement-bonded particleboard. Etex Germany Exteriors GmbH 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. The energy management system of the company is certified according to ISO 50001.

Etex Germany Exteriors GmbH 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

Duripanel B1 is a multi-layer cement-bonded particleboard according to EN 634-1 and -2 for internal and external construction applications. It mainly consists of the natural raw material wood particles and cement. It is being produced in different thicknesses between 8 and 42 mm. It is available in an unsanded smooth or sanded surface, with smooth trimmed edges or with tongue and groove. The surface colour is mainly being characterized by the fine wood particles in the outside layers.

The results declared in this EPD are valid for 1 m² Duripanel B1 with thickness 8 mm. The environmental impacts of the product with another thickness can be considered as proportional to the thickness of the product. Accordingly, the environmental impacts for a desired thickness X mm board can be calculated by multiplying the results declared in this EPD by the conversion factor obtained by dividing the desired thickness X by the reference thickness 8mm declared in this EPD.

In case one would like to calculate the results for 1m³ of Duripanel B1, the results declared in this EPD should be multiplied by the conversion factor 125.

Further information can be found at:

<https://www.etexgroup.com/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	/	-
Minerals	82.1	Mostly Germany
Fossil materials	/	-
Bio-based materials	17.9	Germany

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,90
Biogenic carbon content in packaging, kg C	0,02

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m ² Duripanel B1 with thickness 8 mm
Mass per declared unit	10,24 kg
Functional unit	1m ² Duripanel B1 with thickness 8mm installed, having a reference service life of 60 years and its related impacts over the cradle to grave life-cycle modules
Reference service life	60 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 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.

In this study the packaging materials of the final products were considered but not those of the raw materials as neglectable in quantities (most of the raw materials are delivered in bulk). Consumables used during production were neglectable.

The study also considers the material losses occurring during the manufacturing processes. The extra raw material and energy needed to cover production losses and wastes were included in the input data. Treatment of production waste is considered, part of it is recycled internally and externally (transport by diesel powered truck was considered).

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 (Ecoinvent default scenarios were used for transport datasets). Over 65% of our raw materials are sourced from suppliers within a radius of 150 km from our factories.

A market-based approach is used in modelling the electricity mix utilized in the factory. Losses occurring during electricity transmission were considered in the data.

Regarding the energy used, natural gas and electricity were consumed during manufacturing. The electricity used in the manufacturing plant is 100% sourced from the renewable sources (mainly hydropower) (see more info in the section on “Manufacturing energy scenario documentation”). 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.

The product is installed according to the following scenario(s): fixation of the panel to a substructure. This EPD declares the screws and energy consumption to fixate the panels but does not include the substructure as several substructures are possible. During the installation, depending on how the Duripanel boards are cut, there are losses. For this study, an installation loss rate of 3% is used (scenario considered for the Duripanel losses: landfill, truck transport 50 km). All packaging material for the Duripanel boards is transported to EoL (scenario assumed: transport by diesel powered truck driving 50km in case of landfilling and 100km in case of recycling 100km) and waste treatment is included (scenario assumed: plastic packaging was sent 100% to landfill and metal strap and wooden pallet were 100% recycled).

PRODUCT USE AND MAINTENANCE (B1-B7)

The product has an estimated reference service life of 60 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 throughout this period, 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 board. Depending on the application where the boards are used, the degree of carbonation will vary. The carbonation was calculated for the indoor use scenarios and reported in the B1 module. In case one would use the board

for outside applications protected from rain, the B1 impact could be recalculated by multiplying it by the factor 1.875.
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 Duripanel boards and these scenarios are considered representative for the most probable alternatives among all possible scenarios:

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

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

For the dismantling of the Duripanel boards 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 by diesel powered truck 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, being the metal strap and wooden pallet, leaving the system in the installation process (A5).

