

# ENVIRONMENTAL PRODUCT DECLARATION

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

## EVOEL SMART pipe

Evopipes SIA



**EPD HUB, HUB-0035**

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## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Evopipes SIA
Address	Langervaldes street 2a
Contact details	info@evopipes.lv
Website	www.evopipes.lv

### 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 modules C1-C4 and D
EPD author	Inese Meldere, Alise Dude; Evopipes SIA
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
EPD verifier	E.A, 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	EVOEL SMART pipe
Additional labels	EVOEL SMART FL-0H; FM-0H; FMs-0H; FMs-UV-0H; FHs-UV-0H
Product reference	All products from group No.103 and group Nr. 110 (product number starts with 103 and 110).
Place of production	Latvia
Period for data	2021
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	<1 %

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of pipe
Declared unit mass	1
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	2,26
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	2,26
Secondary material, inputs (%)	8,68E-1
Secondary material, outputs (%)	46,0
Total energy use, A1-A3 (kWh)	8,82
Total water use, A1-A3 (m <sup>3</sup> e)	6,25E-3

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Evopipes is manufacturer of plastic pipe systems for electricity, telecom, water, wastewater and gas. Our production is based in Latvia, but we supply client's requests around the world.

Our main strategy is to design advanced pipeline products that increase work efficiency in the field of installing and exploiting pipe systems. We are certified according to EN ISO 9001 Quality Management system, EN ISO 14001 Environmental Management system and EN ISO 50001 energy Management.

### PRODUCT DESCRIPTION



**EVOEL SMART FL-OH** Flexible, halogen-free (EN 50642) electrical installation conduit made of a special light grey plastic material, with an orange inner gliding layer. The conduit features low mechanical resistance, high thermal resistance, and high flexibility at constant cross-section parameters. The special structure of the inner surface of the conduit with outstanding gliding properties allows to extend the cable pulling distances and reduce the length of installation work.



**EVOEL SMART FM-OH** Flexible, reinforced, halogen-free (EN 50642) electrical installation conduit made of a special grey plastic material, with an orange inner gliding layer. The conduit features a medium mechanical resistance, high thermal resistance, and very high flexibility at constant cross-section parameters.



**EVOEL SMART FMs-OH** Flexible conduit made of a special, halogen-free material (EN 50642), ideally suitable for installations in concrete. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.



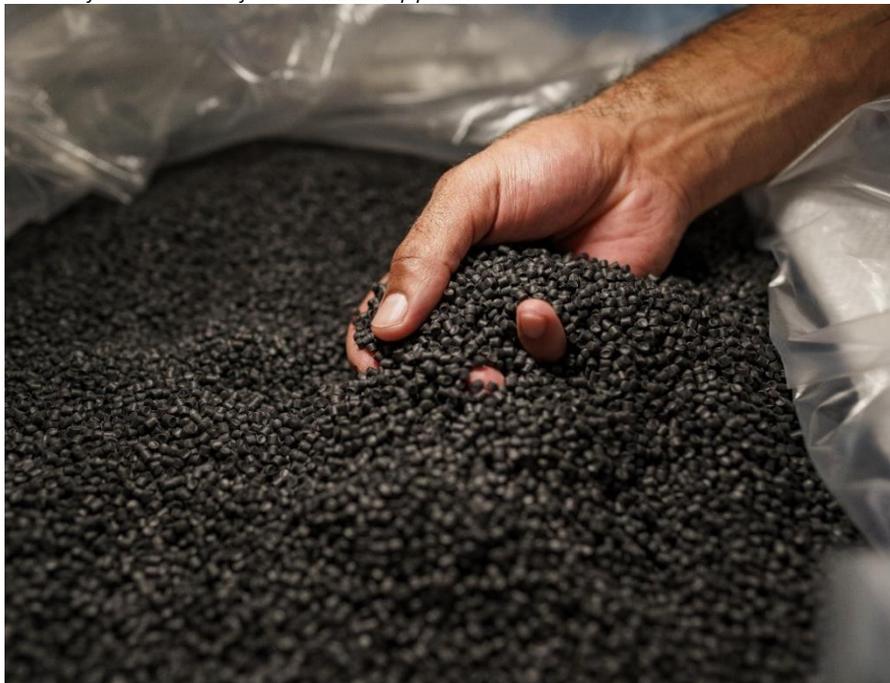
**EVOEL SMART FMs-UV-OH** Flexible electrical installation conduit made of a special, halogen-free material (EN 50642) and ideally suitable for outdoor installations exposed to direct sunlight. The conduit features high resistance to impacts. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.



