

ENVIRONMENTAL PRODUCT DECLARATION

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

GRP (Glass Reinforced Polyester) Single Sheet

Filon Products Ltd.

FILON[®]



EPD HUB, HUB-2371

Publishing date 10 January 2025, last updated on 10 January 2025, valid until 9 January 2030.

FILON[®]

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Filon Products Ltd.
Address	Business Park, Burntwood Business Park, 3 Ring Rd, Burntwood, WS7 3JQ, UK
Contact details	sales@filon.co.uk
Website	https://www.filon.co.uk/

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 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	n/a
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Sam McGarrick (Blue Marble Environmental Partnerships Ltd.)
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 González Vázquez, 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	GRP (Glass Reinforced Polyester) Single Sheet
Additional labels	-
Product reference	-
Place of production	Burntwood, UK
Period for data	2023 (Calendar Year)
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	n/a

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 linear metre
Declared unit mass	4.986 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	23.3
GWP-total, A1-A3 (kgCO ₂ e)	23.4
Secondary material, inputs (%)	0.94
Secondary material, outputs (%)	0
Total energy use, A1-A3 (kWh)	95.6
Net freshwater use, A1-A3 (m ³)	0.34

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Established in 1957, Filon Products is one of the UK's leading manufacturers of GRP (Glass Reinforced Polyester) products for building and construction. Our long track record of developing and marketing innovative products has resulted in many of these becoming accepted industry standards.

PRODUCT DESCRIPTION

FILON rooflights are manufactured from glass reinforced polyester resin (GRP), with unique light diffusing additives which scatter light passing through, to provide effective daylighting without hot spots or excessive glare.

FILON rooflights have impact resistance and are supplied with a highly durable UV resistant Polyester film to the weather face. This extends the durable working life of the sheet and the UV resistance limits sheet yellowing. Under normal conditions, sheet life should be in excess of 30 years.

FILON sheets are supplied as standard in any length up to 8m.

Further information can be found at <https://www.filon.co.uk/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	41	Global
Fossil materials	59	Global
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 linear metre
Mass per declared unit	4.986 kg
Functional unit	-
Reference service life	-

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	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. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The product is manufactured from Glass Reinforced Polyester (GRP) (resin, catalyst, filler, glass fibres and film coating) (A1).

Materials are procured from several national and international suppliers and a weighted average of transportation distances has been calculated based on supply during the period the data represents. Transport by road is via >32 tonne lorry or 7.5 tonne lorry depending on the material shipped and supplier used. Transport by sea is via container ship (A2).

Manufacturing involves the use of both gas and medium voltage electricity from 100% renewable sources. Small quantities of water are used in the production process.

For manufacturing, the resin is mixed with catalysts and fillers which are then distributed over a release film sheet and glass fibres are added. A top UV weather sheet is applied and the whole assembly is pressed through thickening rollers. The product then travels through ovens with profile formers to shape the GRP to the required profiles. Once transitioned through the oven it is water cooled and cut to length. (A3)

Raw materials packaging as well as other factory wastes including production losses and wastewater are considered as manufacturing waste and leave the system boundary in Module A3. Plastic and bio-based manufacturing waste is assumed to be incinerated with energy recovery; the efficiency of the incinerator is assumed to be 73% of which 11% accounts for electrical energy and 62% thermal energy (Eriksson O. & Finnveden G., 2017). Transport of solid wastes is assumed to be via >32 tonne lorry at a distance of 100 km.

The product is packaged using polyester woven strapping. (A3).

TRANSPORT AND INSTALLATION (A4-A5)

This EPD does not cover the installation phase.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

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

PRODUCT END OF LIFE (C1-C4, D)

At the end of its life, the product is assumed to be removed by hand with hand-held power tools using low voltage electricity drawn from the UK grid.

(C1)