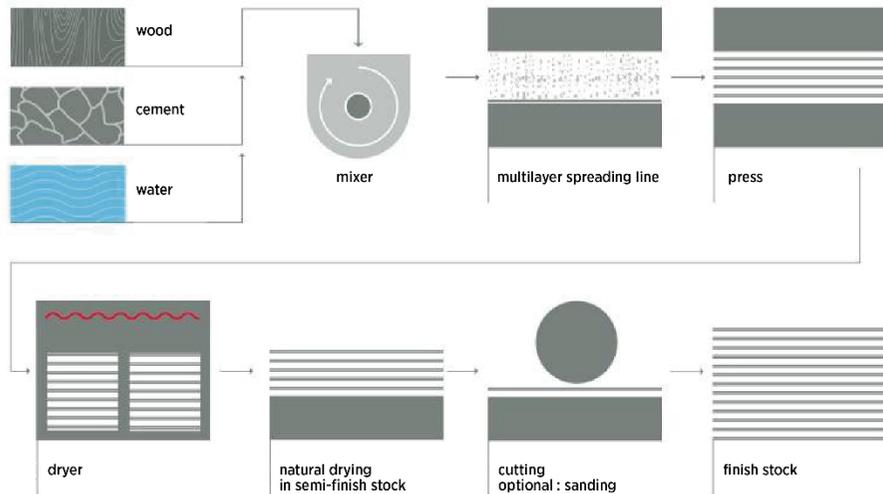
In scenario 2 these are in addition to the recycling of the packaging materials from A5, related to the recycling of the Duripanel boards and the screws leaving the system in the waste processing step at the end-of-life (C3).

Loads considered are these for the recycling process, whereas the benefits considered are the replacement of virgin material (wood chips (from wooden pallet), metal (from metal strap and screws) and limestone (from recycled Duripanel)).

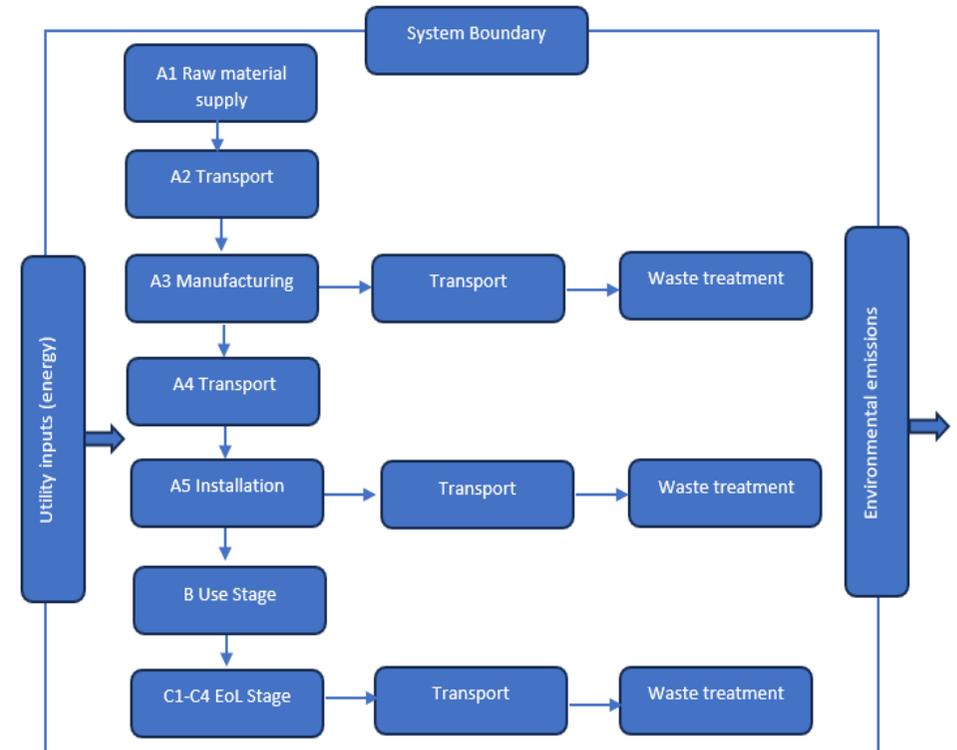
MANUFACTURING PROCESS

DESCRIPTION

The production of large-format panels from wood cement takes place according to a largely automated, semi-dry spreading process in which no excess water is produced. In a mechanical mixer, the litter mixture of wood chips, cement, recycled material from trimming waste, auxiliary materials and water is processed. The material is evenly distributed on carrier plates via a mechanical throw sifting system. Excess material at the edges is returned directly to the spreader. The scattered material is pressed, stored in a climatic chamber for setting (heat exchanger, steam generation via natural gas), the hardened sheets restacked, trimmed and temporarily stored for 28 days. The panels are then dried in a circulating air oven to the moisture content required for delivery.



