

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

SWEDOOR ADVANCE-LINE

EXTERIOR DOOR FRAMESET 210 MM

JELD-WEN



EPD HUB, HUB-0991

Published on 05.01.2024, last updated on 05.01.2024, valid until 05.01.2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	JELD-WEN
Address	Retford Road, Woodhouse Mill, Sheffield, South Yorkshire, S13 9WH
Contact details	EU_Sustainability@jeldwen.com
Website	www.jeld-wen.biz

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR version 1.0, 1 Feb 2022 EN 17213 Windows and doors
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Susanna Käsnänen
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	Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited

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	SWEDOOR ADVANCE-LINE Exterior frame, 210 mm
Additional labels	ADVANCE-LINE Character, ADVANCE-LINE Classic, ADVANCE-LINE Function, ADVANCE-LINE custom designs
Product reference	
Place of production	Aizkraukle, Latvia
Period for data	2021
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	1 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	one square meter
Declared unit mass	12 kg
GWP-fossil, A1-A3 (kgCO₂e)	1,03E+01
GWP-total, A1-A3 (kgCO₂e)	-8,48E+00
Secondary material, inputs (%)	1,99
Secondary material, outputs (%)	91.1
Total energy use, A1-A3 (kWh)	122.0
Total water use, A1-A3 (m³e)	7,40E-01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Headquartered in Charlotte, N.C., USA, JELD-WEN is a leading global manufacturer of high-performance interior and exterior building products, offering one of the broadest selections of windows, interior and exterior doors, and wall systems. JELD-WEN delivers a differentiated customer experience, providing construction professionals with durable, energy-efficient products and labor-saving services that help them maximize productivity and create beautiful, secure spaces for all to enjoy. The JELD-WEN team is driven by innovation and committed to creating safe, sustainable environments for customers, associates, and local communities. The JELD-WEN family of brands includes JELD-WEN® worldwide; LaCantina™ and VPI™ in North America; Swedoor® and DANA® in Europe. Visit JELD-WEN.com for more information.

PRODUCT DESCRIPTION

Double-rebated doorframe set for Advance-line exterior doors. Intended application as a set with exterior doors either with or without glazing, sound reduction and fire rating, within the thickness range of 60-92,3 mm doorleaves. Product is suitable for use in both private and commercial buildings.

The scope of this EDP is the frame set. The functional unit in this EPD is one square meter of assembled frame set, calculated with a reference frame size of 0.988 m x 2.080 m and covers the range of the different depth options up to 210 mm. The frame set represented by this EPD contains one assembled frame set, accompanying average threshold, and regular hardware matching with the exterior doorleaves.

The specific technical standards and additional product information for each door design can be found on Swedoor website, www.jeld-wen.biz.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Bio-based materials	91	EU
Fossil materials	3	EU
Metals	6	EU

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	8.04
Biogenic carbon content in packaging, kg C	0.34

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	one square meter
Mass per declared unit	12 kg
Functional unit	one square meter of assembled frame set with hardware and sealing

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		
A 1	A 2	A 3	A 4	A5	B 1	B 2	B 3	B 4	B 5	B 6	B 7	C1	C2	C3	C4	D		
x	x	x	x	x	MND							x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The product is made of solid wood, and is assembled with metal parts, plastic parts and chemicals (surface treatment). The frame set in this EPD represents the doorframe components and has either a wooden threshold with aluminium details or wood-plastic composite threshold. The doorframe and the threshold are produced separately in two JELD-WEN factories to a semi-finished products. After their first production phases the frame components and the threshold are shipped to the final manufacturing location, where the components are finished and assembled together with the door before shipping the whole set to the customers.

The production of the components begins with the sizing and profiling the frame and the threshold, after which they are milled to the correct dimensions, as well as the installation holes, and the lock and hinge holes are milled. Next, the components move to the surface treatment processes, where the surface of the components are primed and painted. After surface treatment, the products are finished with adding the necessities like hardware (strikeplate, hinges and screws etc.) and sealings. After this, the product goes through the packaging process. During packing, the frameset and the threshold are installed as a set together with the door, to create the doorset being shipped to the customer. During the production process, wooden waste and chemical waste are being generated. Production waste and loss, including waste paint and cuttings of wood are sent to a waste management company to be incinerated; wastewater is treated in an average municipal treatment plant.

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.