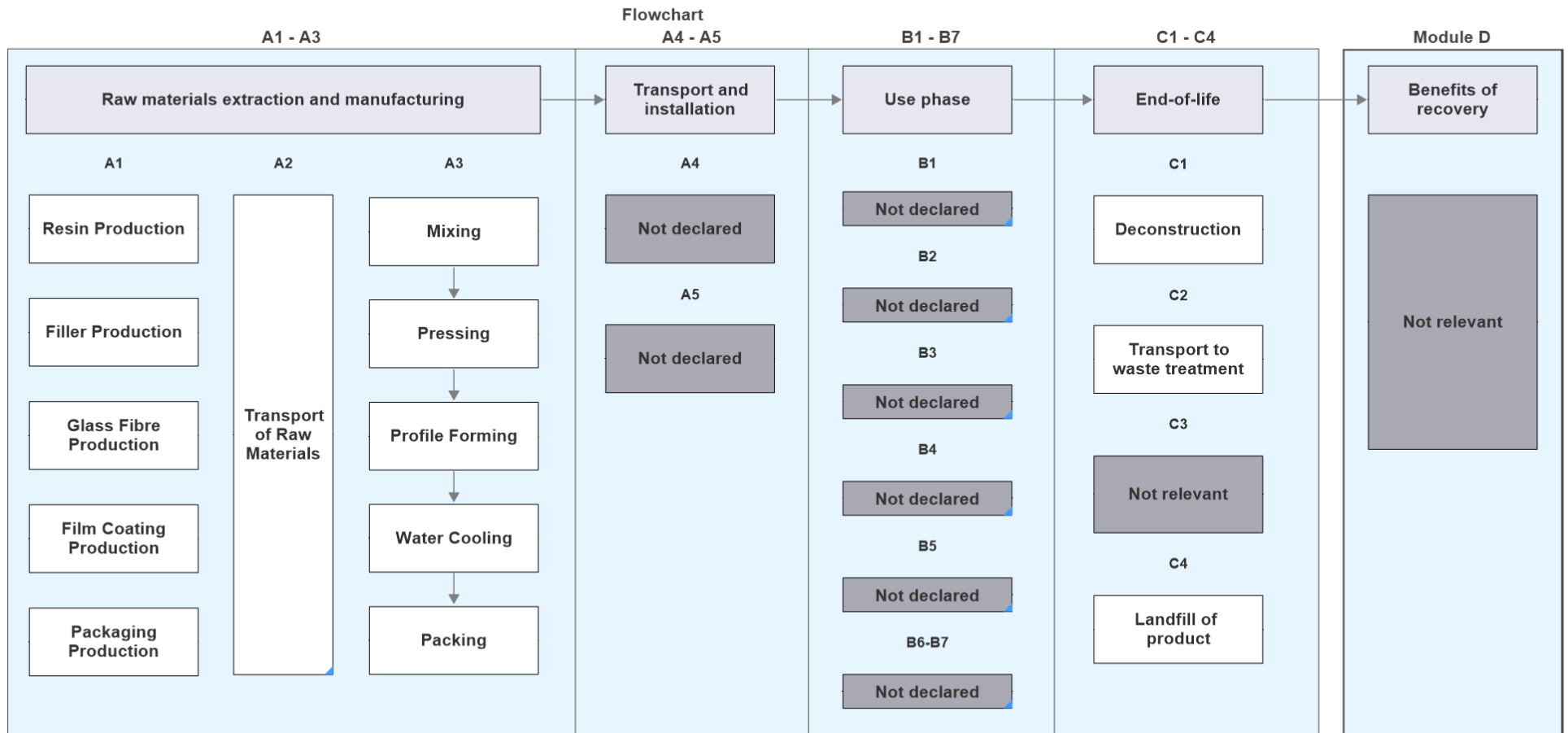
Transport to waste treatment is assumed to be 50km via >32 tonne lorry. (C2)

The product is conservatively assumed to be sent to landfill with no benefits.

(C4)

End of life of product packaging has been modelled in Module C due to module A5 (installation) not being declared in this EPD. The packaging is conservatively assumed to be sent to landfill with no benefits (C4).

MANUFACTURING PROCESS



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	No allocation
Packaging material	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	Not applicable

This EPD is product and factory specific and does not contain average calculations.

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 v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases 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	2.22E+01	3.73E-01	8.21E-01	2.34E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.17E-02	2.34E-02	0.00E+00	5.45E-01	0.00E+00
GWP – fossil	kg CO ₂ e	2.22E+01	3.73E-01	8.21E-01	2.33E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.17E-02	2.34E-02	0.00E+00	5.84E-01	0.00E+00
GWP – biogenic	kg CO ₂ e	3.90E-02	0.00E+00	2.85E-05	3.90E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	-3.90E-02	0.00E+00
GWP – LULUC	kg CO ₂ e	1.43E-02	1.67E-04	3.03E-04	1.48E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.37E-05	8.63E-06	0.00E+00	5.99E-05	0.00E+00
Ozone depletion pot.	kg CFC ₋₁₁ e	2.19E-06	8.54E-08	3.81E-07	2.65E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.18E-09	5.38E-09	0.00E+00	1.61E-08	0.00E+00
Acidification potential	mol H ⁺ e	1.05E-01	3.10E-03	1.32E-03	1.09E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.11E-04	9.91E-05	0.00E+00	4.79E-04	0.00E+00
EP-freshwater ²⁾	kg Pe	5.52E-04	2.85E-06	2.00E-05	5.75E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	6.80E-07	1.92E-07	0.00E+00	9.78E-07	0.00E+00
EP-marine	kg Ne	1.77E-02	7.37E-04	4.80E-04	1.89E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.22E-05	2.94E-05	0.00E+00	7.59E-04	0.00E+00
EP-terrestrial	mol Ne	1.94E-01	8.18E-03	3.46E-03	2.05E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.67E-04	3.25E-04	0.00E+00	1.73E-03	0.00E+00
POCP (“smog”) ³⁾	kg NMVOCe	7.12E-02	2.43E-03	1.14E-03	7.48E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6.63E-05	1.04E-04	0.00E+00	6.20E-04	0.00E+00
ADP-minerals & metals ⁴⁾	kg Sbe	7.80E-04	8.41E-07	2.46E-06	7.84E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.62E-07	5.49E-08	0.00E+00	1.91E-07	0.00E+00
ADP-fossil resources	MJ	3.55E+02	5.64E+00	1.27E+01	3.73E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	8.31E-01	3.52E-01	0.00E+00	1.25E+00	0.00E+00
Water use ⁵⁾	m ³ e depr.	1.26E+01	2.40E-02	1.19E+00	1.38E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7.24E-03	1.57E-03	0.00E+00	7.94E-03	0.00E+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	Incidence	1.05E-06	3.71E-08	1.20E-08	1.09E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	5.71E-10	2.70E-09	0.00E+00	9.05E-09	0.00E+00
Ionizing radiation ⁶⁾	kBq 11235e	1.75E+00	2.69E-02	1.79E-02	1.80E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.90E-02	1.67E-03	0.00E+00	6.21E-03	0.00E+00
Ecotoxicity (freshwater)	CTUe	5.67E+02	4.81E+00	7.69E+00	5.79E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	5.07E-01	3.16E-01	0.00E+00	2.69E+00	0.00E+00
Human toxicity, cancer	CTUh	1.58E-08	1.44E-10	2.77E-10	1.63E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.36E-11	7.77E-12	0.00E+00	4.28E-11	0.00E+00
Human tox. non-cancer	CTUh	7.18E-07	4.47E-09	6.53E-09	7.29E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.06E-10	3.13E-10	0.00E+00	1.14E-09	0.00E+00
SQP ⁷⁾	-	4.96E+01	5.68E+00	6.18E+00	6.15E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.67E-01	4.05E-01	0.00E+00	2.96E+00	0.00E+00

