PRODUCT CARBON FOOTPRINT

IN ACCORDANCE WITH ISO 14067 & ISO 14025

DAFA Spray Barrier

EPD HUB, HUB-1051
Publishing date 26 January 2024, last updated on 26 January 2024, valid until 26 January 2029.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	DAFA A/S
Address	Holmstrupgårdvej 12, 8220 Brabrand, Denmark
Contact details	dbs@dafa-group.com
Website	https://dafa-build.com/en

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
Sector	Construction product
Category of EPD	Third-party verified EPD
Scope	Cradle to gate with options A4-A5 and module C1-C4, D
Author	Mathias Walther
Verification	Independent verification of this carbon footprint and data, according to ISO 14025: ☐ Internal certification ☑ External verification
Verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the carbon footprint.

PRODUCT

Product name	DAFA Spray Barrier
Additional labels	-
Product reference	-
Place of production	Denmark, Aarhus
Period for data	2022-01-01 to 2022-12-31
Averaging	No averaging
Variation in GWP-fossil for A1-A3	N.A

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	5,01E+00
GWP-total, A1-A3 (kgCO2e)	4,89E+00
Secondary material, inputs (%)	0.0
Secondary material, outputs (%)	0.0
Total energy use, A1-A3 (kWh)	25.9
Total water use, A1-A3 (m3e)	4,14E-02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

DAFA Building Solutions for the building industry with a focus on holistic and environmentally beneficial solutions. Products and systems that seal and make buildings long-lasting and more sustainable - both for renewal and new constructions.

PRODUCT DESCRIPTION

DAFA Spray Barrier is a sprayable liquid vapor barrier used in places where it is very difficult to seal using a traditional vapor barrier.
DAFA Spray Barrier is a low-viscosity one-component sealing compound based on hybrid polymer technologies. It is chemically neutral, has only a faint odor, and is compatible with most common construction surfaces. DAFA SprayBarrier cures by reacting with moisture in the air to form a solid, elastic, weatherproof, and airtight coating with good UV resistance.

Further information can be found at https://dafa-build.com/en.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	-
Minerals	72,5	EU
Fossil materials	27,5	EU
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

The product's biogenic carbon content at the factory gate

Biogenic carbon content in the product, kg C	0.009736
Biogenic carbon content in packaging, kg C	0.02397

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	N.A.
Reference service life	N.A.

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This carbon footprint 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	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	Deconstr./dem.	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.

Manufacturing:
The manufacturing is in Aarhus, Denmark. The spray barrier is a low-viscosity one-component sealing compound based on hybrid polymer technologies.
The distance to the manufacturing site is 799 km for the different materials and is by lorry. There is no internal transport. Production losses are considered.

Packaging:
The products are then packed in their dedicated cardboard boxes and placed on reusable pallets, which are also packed in PE plastic film. All packaging materials are recyclable or even reusable (pallets).

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurring from final product delivery to the construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to the PCR. The average distance of transportation from storage to the retailers' site is 193,3 km and the transportation method is assumed to be lorry. The vehicle capacity utilization volume factor is assumed to be 1 which means full load. It may vary but as the role of transportation emissions in total results is small, the variation in load is assumed to be negligible. Empty returns are not considered as it is assumed that the return trip is used by the transportation company to serve the needs of other clients. (Empty returns are considered in the ecoinvent database.)
Transportation does not cause losses as the product is packaged properly.

Environmental impacts from installation into the building consider the generation of waste packaging materials, the release of biogenic carbon dioxide from wood pallets, and the electricity consumption of power tools.