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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	Not applicable

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.11 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, PEF

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	2,22E+00	1,92E-01	7,27E-01	-1,14E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,55E-02	9,68E-02	1,94E-01	0,00E+00	3,34E+00	3,39E+00	0,00E+00	-8,16E-02	-3,58E+00
GWP – fossil	kg CO ₂ e	5,60E+00	1,92E-01	6,52E-01	-1,14E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,47E-02	9,67E-02	1,93E-01	0,00E+00	2,32E-02	6,48E-02	0,00E+00	-1,83E-03	-1,83E-01
GWP – biogenic	kg CO ₂ e	-3,39E+00	1,24E-04	7,47E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,91E-04	6,26E-05	1,25E-04	0,00E+00	3,32E+00	3,32E+00	0,00E+00	-7,97E-02	-3,40E+00
GWP – LULUC	kg CO ₂ e	4,16E-03	6,48E-05	3,55E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,28E-05	3,26E-05	6,52E-05	0,00E+00	4,83E-05	3,71E-05	0,00E+00	-1,84E-05	-5,63E-05
Ozone depletion pot.	kg CFC-11e	3,21E-08	4,19E-09	2,18E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,58E-10	2,11E-09	4,21E-09	0,00E+00	3,64E-10	1,80E-09	0,00E+00	-1,17E-11	-8,58E-10
Acidification potential	mol H ⁺ e	1,11E-02	4,13E-04	1,54E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,42E-04	2,08E-04	4,15E-04	0,00E+00	1,55E-04	4,54E-04	0,00E+00	-7,26E-06	-1,13E-03
EP-freshwater ²⁾	kg Pe	1,71E-04	1,33E-05	3,24E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,37E-05	6,71E-06	1,34E-05	0,00E+00	1,58E-05	5,67E-06	0,00E+00	-1,24E-06	-1,16E-04
EP-marine	kg Ne	2,55E-03	9,94E-05	3,72E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,26E-05	5,00E-05	1,00E-04	0,00E+00	4,25E-05	1,74E-04	0,00E+00	-1,84E-06	-3,19E-04
EP-terrestrial	mol Ne	3,07E-02	1,07E-03	3,96E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,01E-04	5,40E-04	1,08E-03	0,00E+00	4,37E-04	1,90E-03	0,00E+00	-1,88E-05	-4,00E-03
POCP (“smog”) ³⁾	kg NMVOCe	9,72E-03	6,55E-04	1,26E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,41E-05	3,29E-04	6,59E-04	0,00E+00	1,33E-04	6,87E-04	0,00E+00	-1,25E-05	-1,09E-03
ADP-minerals & metals ⁴⁾	kg Sbe	5,71E-06	6,74E-07	9,87E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,35E-07	3,39E-07	6,79E-07	0,00E+00	2,33E-07	9,66E-08	0,00E+00	-2,02E-08	-1,86E-06
ADP-fossil resources	MJ	2,96E+01	2,73E+00	6,23E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,69E-01	1,37E+00	2,75E+00	0,00E+00	4,57E-01	1,59E+00	0,00E+00	-1,96E-02	-1,77E+00
Water use ⁵⁾	m ³ e depr.	3,32E+00	1,45E-02	1,34E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,59E-02	7,29E-03	1,46E-02	0,00E+00	1,02E-02	6,97E-02	0,00E+00	-4,59E-04	-4,49E-02

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, PEF

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	9,02E-08	1,44E-08	5,95E-09	0,00E+00	5,06E-10	7,25E-09	1,45E-08	0,00E+00	2,08E-09	1,04E-08	0,00E+00	-1,14E-10	-1,91E-08						
Ionizing radiation ⁶⁾	kBq U235e	5,14E-01	3,30E-03	3,22E-02	0,00E+00	1,59E-02	1,66E-03	3,32E-03	0,00E+00	1,02E-02	9,50E-04	0,00E+00	4,08E-07	8,67E-03						
Ecotoxicity (freshwater)	CTUe	1,82E+01	2,32E+00	1,78E+00	0,00E+00	7,88E-01	1,17E+00	2,34E+00	0,00E+00	6,01E-01	1,06E+00	0,00E+00	-7,81E-02	-2,71E+01						
Human toxicity, cancer	CTUh	5,00E-10	3,23E-11	2,82E-11	0,00E+00	7,36E-12	1,63E-11	3,25E-11	0,00E+00	6,43E-12	1,18E-11	0,00E+00	8,87E-13	2,48E-11						
Human tox. non-cancer	CTUh	6,58E-09	1,72E-09	9,03E-10	0,00E+00	4,01E-10	8,66E-10	1,73E-09	0,00E+00	3,13E-10	2,64E-10	0,00E+00	-1,05E-11	-1,12E-09						
SQP ⁷⁾	-	1,88E+02	1,64E+00	6,12E+00	0,00E+00	1,11E-01	8,24E-01	1,65E+00	0,00E+00	2,77E-01	3,12E+00	0,00E+00	4,16E-01	-3,77E-01						

