

ENVIRONMENTAL PRODUCT DECLARATION

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

VINDAVLEDARE, AIRGAP EAVES &
LUFTSPALTSKIVA, AIRGAP EXTEND



EPD HUB, HUB-0206

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GENERAL INFORMATION

MANUFACTURER

Manufacturer	Tecca (SE)
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Website	www.teccaworld.com

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
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options A4-A5, and module C1-C4 and D
EPD author	Barbro Ingemarsson (barbro.ingemarsson@teccaworld.com)
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☒ External verification
EPD verifier	Elma Avdyli 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 names	Vindavledare, AirGap Eaves and Luftspaltskiva, AirGap Extend
Additional labels	
Product reference	7318718036673, 7318718036642, 7318718036734, 7318718036703
Place of production	Sweden
Period for data	2021
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	-1.8 to +0.5 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	1.2
GWP-total, A1-A3 (kgCO ₂ e)	0.457
Secondary material, inputs (%)	0.0178
Secondary material, outputs (%)	100
Total energy use, A1-A3 (kWh)	9.53
Total water use, A1-A3 (m ³ e)	1.63

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

TECCA AB is a Nordic market leader developing premium solutions for building material retailers and prefabricated housing industry with focus on climate shell and protective products. Product solutions are developed from the perspective of high standards within extensive quality assurance and testing processes. The total offer also contains customized supply chain and logistics solutions. TECCA AB is owned by Volati – a Swedish industrial group formed in 2003.

TECCA AB maintains ISO 9001 and 14001 certificates. For additional information about TECCA, please visit the company web site at <https://www.teccaworld.com/>

PRODUCT DESCRIPTION

Moisture wicking products with windproofing properties. The products consist of more than 90 % renewable material. Vindavledare, AirGap Eaves and Luftspaltskiva, AirGap Extend are used together in a system at the inner layer of an outer roof. Four different dimensions. Two of each product. Further information can be found at www.teccaworld.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	
Minerals	0	
Fossil materials	7	
Bio-based materials	93	

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C 0.452

Biogenic carbon content in packaging, kg C 0.0047

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	50 years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0.1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage								End of life stage				Beyond the system boundaries	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7		C1	C2	C3	C4	D	
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND		x	x	x	x	x	
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energ. use	Operational water use	Operational	Deconstr./demol.	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 consists of three parts: corrugated cardboard, plastic spacers and glue.

A pallet with corrugated cardboard is placed in the production cell. The robot takes one board at the time and places it on a table. Then

the robot takes three plastic profiles and holds those against an adhesive dispenser, after which it places the profiles on the cardboard. This process is repeated until the correct number of plastic profiles are mounted. The robot then places the product in a pile that is later manually put in corrugated cardboard boxes.

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.

The products are transported from the manufacturer to the warehouse at TECCA, a distance of 6 km. The average distance from the warehouse to construction sites is estimated to be 400 km.

Equipment needed for installation of Vindavledare, AirGap Eaves and Luftspaltskiva, AirGap Extend are building tape (0.1 kg/kg product) and staples (0.05 kg/kg product). The only tool that is necessary is a hammer.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase is considered negligible and therefore not included in this EPD.

PRODUCT END OF LIFE (C1-C4, D)

At deconstruction of a building containing Vindavledare, AirGap Eaves and/or Luftspaltskiva, AirGap Extend, the products are easily separated from all other building elements. The products could then readily be separated into corrugated cardboard and plastic respectively and recovered separately. However, the current situation in Sweden is that most waste from construction and demolition are not sorted and therefore end up in landfills, in incineration plants with or without energy recovery (Naturvårdsverket - *The Swedish Environmental Protection Agency*).

