ENVIRONMENTAL PRODUCT DECLARATION

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

HT PP Nordic Pipes
Pipelife Finland Oy

EPD HUB, EPDHUB-0107
Publishing date 19 August 2022, last updated date 19 August 2022, valid until 19 August 2027

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Pipelife Finland Oy
Address	Kiviharjunlenkki 1 E, 90220 Oulu
Contact details	asiakaspalvelu@pipelife.fi
Website	https://www.pipelife.fi/

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
EPD author	Riikka Vaara, Pipelife Finland Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	E.A as an authorized verifier acting for EPD Hub

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	HT PP Nordic Pipes
Product reference	70000439, 70000440, 70000441, 70000442, 70000443, 70000444, 70000445, 70000446, 70000447, 70000448, 70000449, 70000450, 70000451, 70000452, 70000453, 70000454, 70000455, 70000456, 70000943, 70022884, 70022885, 70022886
Place of production	Pipelife Hafab AB (Haaparanta)
Period for data	1.1.2019 - 31.12.2020
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	<10 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of pipe
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	2,31E0
GWP-total, A1-A3 (kgCO2e)	2,25E0
Secondary material, inputs (%)	4,25E-1
Secondary material, outputs (%)	1E2
Total energy use, A1-A3 (kWh)	9,15E0
Total water use, A1-A3 (m3e)	5,27E-3

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Pipelife Finland Oy is one of the leading providers of Plastic construction solutions in Finland. The product range consists of plastic pipe, tank and chamber solutions, rainwater management, oil and sand separation solutions, wastewater treatment solutions, and solutions for energy and data network construction, as well as electric installations. Pipelife Finland solutions are used in construction in infrastructure, housing and industrial applications.

Pipelife Finland Oy are certified according to EN ISO 9001 Quality and EN ISO 14001 Environmental Management systems.

Pipelife Finland Oy employs about 250 employees in Finland. The company is part of leading global construction solution provider Wienerberger AG and its piping solution division WPS. It operates globally in 25 countries and provides piping solutions based on plastic and ceramic materials.

PRODUCT DESCRIPTION

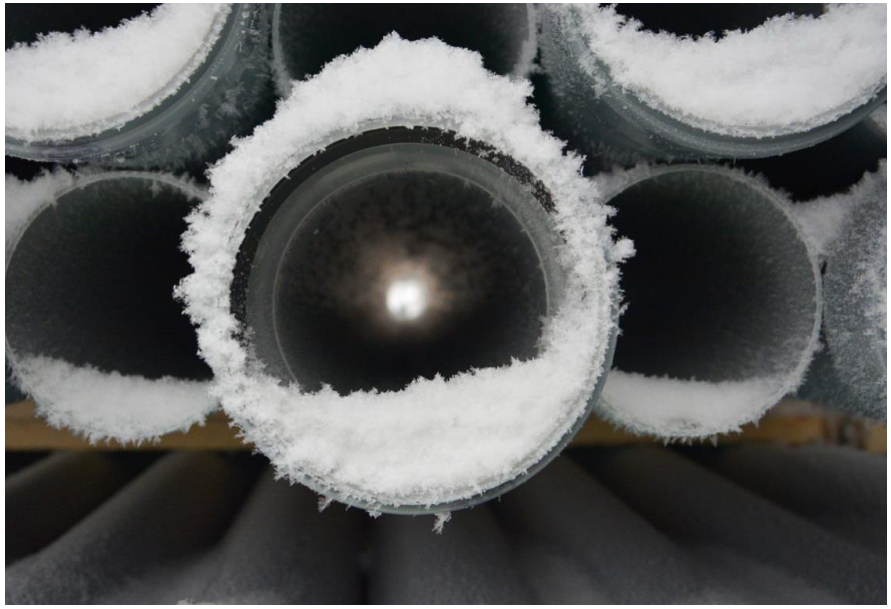
HT PP pipes for soil and waste. Two-layer mineral reinforced polypropylene (PP) structure. Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Polypropylene with mineral modifiers (PP-MD).

HT PP pipes are manufactured according to the following specific instructions:
NPG/PS 102: Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure— Polypropylene with mineral modifiers (PP-MD).

Further information can be found at https://www.pipelife.fi/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Minerals	21	EU
Fossil materials	79	EU



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	0.035

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit VP-011	1 kg of pipe
Mass per declared unit	1 kg

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.