When considering this phase of the life-cycle, there is not only one place where the transportation from us would end, as our customers can have multiple locations between each other, thus causing variance to the transport distance and the needed vehicles. The travel distances used on the transportation data is then a theoretical value, a weighted average value for this product, which is calculated based on its previous transportation history. The assumed vehicle for the transportation is a lorry, with the

vehicle capacity value of 1, meaning that the lorry is carrying a full load all around while transporting the goods, causing distortion to the results. However, when considering the overall results of the product life-cycle, the impact of the old variance among transportation can be considered negligible due having a low impact to the overall results. Empty returns are considered to be out of scope, as the transportation company is considered to be out of our use, when they are not having our goods on board, and serving their other customers or routes. Material loss is not expected to take place during transportation phase due to sufficient protective packaging of our products.

Upon installing the products, the packaging materials are removed, leading to generating packaging waste. As the final product is only installed, there is no material loss expected to happen during installing phase nor such construction practices that would lead to material loss are needed. The installing work consists of mounting and fastening, which can be done with hand tools. There are no extra materials needed to be used for the installing purposes. The energy consumption for installing is then considered to be zero, due to the small size of the consumption and the impact it has on this life-cycle stage.

PRODUCT USE AND MAINTENANCE (B1-B7)

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The energy and use of natural resources upon demolition process are considered negligible. Assumptions regarding the waste

management are given regarding the sorting practices and transport distance. The waste collecting vehicle is assumed to a lorry and the waste is assumed to be part of the mixed construction waste- fraction. The travel distance of the lorry carrying the waste from the demolition site to the waste handling site is assumed to be 50 kilometres.

Upon arriving to the waste management plant, the recyclable material of the waste and/or the energy-recovery applicable materials are separated from the waste and diverted to correct use. (C3) Other material left that cannot be recycled, re-used or used in incineration processes are assumed to be disposed to landfill (C4).

Plastic and steel parts hold potential for recycling and material recovery for secondary material production purposes, that reduce the need for virgin raw materials (D) The fibreboards and wooden content of the doorleaf have great heating value and are applicable for energy production upon used as a fuel in the incineration process (D), decreasing the demand for virgin fuel production and use.

MANUFACTURING PROCESS AND THE SYSTEM BOUNDARY

The frame sets are manufactured according to the flow pictured in the graph. The manufacturing of the threshold options are considered to take place within the step of raw material production.

Since only one of the threshold options is manufactured by JELD-WEN factory, more detailed manufacturing process of the thresholds has been left out of the graph. The manufacturing of the JELD-WEN threshold includes similar steps as the frame set manufacturing, as it undergoes the sizing, milling, surface treatment and assembling before used as a component to the frame set.

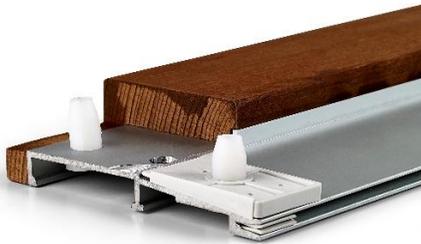
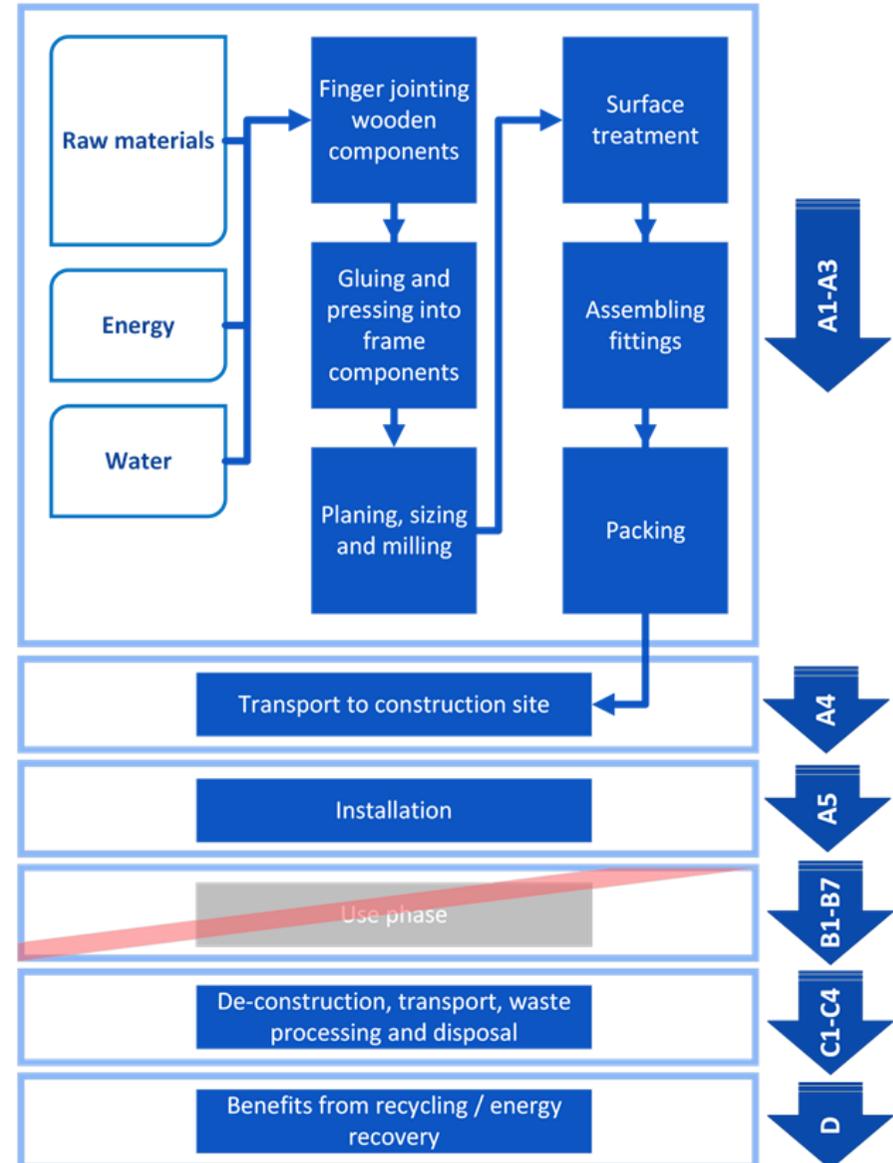