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	3,20E+01	4,50E-02	2,14E+00	0,00E+00	1,54E-01	2,27E-02	4,53E-02	0,00E+00	8,58E-02	1,48E-02	0,00E+00	1,92E-01	7,81E-02						
Renew. PER as material	MJ	2,27E+01	0,00E+00	-7,23E-01	0,00E+00	-2,20E+01	-2,20E+01	0,00E+00	4,60E-01	2,29E+01										
Total use of renew. PER	MJ	5,47E+01	4,50E-02	1,42E+00	0,00E+00	1,54E-01	2,27E-02	4,53E-02	0,00E+00	-2,19E+01	-2,20E+01	0,00E+00	6,52E-01	2,30E+01						
Non-re. PER as energy	MJ	2,94E+01	2,73E+00	6,10E+00	0,00E+00	5,69E-01	1,37E+00	2,75E+00	0,00E+00	4,57E-01	1,59E+00	0,00E+00	-1,96E-02	-1,77E+00						
Non-re. PER as material	MJ	2,44E-01	0,00E+00	-2,44E-01	0,00E+00	0,00E+00	0,00E+00	4,91E-02	4,91E-02											
Total use of non-re. PER	MJ	2,96E+01	2,73E+00	5,86E+00	0,00E+00	5,69E-01	1,37E+00	2,75E+00	0,00E+00	4,57E-01	1,59E+00	0,00E+00	2,95E-02	-1,72E+00						
Secondary materials	kg	9,34E-01	1,24E-03	4,86E-02	0,00E+00	9,15E-05	6,22E-04	1,24E-03	0,00E+00	1,65E-04	3,95E-04	0,00E+00	1,81E-03	1,17E-01						
Renew. secondary fuels	MJ	4,86E+00	1,63E-05	1,46E-01	0,00E+00	7,88E-07	8,18E-06	1,64E-05	0,00E+00	2,33E-06	8,25E-06	0,00E+00	-1,29E-07	-1,81E-05						
Non-ren. secondary fuels	MJ	1,14E+01	0,00E+00	3,41E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00											
Use of net fresh water	m ³	8,71E-02	3,34E-04	3,98E-03	0,00E+00	3,71E-04	1,68E-04	3,36E-04	0,00E+00	2,36E-04	1,64E-03	0,00E+00	-6,92E-06	-7,52E-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	6,67E-02	3,96E-03	4,13E-03	0,00E+00	1,38E-03	1,99E-03	3,99E-03	0,00E+00	1,18E-03	1,81E-03	0,00E+00	-3,33E-04	-4,76E-02						
Non-hazardous waste	kg	9,47E-01	8,51E-02	1,91E-01	0,00E+00	1,16E-01	4,28E-02	8,56E-02	0,00E+00	7,88E-02	4,18E-02	0,00E+00	-6,99E-03	-6,54E-01						
Radioactive waste	kg	4,98E-04	8,14E-07	1,31E-04	0,00E+00	4,09E-06	4,09E-07	8,19E-07	0,00E+00	2,61E-06	2,32E-07	0,00E+00	2,21E-09	2,23E-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																		
Materials for recycling	kg	1,06E+00	0,00E+00	8,58E-02	0,00E+00	1,04E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00										
Materials for energy rec	kg	0,00E+00																		
Exported energy	MJ	0,00E+00																		
Exported energy – Electricity	MJ	0,00E+00																		
Exported energy – Heat	MJ	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	5,63E+00	1,91E-01	6,55E-01	-1,14E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,47E-02	9,61E-02	1,92E-01	0,00E+00	2,32E-02	6,42E-02	0,00E+00	-1,84E-03	-1,83E-01
Ozone depletion Pot.	kg CFC ₁₁ e	2,52E-08	3,34E-09	1,75E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,90E-10	1,68E-09	3,37E-09	0,00E+00	2,98E-10	1,44E-09	0,00E+00	-1,12E-11	-8,63E-10
Acidification	kg SO ₂ e	1,02E-02	3,31E-04	1,36E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,21E-04	1,67E-04	3,33E-04	0,00E+00	1,23E-04	3,36E-04	0,00E+00	-5,79E-06	-8,35E-04
Eutrophication	kg PO ₄ ³ e	2,01E-03	8,70E-05	1,85E-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	4,38E-05	8,76E-05	0,00E+00	2,08E-05	1,11E-04	0,00E+00	-1,42E-06	-1,92E-04
POCP ("smog")	kg C ₂ H ₄ e	1,08E-03	3,42E-05	1,64E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,53E-06	1,72E-05	3,44E-05	0,00E+00	7,73E-06	3,19E-05	0,00E+00	-2,00E-06	-1,04E-04
ADP-elements	kg Sbe	5,05E-06	6,59E-07	2,67E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,34E-07	3,32E-07	6,63E-07	0,00E+00	2,31E-07	9,44E-08	0,00E+00	-2,03E-08	-1,86E-06
ADP-fossil	MJ	2,70E+01	2,68E+00	5,66E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,88E-01	1,35E+00	2,69E+00	0,00E+00	2,77E-01	1,57E+00	0,00E+00	-1,99E-02	-1,93E+00