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	1.75E+01	6.00E-02	7.27E+00	2.48E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.78E-01	3.96E-03	0.00E+00	2.61E-02	0.00E+00
Renew. PER as material	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	1.75E+01	6.00E-02	7.27E+00	2.48E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.78E-01	3.96E-03	0.00E+00	2.61E-02	0.00E+00
Non-re. PER as energy	MJ	3.02E+02	5.64E+00	1.18E+01	3.19E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	8.31E-01	3.52E-01	0.00E+00	1.25E+00	0.00E+00
Non-re. PER as material	MJ	5.30E+01	0.00E+00	3.79E-02	5.30E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	-5.30E+01	0.00E+00
Total use of non-re. PER	MJ	3.55E+02	5.64E+00	1.19E+01	3.73E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	8.31E-01	3.52E-01	0.00E+00	-5.18E+01	0.00E+00
Secondary materials	kg	4.68E-02	1.71E-03	2.78E-02	7.63E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	8.09E-05	9.76E-05	0.00E+00	4.41E-04	0.00E+00
Renew. secondary fuels	MJ	1.38E-03	1.45E-05	1.96E-03	3.35E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	6.22E-07	9.85E-07	0.00E+00	1.69E-05	0.00E+00
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	3.16E-01	6.76E-04	2.76E-02	3.44E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.71E-04	4.55E-05	0.00E+00	1.33E-03	0.00E+00

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	9.60E-01	7.47E-03	1.56E-02	9.83E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.83E-03	4.66E-04	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste	kg	2.51E+01	1.14E-01	2.94E-01	2.55E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.77E-02	7.66E-03	0.00E+00	4.99E+00	0.00E+00
Radioactive waste	kg	6.08E-04	3.83E-05	1.02E-05	6.56E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	7.27E-06	2.35E-06	0.00E+00	0.00E+00	0.00E+00

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	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	8.56E-01	8.56E-01	MND	MND	MND	MND	MND	MND	MND	MND	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	2.10E+01	3.70E-01	8.09E-01	2.22E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.13E-02	2.32E-02	0.00E+00	4.77E-01	0.00E+00
Ozone depletion Pot.	kg CFC ₁₁ e	2.06E-06	6.76E-08	2.74E-07	2.40E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.92E-09	4.26E-09	0.00E+00	1.28E-08	0.00E+00
Acidification	kg SO ₂ e	8.74E-02	2.49E-03	1.04E-03	9.09E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	8.87E-05	7.70E-05	0.00E+00	3.65E-04	0.00E+00
Eutrophication	kg PO ₄ ³ e	3.56E-02	3.65E-04	6.25E-04	3.66E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2.96E-05	1.75E-05	0.00E+00	3.22E-02	0.00E+00
POCP (“smog”)	kg C ₂ H ₄ e	6.07E-03	8.05E-05	8.51E-05	6.24E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	4.27E-06	3.01E-06	0.00E+00	8.76E-05	0.00E+00
ADP-elements	kg Sbe	2.23E-04	8.18E-07	2.37E-06	2.26E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.62E-07	5.31E-08	0.00E+00	1.85E-07	0.00E+00
ADP-fossil	MJ	3.55E+02	5.64E+00	1.26E+01	3.73E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	8.30E-01	3.52E-01	0.00E+00	1.25E+00	0.00E+00

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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

10.01.2025