Figure 1. Finished threshold component for the frameset



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.

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	Partly allocated by revenue
Packaging materials	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Averaged by shares of total revenue
Variation in GWP-fossil for A1-A3	1 %

This EPD contains some average calculations regarding the components of the frameset. There are two framesets, and while both are manufactured in the same factory they have slight differences in the components between the constructions, and there are two threshold options for the frameset; wood and aluminium threshold and wood-plastic-composite (WPC) threshold, as those are the available options between the constructions of the framesets. Averaging has been then calculated according to the share of the constructions in sold units, where 95 % of the thresholds are produced by JELD-WEN Løgstør (thresholds made of wood and aluminium) and 5 % (thresholds made of WPC) are from external supplier.

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. Ecoinvent v3.8 and One Click LCA databases were used as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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	-1,56E+01	6,97E-01	6,45E+00	-8,50E+00	1,56E+00	1,30E+00	MND	0,00E+00	5,75E-02	1,72E+01	2,18E+00	1,43E+01						
GWP – fossil	kg CO ₂ e	6,21E+00	6,96E-01	3,35E+00	1,03E+01	1,56E+00	1,89E-02	MND	0,00E+00	5,75E-02	4,08E-01	1,29E+00	-1,18E+01						
GWP – biogenic	kg CO ₂ e	-2,19E+01	2,25E-04	3,10E+00	-1,88E+01	0,00E+00	1,28E+00	MND	0,00E+00	0,00E+00	1,68E+01	8,86E-01	2,61E+01						
GWP – LULUC	kg CO ₂ e	3,56E-02	2,21E-04	1,64E-03	3,75E-02	6,17E-04	2,19E-05	MND	0,00E+00	2,12E-05	2,47E-04	5,37E-05	-2,47E-02						
Ozone depletion	kg CFC _{11e}	2,42E-06	1,62E-07	3,14E-07	2,90E-06	3,64E-07	1,55E-09	MND	0,00E+00	1,32E-08	1,53E-08	9,67E-08	-6,38E-07						
Acidification potential	mol H ⁺ e	5,04E-02	4,29E-03	1,17E-02	6,64E-02	1,20E-02	6,93E-05	MND	0,00E+00	2,43E-04	8,69E-04	1,26E-03	-9,54E-02						
EP-freshwater ²⁾	kg Pe	1,05E-03	4,23E-06	4,81E-05	1,11E-03	9,96E-06	8,52E-07	MND	0,00E+00	4,71E-07	1,03E-05	1,45E-06	-4,50E-04						
EP-marine	kg Ne	8,65E-03	1,46E-03	3,19E-03	1,33E-02	3,30E-03	1,48E-05	MND	0,00E+00	7,24E-05	1,50E-04	2,10E-04	-1,15E-02						
EP-terrestrial	mol Ne	1,10E-01	1,61E-02	3,95E-02	1,65E-01	3,65E-02	1,60E-04	MND	0,00E+00	7,98E-04	1,67E-03	2,18E-03	-1,34E-01						
POCP (“smog”) ³⁾	kg NMVOCe	3,51E-02	4,75E-03	9,99E-03	4,98E-02	1,06E-02	4,83E-05	MND	0,00E+00	2,55E-04	4,82E-04	7,15E-04	-3,70E-02						
ADP-minerals & metals ⁴⁾	kg Sbe	8,00E-05	1,36E-06	4,44E-06	8,58E-05	3,44E-06	8,19E-08	MND	0,00E+00	1,35E-07	3,30E-06	7,49E-07	-9,57E-06						
ADP-fossil	MJ	9,22E+01	1,03E+01	1,11E+01	1,14E+02	2,33E+01	2,36E-01	MND	0,00E+00	8,64E-01	2,63E+00	5,79E+00	-1,49E+02						
Water use ⁵⁾	m ³ e depr.	8,21E+01	4,38E-02	3,26E+00	8,54E+01	1,03E-01	5,23E-03	MND	0,00E+00	3,87E-03	6,24E-02	2,65E-02	-2,95E+00						