ENVIRONMENTAL IMPACTS – 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	5,61E+00	1,92E-01	6,52E-01	-1,14E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,47E-02	9,67E-02	1,93E-01	0,00E+00	2,33E-02	6,49E-02	0,00E+00	-1,85E-03	-1,83E-01

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.

ENVIRONMENTAL IMPACTS – BEPALINGSMETHODE, 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	€	1,56E-01	2,19E-02	1,37E-02	-5,68E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,67E-03	1,10E-02	2,20E-02	0,00E+00	4,35E-03	9,64E-03	0,00E+00	-3,45E-04	-3,42E-02
Terrestrial ecotoxicity	DCB eq	7,16E-03	6,68E-04	4,84E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,48E-04	3,36E-04	6,73E-04	0,00E+00	1,23E-04	2,33E-04	0,00E+00	-2,48E-05	-1,69E-03
Seawater ecotoxicity	DCB eq	1,82E+02	2,54E+01	2,29E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,26E+01	1,28E+01	2,56E+01	0,00E+00	9,29E+00	9,54E+00	0,00E+00	-5,09E-01	-5,74E+01
Freshwater ecotoxicity	DCB eq	2,07E-02	2,23E-03	1,23E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,05E-04	1,12E-03	2,24E-03	0,00E+00	2,15E-04	6,96E-04	0,00E+00	-3,23E-05	-3,16E-03
Human ecotoxicity	DCB eq	5,62E-01	8,12E-02	4,82E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,65E-02	4,09E-02	8,17E-02	0,00E+00	1,70E-02	3,24E-02	0,00E+00	-1,75E-03	-1,52E-01
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	7,24E-03	1,29E-03	2,65E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,38E-04	6,48E-04	1,30E-03	0,00E+00	1,33E-04	7,57E-04	0,00E+00	-9,56E-06	-9,30E-04

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

1. Electricity production, hydro, reservoir, alpine region, Norway, Ecoinvent, 0.0065 kgCO₂e/kWh
2. Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted, Germany, Ecoinvent, 0.0970 kgCO₂e/kWh
3. Heat production, natural gas, at industrial furnace >100kW, Europe, Ecoinvent, 0.0754 kgCO₂e/MJ
4. Heat and power co-generation, natural gas, 1MW electrical, lean burn, Europe, Ecoinvent, 0.0291 kgCO₂e/MJ
5. Steam production, as energy carrier, in chemical industry, Europe, Ecoinvent, 0.11 kgCO₂e/MJ
6. Market for diesel, burned in building machine, World, Ecoinvent, 0.10 kgCO₂e/MJ
7. Market for propane, burned in building machine, World, Ecoinvent, 0.0924 kgCO₂e/MJ

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type.	diesel powered truck
Average transport distance, km	100
Capacity utilization (including empty return) %	Ecoinvent scenario
Bulk density of transported products	1,29E+03
Volume capacity utilization factor	<1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation	0,12 kg galvanized steel screws
Water use / m ³	/
Other resource use / kg	/
Description of energy type and consumption during the installation process	0,075 kWh low voltage electricity
Waste materials on the building site before waste processing, generated by the product's installation	0.004kg PE packaging 0.002kg steel band packaging 0.052kg wooden pallet packaging 0.307 kg Duripanel board
Output materials	0.05kg collection for recycling 0.31kg 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	10.36 kg
Recovery process – kg for re-use	/
Recovery process – kg for recycling	/
Recovery process – kg for energy recovery	/
Disposal (total) – kg for final deposition	10.36 kg
Scenario assumptions for transport to landfill	Diesel powered truck, 50km

Scenario information in recycling scenario	Value
Collection process – kg collected separately	10.36 kg
Collection process – kg collected with mixed waste	/
Recovery process – kg for re-use	/
Recovery process – kg for recycling	10.36 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 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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
18.12.2025