**EVOEL SMART FHS-UV-OH** Flexible, halogen-free (EN 50642), UV resistant electrical installation conduit made of a special black plastic material and ideally suitable for outdoor installations exposed to direct sunlight. The conduit features the highest degree of impact strength. The special structure of the inner surface of the conduit with outstanding gliding properties allows to considerably extend the cable-pulling distances and reduce the length of installation work.

PRODUCT	EVOEL SMART FL-OH	EVOEL SMART FM-OH	EVOEL SMART FMs-OH	EVOEL SMART FMs-UV-OH	EVOEL SMART FHS-UV-OH
DN/OD, mm	16, 20, 25, 32, 40, 50				
Classification	22433	33433			44433
Strength, N/5cm	320	750			1250
Temperature resistance, °C	from -25 to +105				
Lengths, m	25, 50, 100			25, 50	
Other properties	Non-flame propagator; self-extinguishing; corrosion-resistant		UV resistant; non-flame propagator; self-extinguishing; corrosion-resistant		

Further information can be found at [www.evopipes.lv](http://www.evopipes.lv).



### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	-
Minerals	0	-
Fossil materials	100	Netherlands, Germany, Romania
Bio-based materials	0	-

### 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	0.0016

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	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.

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.

### Manufacturing materials (A1)

The first module includes extraction and production of raw materials used in manufacturing process, mainly polypropylene granulate, as well as additives used in small amounts. Environmental impact for production of packaging materials and auxiliary materials are also included in this module.

### Transport for manufacturing materials (A2)

Transport distances to manufacturing site was modelled taking in account

location of suppliers and transportation routes. Raw materials are transported by lorry, by boat and by ferry. Packaging materials and auxiliary tools are transported by lorry on the road.

### Manufacturing process (A3)

#### 1. Raw Materials conveying / dosing / mixing

Polypropylene and additives as finished compounds are supplied (in either plastic bags or bulk form) and filled into silos and storage bins. From silos raw materials are carried to each pipe extruder through vacuum pressure transfer system, then dosed by volumetric or gravimetric weighing system and mixed to compose a running formulation.

#### 2. Extrusion

The raw materials are melted at high temperature in the extruders and pushed through a die-head to form a sleeve / future pipe.

#### 3. Pipe profile corrugation

During the extrusion process the resultant polypropylene sleeve is moved into the forming channel between the rotating mold blocks of the corrugator. The corrugated pipe is formed with vacuum acting through the slits of the mold blocks. Process of forming corrugated profile of the pipe is continuous / non-stop.

#### 4. Cooling

Cooling of the corrugated pipes is done in a tank positioned after the corrugator, via water spraying nozzles. At the cooling stage there is stabilization of the product dimensions.

#### 5. Printing

Ink-jet (or thermal ink-jet) printer marks the pipes at regular intervals with identification according to product name, size, strengths, class, and standard number.

#### 6. Coiling / Cutting

The pipe is coiled non-stop in rolls of the required length (typically 50m and 100m), with cutting of the pipe, initial fixation of the rolls (by stretch wrapping or band strapping), releasing of the finished

rolls and restarting the coiling process is done automatically by the coiling unit.

#### 7.Palletizing

The packaging is made of wrapping stretch and wooden pallets. The finished pipes are stored in holding area for inspection and quality acceptance.

#### 8.Dispatch

After inspection and acceptance, the pipes are stored to await dispatch.

### **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.

#### **Transportation from factory to construction site (A4)**

Transportation from EVOPIPES factory to construction site creates impact to the environment and is calculated in product LCA. Product is delivered by lorry and ferry with average distance 415 km; therefore emissions are caused by fuel. During transportation there is no product or packaging loss.

#### **Construction process (A5)**

Pipes are installed inside building using drill (electricity energy) and cement. There is product loss of approximately 0,8% during installation, which is assumed to go to landfilled waste after installation. Other waste occurs from packaging that goes to recycling/incineration.

### **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)**

#### **Deconstruction (C1)**

End of Life stage for product occurs when pipe needs to be replaced or building in which pipe is in is demolished. Pipes are deconstructed using perforator (electricity energy) and treated as a waste and sorted separately from other materials.

#### **Transportation (C2)**

The collected pipes at end-life stage are transported from construction site to the closest plastic recycling, incineration, or landfilling place (approximately 50km).

#### **Recycling/Incineration (C3), Disposal (C4)**

From most common used scenarios assumed that 46% of used pipes are recycled, 34% incinerated (for energy production) and 20% landfilled.

#### **Benefits and loads beyond system boundary (D)**

To look at benefits outside system boundaries, recycled pipes can be processed into granules and used as a secondary raw material for other plastic products and incinerated end-of-life product is being converted to energy.