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	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidenc	9,22E-07	1,02E-07	8,81E-08	1,11E-06	1,66E-07	9,82E-10	MND	0,00E+00	6,63E-09	7,70E-09	1,15E-08	-9,40E-07						
Ionizing radiation ⁶⁾	kBq U235e	7,30E-01	5,21E-02	2,17E-01	9,99E-01	1,19E-01	4,46E-03	MND	0,00E+00	4,11E-03	5,27E-02	2,81E-02	-3,48E+00						
Ecotoxicity (freshwater)	CTUe	1,42E+02	8,14E+00	3,53E+01	1,86E+02	1,88E+01	2,34E-01	MND	0,00E+00	7,77E-01	3,43E+00	5,69E+00	-2,89E+02						
Human toxicity, cancer	CTUh	1,97E-08	2,34E-10	3,48E-09	2,34E-08	5,65E-10	1,67E-11	MND	0,00E+00	1,91E-11	5,12E-10	2,53E-09	-4,15E-09						
Human tox. non-cancer	CTUh	1,84E-07	8,18E-09	2,77E-08	2,20E-07	1,93E-08	2,38E-10	MND	0,00E+00	7,69E-10	4,06E-09	4,65E-09	-1,32E-07						
SQP ⁷⁾	-	2,53E+03	9,92E+00	8,27E+01	2,62E+03	2,46E+01	1,39E-01	MND	0,00E+00	9,95E-01	1,11E+00	1,11E+00	-1,07E+02						

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	2,98E+02	1,19E-01	1,92E+01	3,17E+02	2,86E-01	2,89E-02	MND	0,00E+00	9,73E-03	3,65E-01	4,23E-02	-3,87E+01						
Renew. PER as material	MJ	1,77E+02	0,00E+00	-2,33E+01	1,54E+02	0,00E+00	-1,08E+01	MND	0,00E+00	0,00E+00	-1,36E+02	-7,15E+00	1,05E+01						
Total use of renew. PER	MJ	4,75E+02	1,19E-01	-4,10E+00	4,71E+02	2,86E-01	-1,08E+01	MND	0,00E+00	9,73E-03	-1,36E+02	-7,11E+00	-2,82E+01						
Non-re. PER as energy	MJ	6,62E+01	1,03E+01	4,61E+01	1,23E+02	2,33E+01	2,36E-01	MND	0,00E+00	8,64E-01	2,63E+00	5,79E+00	-1,50E+02						
Non-re. PER as material	MJ	1,56E+01	0,00E+00	-2,24E+00	1,34E+01	0,00E+00	-2,56E+00	MND	0,00E+00	0,00E+00	-1,03E+01	-5,41E-01	6,18E-01						
Total use of non-re. PER	MJ	8,19E+01	1,03E+01	4,38E+01	1,36E+02	2,33E+01	-2,33E+00	MND	0,00E+00	8,64E-01	-7,65E+00	5,25E+00	-1,49E+02						
Secondary materials	kg	2,39E-01	3,15E-03	7,33E-02	3,15E-01	6,88E-03	2,24E-04	MND	0,00E+00	2,40E-04	1,67E-03	2,18E-03	3,43E-02						
Renew. secondary fuels	MJ	3,58E-02	2,32E-05	9,11E-01	9,47E-01	5,46E-05	1,42E-06	MND	0,00E+00	2,42E-06	2,01E-05	6,02E-06	-8,17E-05						
Non-ren. secondary fuels	MJ	1,57E-02	0,00E+00	0,00E+00	1,57E-02	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Use of net fresh water	m ³	3,71E-01	1,22E-03	3,68E-01	7,40E-01	2,91E-03	1,56E-04	MND	0,00E+00	1,12E-04	1,85E-03	7,63E-04	-4,64E-01						