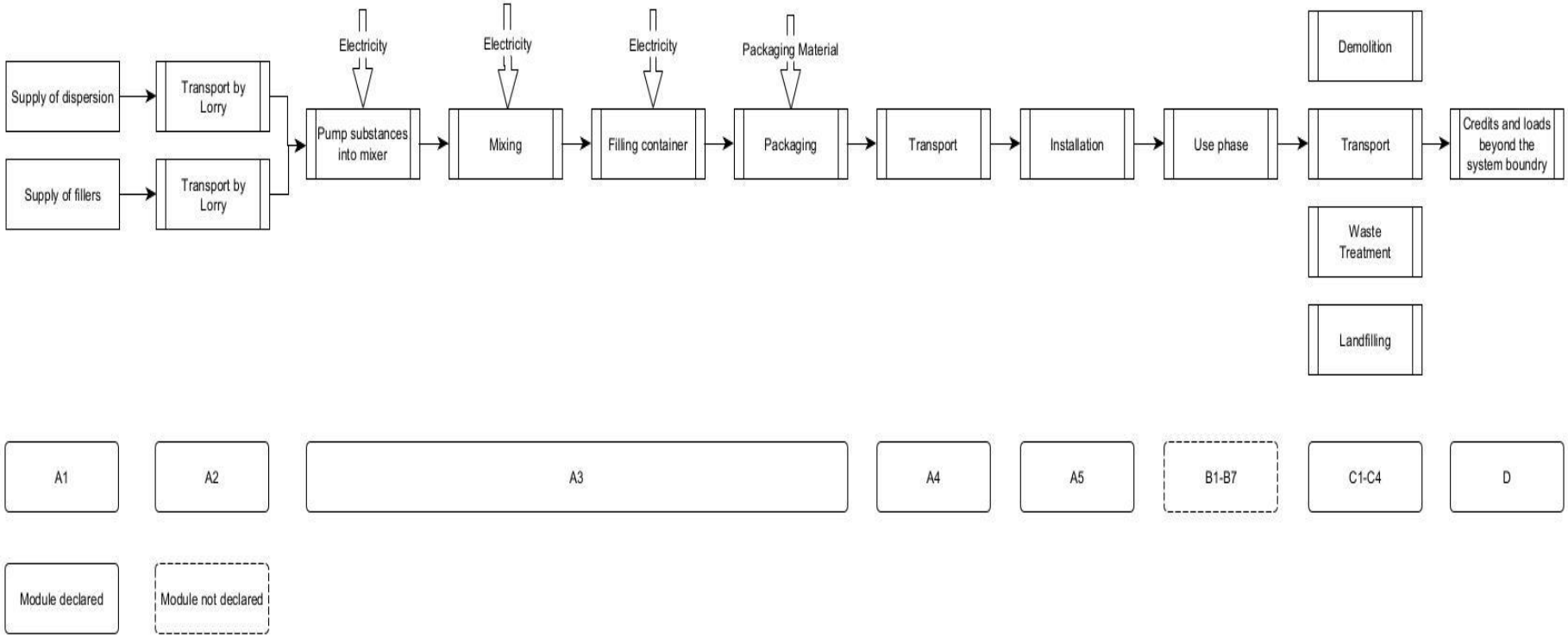
PRODUCT USE AND MAINTENANCE (B1-B7)

This carbon footprint 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)

For C1 it has been assumed that the product can be uninstalled manually by using hand-cutting tools. The end-of-life waste scenario per input material has been chosen and for each raw material, 100% incineration has been modelled under the consideration of suitable loads and benefits. The transportation distance to treatment is assumed to be 50 km and the transportation method is assumed to be a lorry (C2). Module C3 accounts for energy and resource inputs for sorting and treating these waste streams for recycling and incineration with energy recovery with efficiency greater than 60%. The energy recovered mitigates 85% district heat, and 15% electricity. Additionally, waste that is incinerated without energy recovery or landfilled is included in Module C4. Due to the material and energy recovery potential of parts in the end-of-life product and packaging, the energy recovered from incineration replaces electricity and heat production (D). The benefits and loads of incineration are included in Module D. All end-of-life product is assumed to be sent to the closest facilities.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes that are stated as 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 materials 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 materials	Allocated by mass or volume
Ancillary materials	Not applicable
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	N.A.