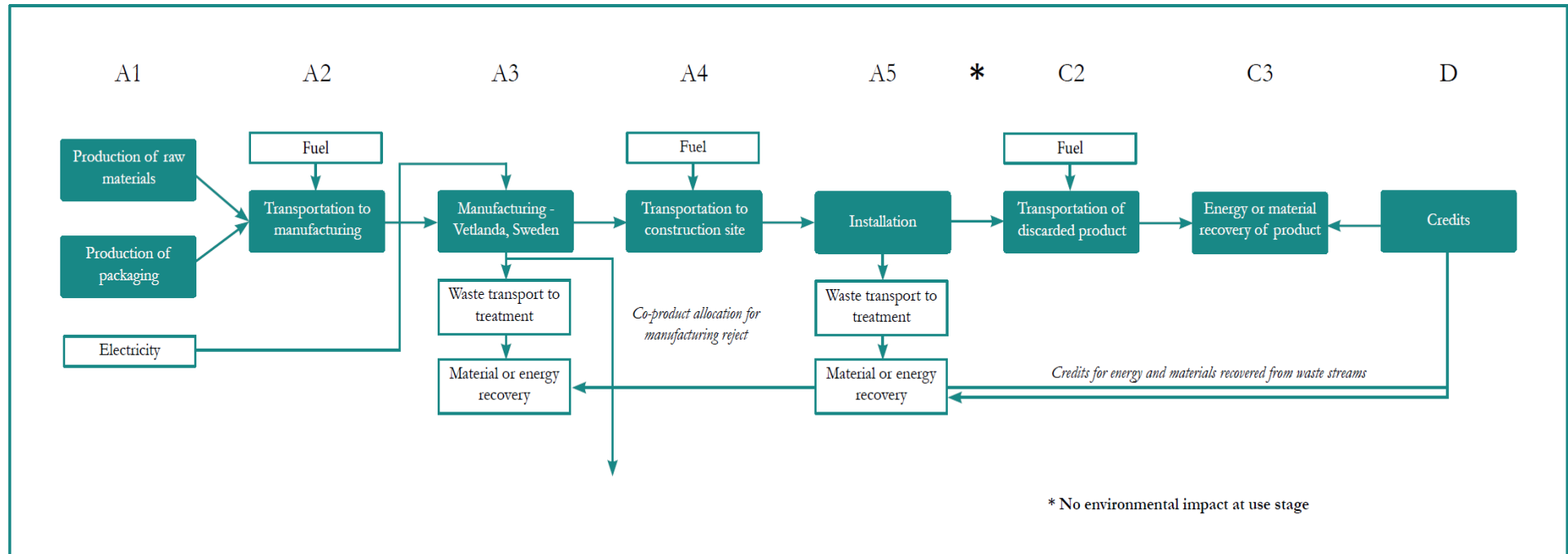
A new law regarding construction and demolition waste applies from 1 August 2020 in Sweden (*Avfallsförordningen* SFS 2020:614). It says that the person who produces construction and demolition waste must sort out certain types of waste (wood, minerals, metal, glass, plastic and gypsum). In addition, waste considered combustible must be separated from all other waste. All fractions that have been sorted out must be stored and separated from each other and from other waste. The distance for transport to waste processing is estimated to be 10 km.

The sorting requirements will provide better possibilities for achieving more circular flows of materials in construction and demolition activities in the future, but it has not been fully implemented on all demolition sites at present. We have therefore, in this EPD, made the assumption that 100% of the waste will end up in the bin for combustible material and go to incineration with energy recovery. The benefits and loads beyond the system boundary in module D are therefore assumed to consist of energy recovery from incineration of the cardboard (from both the product

and packaging) and the plastic details in the products. The energy recovery from incineration of the wood pallets is also included in the calculated benefits, but since the average times a wood pallet is used, the calculated energy recovery from a wood pallet is divided by 70.

However, since the estimated lifetime for Vindavledare, AirGap Eaves and Luftspaltskiva, AirGap Extend are estimated to be 50 years, the demands for sorting demolition waste as mentioned above, will, when Vindavledare, AirGap Eaves and Luftspaltskiva, AirGap Extend becomes waste, hopefully result in a different and much better handling of the waste.

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.

The manufacture of the separate constituent parts in the products and the transport to the assembly site are not included in this EPD. In addition, the hot-melt glue used to attach the plastic spacers to the cardboard material does not contain any substances of concern and accounts only for 0.8% of the product weight, why this constituent is omitted from this EPD.