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	1,11E+00	1,17E-02	1,17E-01	1,24E+00	2,54E-02	1,18E-03	MND	0,00E+00	1,15E-03	4,43E-02	3,66E-01	-9,07E-01						
Non-hazardous	kg	1,02E+01	1,74E-01	3,88E+00	1,43E+01	4,14E-01	4,16E-02	MND	0,00E+00	1,88E-02	7,44E-01	5,96E-01	-4,70E+01						
Radioactive waste	kg	3,31E-04	7,16E-05	8,24E-05	4,85E-04	1,61E-04	1,61E-06	MND	0,00E+00	5,78E-06	1,79E-05	0,00E+00	-9,63E-04						

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	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Materials for recycling	kg	2,16E-02	0,00E+00	8,30E-03	2,99E-02	0,00E+00	7,69E-02	MND	0,00E+00	0,00E+00	7,62E-01	0,00E+00	0,00E+00						
Materials for energy recovery	kg	3,29E-04	0,00E+00	0,00E+00	3,29E-04	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,05E-01						
Exported energy	MJ	0,00E+00	0,00E+00	4,22E+01	4,22E+01	0,00E+00	0,00E+00	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00						

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	5,83E+00	6,89E-01	3,28E+00	9,79E+00	1,54E+00	1,90E-02	MND	0,00E+00	5,69E-02	4,04E-01	1,33E+00	-1,16E+01						
Ozone depletion Pot.	kg CFC ₁₁ e	2,29E-06	1,28E-07	2,49E-07	2,66E-06	2,88E-07	1,27E-09	MND	0,00E+00	1,05E-08	1,26E-08	7,69E-08	-5,16E-07						
Acidification	kg SO ₂ e	4,09E-02	3,25E-03	8,44E-03	5,26E-02	9,46E-03	5,64E-05	MND	0,00E+00	1,89E-04	7,21E-04	1,06E-03	-8,13E-02						
Eutrophication	kg PO ₄ ³ e	1,23E-02	6,81E-04	2,78E-03	1,58E-02	1,55E-03	5,44E-05	MND	0,00E+00	4,31E-05	1,17E-03	1,80E-03	-1,74E-02						
POCP ("smog")	kg C ₂ H ₄ e	3,37E-03	1,03E-04	5,31E-04	4,01E-03	3,01E-04	2,94E-06	MND	0,00E+00	7,39E-06	3,42E-05	4,89E-05	-3,53E-03						
ADP-elements	kg Sbe	7,50E-05	1,33E-06	5,84E-06	8,21E-05	3,35E-06	8,11E-08	MND	0,00E+00	1,31E-07	3,29E-06	7,02E-07	-9,58E-06						
ADP-fossil	MJ	8,68E+01	1,03E+01	4,90E+01	1,46E+02	2,33E+01	2,36E-01	MND	0,00E+00	8,64E-01	2,63E+00	5,79E+00	-1,51E+02						

ENVIRONMENTAL IMPACTS – FRENCH NATIONAL COMPLEMENTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements	kg Sbe	5,91E-05	1,33E-06	5,83E-06	6,62E-05	3,35E-06	8,11E-08	MND	0,00E+00	1,31E-07	3,29E-06	7,02E-07	-9,58E-06						
Hazardous waste disposed	kg	9,74E-01	1,17E-02	1,24E-01	1,11E+00	2,54E-02	1,18E-03	MND	0,00E+00	1,15E-03	4,43E-02	3,66E-01	-9,07E-01						
Non-haz. waste disposed	kg	8,86E+00	1,74E-01	3,29E+00	1,23E+01	4,14E-01	4,16E-02	MND	0,00E+00	1,88E-02	7,44E-01	5,96E-01	-4,70E+01						
Air pollution	m3	2,12E+03	1,13E+02	2,22E+02	2,45E+03	2,63E+02	3,56E+00	MND	0,00E+00	1,03E+01	3,83E+01	1,86E+01	-4,78E+03						
Water pollution	m3	3,33E+01	7,29E-01	9,36E+00	4,34E+01	1,73E+00	1,76E-01	MND	0,00E+00	6,08E-02	2,33E+01	2,86E+00	-2,88E+01						

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

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	6,21E+00	6,96E-01	3,35E+00	1,03E+01	1,56E+00	1,89E-02	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,18E+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.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? [Read more online](#)

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
05.01.2024