The scope of the EPD is "cradle to gate with options, module A4, module A5, modules C1-C4 and module D". The modules A1 (Raw material supply), A2 (Transport) and A3 (Manufacturing), A4 (Transport), A5 (Installation) as well as C1 (Deconstruction/demolition), C2 (Transport at end-of-life), C3 (Waste processing), C4(Disposal) and D (benefits and loads beyond the system boundary) are included in the study.

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./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 production method is a pipe extrusion. The different stages are:
– Material conveying
– Extrusion (melting and processing of material)
– Cooling
– Cutting
– Socketing
– Packaging

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 average transport distance from the production plant to the building site is assumed to be 470 km, and the transport method is assumed to be a lorry. Transport does not cause losses, because products are packaged properly. The installation accounts for the treatment of packaging waste. The environmental impact of the installation on the building will be negligible.

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)

Since the consumption of energy and natural resources is negligible for disassembling the end-of-life product, the impacts of demolition are assumed to be zero (C1).

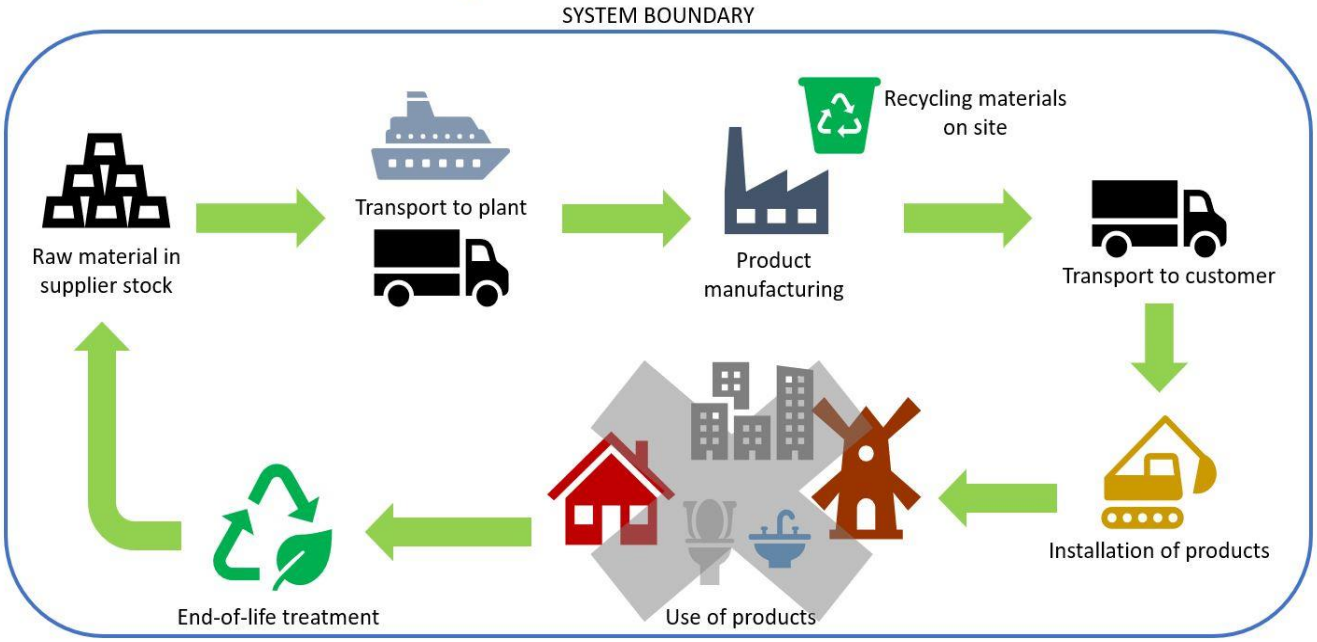
It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product. After ca 50 years of service life (TEPPFA, 2018) all end-of-life product is assumed to be collected from the demolition site. Transportation distance to the waste-handling facility is estimated as 50 km and the transportation method is assumed to be lorry, which is the most common (C2).

It is assumed that 80% of the end-of-life product is recycled and 20% is incinerated. The assumption is based on recycling info, environmental industries YTP ry, Municipal waste management companies reports and TEPPHA report (C3, C4).