The distance for transport of the pallet is set to zero in A2, since the pallet is already in the factory. It has come to the factory together with other goods.

Resources needed for installation are very limited. Only small quantities of tape and staples are necessary and are therefore omitted from the EPD.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. In this study, as per the reference standard, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

Allocation used in environmental data sources is aligned with the above.

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	-1.8 to +0.5 %

The calculation of input data is based on an average of the weight of the constituents in the different products that are produced:

Corrugated cardboard: Vindavledare, AirGap Eaves 975g, Luftspaltskiva, AirGap Extend 956g and Waste 30g => Average 995g/kg product manufactured

Plastic spacers: Vindavledare, AirGap Eaves 19g, Luftspaltskiva, AirGap Extend 34g and Waste 2g => Average 29g/kg product manufactured

Hot melt glue: Vindavledare, AirGap Eaves 6g, Luftspaltskiva, AirGap Extend 10g and Waste 0g => Average 8g/kg product manufactured

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 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	9,45E-1	9,02E-3	-4,71E-1	4,84E-1	6,07E-2	2,91E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,67E-3	1,72E0	0E0	-6,94E-1
GWP – fossil	kg CO ₂ e	9,26E-1	9,01E-3	2,81E-1	1,22E0	6,12E-2	1,83E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,67E-3	6,72E-2	0E0	-6,94E-1
GWP – biogenic	kg CO ₂ e	1,36E-2	6,54E-6	-7,65E-1	-7,51E-1	4,45E-5	2,73E-1	MND	MND	MND	MND	MND	MND	MND	0E0	8,89E-7	1,65E0	0E0	-1,15E-4
GWP – LULUC	kg CO ₂ e	5,59E-3	2,71E-6	1,31E-2	1,87E-2	1,84E-5	1,88E-4	MND	MND	MND	MND	MND	MND	MND	0E0	5,91E-7	2,41E-5	0E0	-1,96E-5
Ozone depletion pot.	kg CFC-11e	1,37E-7	2,12E-9	4,38E-8	1,83E-7	1,44E-8	2,48E-9	MND	MND	MND	MND	MND	MND	MND	0E0	3,79E-10	9,12E-9	0E0	-1,11E-7
Acidification potential	mol H ⁺ e	4,58E-3	3,78E-5	1,55E-3	6,17E-3	2,56E-4	1,12E-4	MND	MND	MND	MND	MND	MND	MND	0E0	6,81E-6	3,38E-4	0E0	-1,44E-3
EP-freshwater ²⁾	kg Pe	6,67E-5	7,33E-8	1,91E-5	8,59E-5	4,98E-7	9,32E-7	MND	MND	MND	MND	MND	MND	MND	0E0	1,39E-8	1,16E-6	0E0	-8,24E-7
EP-marine	kg Ne	1,7E-3	1,14E-5	5,01E-4	2,21E-3	7,7E-5	4,33E-5	MND	MND	MND	MND	MND	MND	MND	0E0	2,02E-6	1,2E-4	0E0	-3,7E-4
EP-terrestrial	mol Ne	1,5E-2	1,26E-4	4,9E-3	2,01E-2	8,5E-4	4,21E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,23E-5	1,25E-3	0E0	-3,91E-3
POCP (“smog”) ³⁾	kg NMVOCe	3,31E-3	4,05E-5	1,47E-3	4,82E-3	2,74E-4	1,03E-4	MND	MND	MND	MND	MND	MND	MND	0E0	6,84E-6	4,26E-4	0E0	-1,09E-3
ADP-minerals & metals ⁴⁾	kg Sbe	1,22E-5	1,54E-7	4,69E-6	1,7E-5	1,05E-6	2,55E-7	MND	MND	MND	MND	MND	MND	MND	0E0	4,51E-8	1,99E-6	0E0	-3,8E-7
ADP-fossil resources	MJ	1,49E1	1,4E-1	6,91E0	2,2E1	9,53E-1	2,68E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2,51E-2	7,39E-1	0E0	-1,13E1
Water use ⁵⁾	m ³ e depr.	4,01E-1	5,21E-4	6,05E-1	1,01E0	3,54E-3	1,66E-2	MND	MND	MND	MND	MND	MND	MND	0E0	8,09E-5	7E-3	0E0	-1,49E-1