This carbon footprint is product and factory-specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This carbon footprint has been created using the One Click LCA EPD Generator. The LCA and carbon footprint have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent 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_2e	4,78E+00	1,39E-01	-2,27E-02	4,89E+00	3,36E-02	2,68E-01	MND	MND	MND	MND	MND	MND	MND	MNR	8,15E-03	2,42E+00	0,00E+00	-7,27E+00
GWP – fossil	kg CO_2e	4,81E+00	1,39E-01	6,49E-02	5,01E+00	3,36E-02	1,80E-01	MND	MND	MND	MND	MND	MND	MND	MNR	8,14E-03	2,38E+00	0,00E+00	-7,26E+00
GWP – biogenic	kg CO_2e	-3,57E-02	0,00E+00	-8,79E-02	-1,24E-01	0,00E+00	8,79E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	3,57E-02	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	4,50E-03	5,55E-05	2,23E-04	4,78E-03	1,34E-05	3,64E-04	MND	MND	MND	MND	MND	MND	MND	MNR	3,26E-06	2,02E-05	0,00E+00	-1,37E-02
Ozone depletion pot.	kg CFC_{-11}e	6,76E-09	3,22E-08	4,34E-09	4,33E-08	7,78E-09	4,96E-09	MND	MND	MND	MND	MND	MND	MND	MNR	1,89E-09	5,22E-09	0,00E+00	-2,42E-07
Acidification potential	mol H^+e	1,02E-02	3,94E-04	2,24E-04	1,08E-02	9,54E-05	6,76E-04	MND	MND	MND	MND	MND	MND	MND	MNR	2,31E-05	5,50E-04	0,00E+00	-2,99E-02
EP-freshwater[2)]	kg Pe	0,00E+00	9,91E-07	3,04E-06	4,03E-06	2,40E-07	1,51E-05	MND	MND	MND	MND	MND	MND	MND	MNR	5,81E-08	6,25E-07	0,00E+00	-5,91E-04
EP-marine	kg Ne	2,67E-03	7,86E-05	9,13E-05	2,84E-03	1,90E-05	1,39E-04	MND	MND	MND	MND	MND	MND	MND	MNR	4,62E-06	2,57E-04	0,00E+00	-6,38E-03
EP-terrestrial	mol Ne	2,93E-02	8,74E-04	6,51E-04	3,08E-02	2,11E-04	1,82E-03	MND	MND	MND	MND	MND	MND	MND	MNR	5,13E-05	2,64E-03	0,00E+00	-8,14E-02
POCP ("smog")[3)]	kg NMVOCe	9,47E-03	3,36E-04	1,63E-04	9,97E-03	8,12E-05	4,13E-04	MND	MND	MND	MND	MND	MND	MND	MNR	1,97E-05	6,40E-04	0,00E+00	-1,91E-02
ADP-minerals & metals[4)]	kg Sbe	8,18E-06	5,02E-07	2,46E-07	8,93E-06	1,21E-07	7,57E-07	MND	MND	MND	MND	MND	MND	MND	MNR	2,95E-08	2,15E-07	0,00E+00	-2,88E-05
ADP-fossil resources	MJ	1,05E+02	2,07E+00	6,18E-01	1,08E+02	5,00E-01	2,56E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,21E-01	4,43E-01	0,00E+00	-1,02E+02
Water use[5)]	m^3e depr.	1,34E+00	9,67E-03	2,83E-02	1,38E+00	2,34E-03	1,36E-01	MND	MND	MND	MND	MND	MND	MND	MNR	5,67E-04	9,42E-02	0,00E+00	-5,11E+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.