Due to the recycling and incineration potential of Polyethylene/Polypropylene, the end-of-life product is converted into recycled PP, while energy and heat are produced from its incineration (D). The benefits and loads of waste packaging materials in A5 are also considered in module D.

MANUFACTURING PROCESS

Product Life Cycle



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

EPD calculation is based on average. Calculation is per kg of pipe including in-house recycling. Packaging materials, consumed electricity, waste materials, water and transportation are calculated based on average value.

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;

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

As it is impossible to collect all data separately for each product produced in the plants, data is allocated. Incoming energy, as well as the production of waste in own production as well as ancillary materials, are allocated between all products based on mass allocation. Several kinds of pipe are produced in the factories, but as the production processes for these products are very similar and the raw materials are the same, the differences between each product per 1 kg are negligible. Due to this the flow quantities for the declared unit are gotten by dividing their total amounts by the annual production volumes.

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

AVERAGES AND VARIABILITY

EPD calculation is based on average. Calculation is per kg of pipe including in-house recycling. Packaging materials, consumed electricity, waste materials, water and transportation are calculated based on average value.

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_2e	2,2E0	9,8E-2	-4,48E-2	2,25E0	6,33E-2	2,9E-1	MND	MND	MND	MND	MND	MND	MND	0E0	2,58E-2	1,91E0	0E0	-1,41E0
GWP – fossil	kg CO_2e	2,19E0	9,79E-2	2,08E-2	2,31E0	6,38E-2	1,39E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,58E-2	1,91E0	0E0	-1,46E0
GWP – biogenic	kg CO_2e	9,99E-3	7,11E-5	-6,56E-2	-5,56E-2	3,91E-5	2,89E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,18E-5	6,12E-5	0E0	5,21E-2
GWP – LULUC	kg CO_2e	5,47E-4	2,95E-5	8,56E-5	6,62E-4	2,25E-5	5,1E-7	MND	MND	MND	MND	MND	MND	MND	0E0	1,44E-5	7,63E-6	0E0	-3,32E-4
Ozone depletion pot.	kg CFC_{-11}e	3,56E-8	2,3E-8	1,81E-9	6,04E-8	1,46E-8	1,33E-10	MND	MND	MND	MND	MND	MND	MND	0E0	5,57E-9	4,24E-9	0E0	-3,31E-8
Acidification potential	mol H^+e	7,62E-3	4,11E-4	1,42E-4	8,17E-3	2,63E-4	1,26E-5	MND	MND	MND	MND	MND	MND	MND	0E0	1,64E-4	3,29E-4	0E0	-6,37E-3
EP-freshwater[2)]	kg Pe	3,17E-5	7,96E-7	1,69E-6	3,42E-5	5,52E-7	2,44E-8	MND	MND	MND	MND	MND	MND	MND	0E0	3,03E-7	2,96E-7	0E0	-2,81E-5
EP-marine	kg Ne	1,27E-3	1,24E-4	4,75E-5	1,45E-3	7,79E-5	5,69E-6	MND	MND	MND	MND	MND	MND	MND	0E0	5,98E-5	1,54E-4	0E0	-7,06E-4
EP-terrestrial	mol Ne	1,41E-2	1,37E-3	4,8E-4	1,6E-2	8,6E-4	6,01E-5	MND	MND	MND	MND	MND	MND	MND	0E0	6,59E-4	1,6E-3	0E0	-8,96E-3
POCP ("smog")[3)]	kg NMVOCe	6,72E-3	4,4E-4	1,48E-4	7,31E-3	2,7E-4	1,52E-5	MND	MND	MND	MND	MND	MND	MND	0E0	1,82E-4	4,58E-4	0E0	-4,67E-3
ADP-minerals & metals[4)]	kg Sbe	1,88E-5	1,67E-6	3,97E-7	2,09E-5	1,59E-6	2,03E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,26E-6	5,06E-7	0E0	-8,39E-6
ADP-fossil resources	MJ	7,91E1	1,52E0	2,96E-1	8,1E1	9,74E-1	1,47E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,85E-1	3,46E-1	0E0	-5,53E1
Water use[5)]	m^3e depr.	1,34E0	5,66E-3	9,19E-4	1,35E0	3,46E-3	-6,41E-4	MND	MND	MND	MND	MND	MND	MND	0E0	1,58E-3	5,69E-3	0E0	-1E0