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	8,53E0	1,76E-3	6,71E0	1,52E1	1,2E-2	1,54E-1	MND	MND	MND	MND	MND	MND	MND	0E0	3,55E-4	2,85E-2	0E0	-2,62E-2
Renew. PER as material	MJ	0E0	0E0	7,9E0	7,9E0	0E0	-7,81E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	8,53E0	1,76E-3	1,46E1	2,31E1	1,2E-2	-7,66E0	MND	MND	MND	MND	MND	MND	MND	0E0	3,55E-4	2,85E-2	0E0	-2,62E-2
Non-re. PER as energy	MJ	1,35E1	1,4E-1	6,91E0	2,06E1	9,53E-1	2,54E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2,51E-2	7,39E-1	0E0	-1,13E1
Non-re. PER as material	MJ	1,39E0	0E0	0E0	1,39E0	0E0	1,39E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-1,39E0	0E0	0E0
Total use of non-re. PER	MJ	1,49E1	1,4E-1	6,91E0	2,2E1	9,53E-1	2,68E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2,51E-2	-6,47E-1	0E0	-1,13E1
Secondary materials	kg	1,78E-4	0E0	0E0	1,78E-4	0E0	1,78E-6	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m ³	1,63E0	2,92E-5	6,27E-3	1,64E0	1,98E-4	1,66E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,3E-6	1,77E-4	0E0	-2,15E-3

6) 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	3,75E-2	1,36E-4	1,78E-2	5,55E-2	9,26E-4	3,28E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,55E-5	0E0	0E0	-3,27E-3
Non-hazardous waste	kg	1,62E0	1,51E-2	5,05E-1	2,14E0	1,02E-1	1,9E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,75E-3	0E0	0E0	-3,49E-2
Radioactive waste	kg	4,12E-5	9,62E-7	4,31E-5	8,53E-5	6,54E-6	1,03E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,72E-7	0E0	0E0	-1,9E-5

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	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	5,2E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1E0	0E0	0E0
Exported energy	MJ	0E0	0E0	3,8E-1	3,8E-1	0E0	2,12E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,31E1	0E0	0E0

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	9,22E-1	8,93E-3	2,9E-1	1,22E0	6,07E-2	1,83E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,65E-3	7,32E-2	0E0	-6,9E-1
Ozone depletion Pot.	kg CFC ₁₁ e	1,21E-7	1,68E-9	4,6E-8	1,68E-7	1,14E-8	2,36E-9	MND	MND	MND	MND	MND	MND	MND	0E0	3,01E-10	7,43E-9	0E0	-8,46E-8
Acidification	kg SO ₂ e	2,93E-3	1,83E-5	1,05E-3	4E-3	1,25E-4	7,61E-5	MND	MND	MND	MND	MND	MND	MND	0E0	3,34E-6	2,49E-4	0E0	-1,14E-3
Eutrophication	kg PO ₄ ³ e	2,16E-3	3,7E-6	5,89E-4	2,75E-3	2,52E-5	5,28E-5	MND	MND	MND	MND	MND	MND	MND	0E0	6,87E-7	1,46E-4	0E0	-1,62E-4
POCP ("smog")	kg C ₂ H ₄ e	2,07E-4	1,16E-6	8,76E-5	2,96E-4	7,89E-6	3,87E-6	MND	MND	MND	MND	MND	MND	MND	0E0	2,2E-7	1,68E-5	0E0	-5,73E-5
ADP-elements	kg Sbe	1,22E-5	1,54E-7	4,69E-6	1,7E-5	1,05E-6	2,55E-7	MND	MND	MND	MND	MND	MND	MND	0E0	4,51E-8	1,99E-6	0E0	-3,8E-7
ADP-fossil	MJ	1,49E1	1,4E-1	6,91E0	2,2E1	9,53E-1	2,68E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2,51E-2	7,39E-1	0E0	-1,13E1

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.

Elma Avdyli as an authorized verifier acting for EPD Hub Limited
09.12.2022