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	6,67E+00	3,00E-02	6,17E-01	7,32E+00	7,27E-03	2,07E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,76E-03	1,73E-02	0,00E+00	-7,96E+01
Renew. PER as material	MJ	5,85E-01	0,00E+00	7,64E-01	1,35E+00	0,00E+00	-7,64E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-5,85E-01	0,00E+00	0,00E+00
Total use of renew. PER	MJ	7,25E+00	3,00E-02	1,38E+00	8,67E+00	7,27E-03	1,31E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,76E-03	-5,68E-01	0,00E+00	-7,96E+01
Non-re. PER as energy	MJ	8,33E+01	2,07E+00	5,85E-01	8,60E+01	5,00E-01	2,56E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,21E-01	4,43E-01	0,00E+00	-1,02E+02
Non-re. PER as material	MJ	2,20E+01	0,00E+00	3,35E-02	2,20E+01	0,00E+00	-3,35E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-2,20E+01	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	1,05E+02	2,07E+00	6,19E-01	1,08E+02	5,00E-01	2,53E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,21E-01	-2,16E+01	0,00E+00	-1,02E+02
Secondary materials	kg	0,00E+00	7,03E-04	2,93E-02	3,00E-02	1,70E-04	5,97E-04	MND	MND	MND	MND	MND	MND	MND	MNR	4,13E-05	3,94E-04	0,00E+00	-7,98E-04
Renew. secondary fuels	MJ	0,00E+00	7,74E-06	1,56E-02	1,56E-02	1,87E-06	3,21E-06	MND	MND	MND	MND	MND	MND	MND	MNR	4,54E-07	1,39E-05	0,00E+00	-1,21E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	4,03E-02	2,63E-04	8,49E-04	4,14E-02	6,37E-05	6,65E-03	MND	MND	MND	MND	MND	MND	MND	MNR	1,55E-05	3,52E-03	0,00E+00	-2,55E-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	1,12E-05	2,35E-03	2,82E-03	5,18E-03	5,68E-04	1,99E-02	MND	MND	MND	MND	MND	MND	MND	MNR	1,38E-04	0,00E+00	0,00E+00	-7,78E-01
Non-hazardous waste	kg	1,66E-01	4,18E-02	9,52E-02	3,03E-01	1,01E-02	6,86E-01	MND	MND	MND	MND	MND	MND	MND	MNR	2,45E-03	1,00E+00	0,00E+00	-2,56E+01
Radioactive waste	kg	2,34E-03	1,42E-05	2,10E-06	2,36E-03	3,44E-06	1,12E-05	MND	MND	MND	MND	MND	MND	MND	MNR	8,34E-07	0,00E+00	0,00E+00	-4,52E-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	MND	MND	MND	MND	MND	MND	MNR	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	0,00E+00	2,83E-02	MND	MND	MND	MND	MND	MND	MND	MNR	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	0,00E+00	3,80E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	2,77E-01	2,77E-01	0,00E+00	4,79E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,77E+01	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_2e	4,77E+00	2,72E-01	6,58E-02	5,10E+00	3,33E-02	1,78E-01	MND	MND	MND	MND	MND	MND	MND	MNR	8,07E-03	2,38E+00	0,00E+00	-7,17E+00
Ozone depletion Pot.	kg CFC_{-11}e	4,27E-04	5,04E-08	3,69E-09	4,27E-04	6,17E-09	4,41E-09	MND	MND	MND	MND	MND	MND	MND	MNR	1,50E-09	4,70E-09	0,00E+00	-2,10E-07
Acidification	kg SO_2e	2,42E-02	6,40E-04	1,64E-04	2,50E-02	7,83E-05	5,27E-04	MND	MND	MND	MND	MND	MND	MND	MNR	1,90E-05	3,91E-04	0,00E+00	-2,33E-02
Eutrophication	kg PO_4^3e	1,33E-02	1,38E-04	1,26E-04	1,36E-02	1,69E-05	5,77E-04	MND	MND	MND	MND	MND	MND	MND	MNR	4,10E-06	2,83E-04	0,00E+00	-2,22E-02
POCP (“smog”)	kg C_2H_4e	1,74E-03	3,23E-05	1,21E-05	1,78E-03	3,95E-06	2,60E-05	MND	MND	MND	MND	MND	MND	MND	MNR	9,59E-07	8,46E-06	0,00E+00	-1,08E-03
ADP-elements	kg Sbe	3,87E-05	9,70E-07	2,17E-07	3,99E-05	1,19E-07	7,51E-07	MND	MND	MND	MND	MND	MND	MND	MNR	2,88E-08	1,68E-07	0,00E+00	-2,85E-05
ADP-fossil	MJ	8,13E+01	4,09E+00	6,14E-01	8,60E+01	5,00E-01	2,56E+00	MND	MND	MND	MND	MND	MND	MND	MNR	1,21E-01	4,43E-01	0,00E+00	-1,02E+02

VERIFICATION PROCESS FOR THIS CARBON FOOTPRINT

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

- This Product Carbon Footprint
- The Life-Cycle Assessment used in this carbon footprint
- The digital background data for this carbon footprint

Why does verification transparency matter? Read more online
This carbon footprint has been generated by the One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

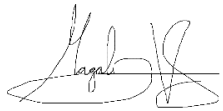
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Carbon Footprint of a Product, its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the carbon footprint, 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 owner of the carbon footprint 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 carbon footprint 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 carbon footprint and have no conflicts of interest regarding this verification.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
26.01.2024



EPD Hub
VERIFIED ISO 14025