# PRODUCT LIFE-CYCLE PROCESS

# MANUFACTURING PROCESS



A1

Manufacturing materials



A2

Transport



A3

Material conveying



Extrusion

Cooling

Cutting

Dispatch

A4

Transportation

A5

Construction

B1-B7

Product use and maintenance

NOT DECLARED

EVOEL SMART pipe

C4

Disposal



C3

Recycling



C2

Transportation



C1

Deconstruction



## 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.

For easier modelling and because of lack of accuracy in available modelling resources some constituents under 0,1% of product mass are excluded. These include some additives which are all present in the product only in very small amounts and have no serious impact on the emissions of the product. The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

### 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.

In this study allocation were used for raw material, energy consumption, packaging, ancillary materials and production waste as information is gathered on factory level. All consumptions were allocated to 1kg of pipe via mass of pipes produced annually using weighted average method. All products (pipes) produced in the factory have a similar production process. The volumes of raw materials and packaging materials are specified as actual consumptions from Evopipes ERP system and as information from Evopipes Bill of Material.

Transportation distances from manufactory to installation sites are calculated as actual destinations by weighted average method, using sales volume in kg as weight.

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

### AVERAGES AND VARIABILITY

This EPD represents an average of five products under product name EVOEL SMART. Flow quantities are weighted by the annual product output from each of them (FL-OH; FM-OH; FMs-OH; FMs-UV-OH; FHS-UV-OH). Impacts on GWP fossil in A1-A3 moduls because of variance of raw materials mix between each of these five products is less than +/-1%. Production process, packaging, transportation, installation, demolition, and waste treatment are the same for all five products.