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	1,12E0	1,92E-2	3,35E0	4,48E0	1,38E-2	4,57E-4	MND	MND	MND	MND	MND	MND	MND	0E0	8,17E-3	6,18E-3	0E0	-2,21E0
Renew. PER as material	MJ	0E0	0E0	1,58E0	1,58E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	1,12E0	1,92E-2	4,93E0	6,06E0	1,38E-2	4,57E-4	MND	MND	MND	MND	MND	MND	MND	0E0	8,17E-3	6,18E-3	0E0	-2,21E0
Non-re. PER as energy	MJ	2,67E1	1,52E0	2,51E-1	2,84E1	9,74E-1	1,47E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,85E-1	3,46E-1	0E0	-1,7E1
Non-re. PER as material	MJ	5,25E1	0E0	4,52E-2	5,25E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-9,54E0	0E0	-3,83E1
Total use of non-re. PER	MJ	7,91E1	1,52E0	2,96E-1	8,1E1	9,74E-1	1,47E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,85E-1	-9,19E0	0E0	-5,53E1
Secondary materials	kg	4,23E-3	0E0	1,42E-5	4,25E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	7,97E-1
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	4,82E-3	3,17E-4	1,33E-4	5,27E-3	1,85E-4	1,85E-5	MND	MND	MND	MND	MND	MND	MND	0E0	6,98E-5	5,15E-4	0E0	-2,75E-3

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	4,66E-2	1,48E-3	1,88E-3	5E-2	1,01E-3	3,89E-4	MND	MND	MND	MND	MND	MND	MND	0E0	5,46E-4	0E0	0E0	-2,25E-2
Non-hazardous waste	kg	1,4E0	1,64E-1	1,04E-1	1,67E0	8,42E-2	6,67E-2	MND	MND	MND	MND	MND	MND	MND	0E0	2,38E-2	0E0	0E0	-9E-1
Radioactive waste	kg	3,15E-5	1,05E-5	9,19E-7	4,29E-5	6,66E-6	4,6E-8	MND	MND	MND	MND	MND	MND	MND	0E0	2,56E-6	0E0	0E0	-4,83E-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	1,4E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	8E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	6,62E-2	6,62E-2	0E0	1,32E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	2E-1	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	2,57E-4	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	6,96E0	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_2e	2,01E0	9,7E-2	2,03E-2	2,12E0	6,33E-2	1,4E-3	MND	MND	MND	MND	MND	MND	MND	0E0	2,55E-2	1,89E0	0E0	-1,32E0
Ozone depletion Pot.	kg CFC_{-11}e	3,67E-8	1,83E-8	1,54E-9	5,66E-8	1,16E-8	1,11E-10	MND	MND	MND	MND	MND	MND	MND	0E0	4,45E-9	3,54E-9	0E0	-3,85E-8
Acidification	kg SO_2e	6,41E-3	1,99E-4	1,03E-4	6,72E-3	1,3E-4	8,58E-6	MND	MND	MND	MND	MND	MND	MND	0E0	5,67E-5	2,38E-4	0E0	-5,48E-3
Eutrophication	kg PO_4^3e	1,4E-3	4,02E-5	4,66E-5	1,48E-3	2,71E-5	9,24E-6	MND	MND	MND	MND	MND	MND	MND	0E0	1,35E-5	4,01E-3	0E0	3,23E-4
POCP (“smog”)	kg C_2H_4e	4,17E-4	1,26E-5	6,44E-6	4,36E-4	8,41E-6	2,61E-7	MND	MND	MND	MND	MND	MND	MND	0E0	4,09E-6	4,08E-5	0E0	-4,73E-4
ADP-elements	kg Sbe	1,88E-5	1,67E-6	3,97E-7	2,09E-5	1,59E-6	2,03E-8	MND	MND	MND	MND	MND	MND	MND	0E0	1,26E-6	5,06E-7	0E0	-8,39E-6
ADP-fossil	MJ	7,91E1	1,52E0	2,96E-1	8,1E1	9,74E-1	1,47E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3,85E-1	3,46E-1	0E0	-5,53E1

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
19.08.2022

EPD Hub
VERIFIED ISO 14025