### 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	kg CO <sub>2</sub> e	2E0	1,17E-1	1,49E-1	2,26E0	5,92E-2	7,3E-2	MND	0E0	4,55E-3	2,94E-1	2,53E-2	-8,88E-1						
GWP – fossil	kg CO <sub>2</sub> e	1,99E0	1,17E-1	1,55E-1	2,26E0	5,97E-2	6,68E-2	MND	0E0	4,54E-3	2,95E-1	2,53E-2	-9,28E-1						
GWP – biogenic	kg CO <sub>2</sub> e	9,08E-3	3,14E-5	-6,78E-3	2,33E-3	2,48E-5	6,15E-3	MND	0E0	3,3E-6	-1,23E-3	2,28E-5	3,91E-2						
GWP – LULUC	kg CO <sub>2</sub> e	5,45E-4	4,95E-5	2,82E-4	8,76E-4	2,41E-5	1,89E-5	MND	0E0	1,37E-6	1,71E-4	1,12E-6	2,25E-4						
Ozone depletion pot.	kg CFC-11e	5,15E-8	2,56E-8	7E-9	8,41E-8	1,34E-8	2,71E-9	MND	0E0	1,07E-9	2,15E-8	6,56E-10	-1,24E-7						
Acidification potential	mol H <sup>+</sup> e	7,5E-3	2,01E-3	7,07E-4	1,02E-2	8,06E-4	1,75E-4	MND	0E0	1,91E-5	8,47E-4	1,84E-5	-1,2E-2						
EP-freshwater <sup>3)</sup>	kg Pe	3,27E-5	7,13E-7	7,77E-6	4,12E-5	4,09E-7	8,41E-7	MND	0E0	3,7E-8	4,91E-6	3,93E-8	-3,52E-5						
EP-marine	kg Ne	1,21E-3	5,33E-4	1,36E-4	1,88E-3	2,1E-4	4,02E-5	MND	0E0	5,75E-6	2,34E-4	1,05E-5	-1,43E-3						
EP-terrestrial	mol Ne	1,31E-2	5,92E-3	1,51E-3	2,05E-2	2,33E-3	4,51E-4	MND	0E0	6,35E-5	2,56E-3	6,79E-5	-1,62E-2						
POCP (“smog”)	kg NMVOCe	6,16E-3	1,59E-3	6,61E-4	8,41E-3	6,37E-4	1,48E-4	MND	0E0	2,04E-5	8,29E-4	2,5E-5	-5,85E-3						
ADP-minerals & metals	kg Sbe	1,81E-5	1,32E-6	2,92E-6	2,24E-5	8,16E-7	5,21E-7	MND	0E0	7,75E-8	3,62E-6	2,28E-8	-5,96E-6						
ADP-fossil resources	MJ	7,01E1	1,66E0	3,1E0	7,48E1	8,74E-1	8,32E-1	MND	0E0	7,07E-2	2,9E0	5,01E-2	-4,31E1						
Water use <sup>2)</sup>	m <sup>3</sup> e depr.	1,25E0	4,76E-3	1,04E-1	1,36E0	2,8E-3	1,48E-2	MND	0E0	2,63E-4	6,22E-2	2,23E-3	-5,8E-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	MJ	1,08E0	1,58E-2	2,6E0	3,69E0	9,44E-3	4,3E-2	MND	0E0	8,9E-4	8,39E-2	8,76E-4	-2,2E0						
Renew. PER as material	MJ	0E0	0E0	4,7E-2	4,7E-2	0E0	-4,7E-2	MND	0E0	0E0	0E0	0E0	0E0						
Total use of renew. PER	MJ	1,08E0	1,58E-2	2,65E0	3,74E0	9,44E-3	-3,96E-3	MND	0E0	8,9E-4	8,39E-2	8,76E-4	-2,2E0						
Non-re. PER as energy	MJ	2,46E1	1,66E0	1,76E0	2,81E1	8,74E-1	4,56E-1	MND	0E0	7,07E-2	1,75E0	5,01E-2	-1,99E1						
Non-re. PER as material	MJ	4,54E1	0E0	1,34E0	4,67E1	0E0	-1,34E0	MND	0E0	0E0	-3,63E1	-9,08E0	-2,33E1						
Total use of non-re. PER	MJ	7,01E1	1,66E0	3,1E0	7,48E1	8,74E-1	-8,83E-1	MND	0E0	7,07E-2	-3,46E1	-9,03E0	-4,31E1						
Secondary materials	kg	4,73E-3	0E0	3,95E-3	8,68E-3	0E0	1,07E-4	MND	0E0	0E0	0E0	0E0	5,01E-1						
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0						
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	0E0	0E0	0E0						
Use of net fresh water	m <sup>3</sup>	5,17E-3	2,53E-4	8,31E-4	6,25E-3	1,53E-4	2,29E-4	MND	0E0	1,47E-5	7,09E-4	5,62E-5	-2,59E-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	5,15E-2	1,71E-3	2,84E-2	8,16E-2	8,77E-4	1,73E-3	MND	0E0	6,87E-5	0E0	9,08E-5	-5,57E-2						
Non-hazardous waste	kg	1,38E0	1,04E-1	3,26E-1	1,82E0	7,06E-2	5,3E-2	MND	0E0	7,6E-3	0E0	2E-1	-8,58E-1						
Radioactive waste	kg	3,3E-5	1,15E-5	4,09E-6	4,86E-5	6,04E-6	1,48E-6	MND	0E0	4,85E-7	0E0	2,99E-7	-6,38E-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	0E0	0E0	0E0	0E0	0E0						
Materials for recycling	kg	0E0	0E0	8,5E-4	8,5E-4	0E0	1,02E-1	MND	0E0	0E0	4,6E-1	0E0	0E0						
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	5,24E-3	MND	0E0	0E0	0E0	0E0	0E0						
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	0E0	0E0	1,19E1	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 <sub>2</sub> e	1,82E0	1,16E-1	1,48E-1	2,09E0	5,92E-2	6,48E-2	MND	0E0	4,5E-3	2,89E-1	1,8E-2	-8,21E-1						
Ozone depletion Pot.	kg CFC <sub>11</sub> e	5,77E-8	2,03E-8	6,59E-9	8,46E-8	1,06E-8	2,37E-9	MND	0E0	8,49E-10	1,79E-8	5,23E-10	-1,02E-7						
Acidification	kg SO <sub>2</sub> e	6,47E-3	1,46E-3	5,82E-4	8,51E-3	5,91E-4	1,33E-4	MND	0E0	9,25E-6	5,33E-4	1,81E-5	-1,04E-2						
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	1,37E-3	1,75E-4	2,83E-4	1,83E-3	7,38E-5	9,05E-5	MND	0E0	1,87E-6	6,14E-4	8,84E-4	-5,74E-4						
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	4,31E-4	4,3E-5	7,9E-5	5,53E-4	1,83E-5	8,44E-6	MND	0E0	5,86E-7	5,04E-5	3,76E-6	-4,83E-4						
ADP-elements	kg Sbe	1,81E-5	1,32E-6	2,92E-6	2,24E-5	8,16E-7	5,21E-7	MND	0E0	7,75E-8	3,62E-6	2,28E-8	-5,96E-6						
ADP-fossil	MJ	7,01E1	1,66E0	3,1E0	7,48E1	8,74E-1	8,32E-1	MND	0E0	7,07E-2	2,9E0	5,01E-2	-4,31E1						

## 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 ED 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  
12.05.2022

