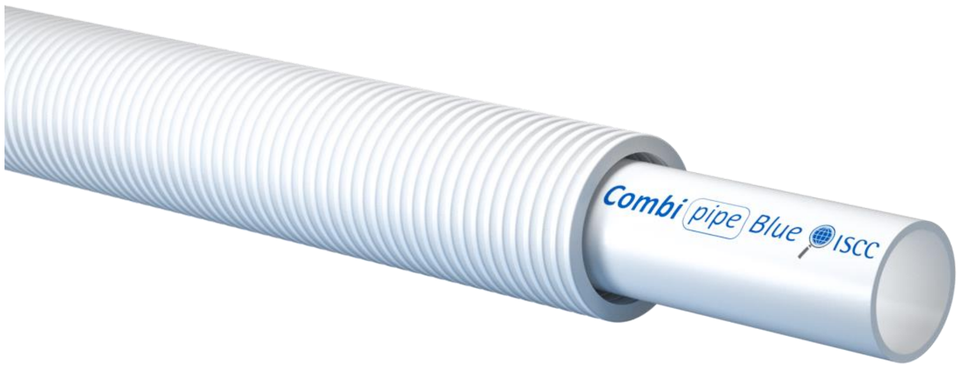
ENVIRONMENTAL PRODUCT DECLARATION

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

Combi Pipe Blue in Conduit
Uponor Corporation



EPD HUB, HUB-0071
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GENERAL INFORMATION

MANUFACTURER

Manufacturer	Uponor Corporation
Address	Äyritie 20, 01510 Vantaa, Finland
Contact details	info@uponor.com
Website	www.uponor.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	Sister EPD (Parent EPD: EPDHUB-0065)
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Dr. Qian Wang, Uponor Corporation
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 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	Combi Pipe Blue in Conduit
Place of production	Nordanövägen 2, 73061 Virsbo, Sweden
Period for data	2021
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	2,80
GWP-total, A1-A3 (kgCO2e)	1,37
Secondary material, inputs (%)	6,56E1
Secondary material, outputs (%)	9,9E1
Total energy use, A1-A3 (kWh)	1,31E1
Total water use, A1-A3 (m3e)	7,82E-2

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Uponor is rethinking water for future generations. Our offering, including safe drinking water delivery, energy-efficient radiant heating and cooling and reliable infrastructure, enables a more sustainable living environment. We help our customers in residential and commercial construction, municipalities and utilities, as well as different industries to work faster and smarter. We employ about 3,800 professionals in 26 countries in Europe and North America. Over 100 years of expertise and trust form the basis of any successful partnership. This is the basis, on which they can build, in a literal and metaphorical sense. We create trust together with our partners: Customers, prospective customers and suppliers. We establish this with shared knowledge, quality and sustainable results

PRODUCT DESCRIPTION

Uponor Combi Pipes Blue in Conduit are made of cross-linked polyethylene and are part of Uponor's Drinking Water, Local Heat Distributions and Underfloor Heating product groups.
Uponor Combi Pipes Blue in Conduit are used for tap water and heating systems.

Uponor Combi Pipes Blue in Conduit has an oxygen diffusion barrier of Ethyl Vinyl Alcohol extruded seamless on the outside of the pipe. Uponor Combi Pipes Blue in Conduit has very good long-term properties, is corrosion resistant and has a low roughness coefficient. The pipe also has the advantage of not being affected by high water speeds or aggressive water, not emitting taste, smell, heavy metals or harmful substances into drinking water. Uponor Combi Pipes Blue in Conduit are treated in accordance with the new hygienic requirement in the Positive Lists for Organic Materials, 4MS Common Approach. Renewable PE raw material for the pipe is based on the Bornewables™ product range supplied by Borealis. These raw materials are made using sustainably sourced renewable feedstocks derived solely from waste and residue vegetable oils, such as used cooking oil and residues from vegetable oil processing. The residue from vegetable oil processing consists of rancid fat that has to be removed to produce food-grade oil. The used cooking oil, entirely waste and residues in origin, is a waste stream collected from restaurants and the food industry. The waste and residue raw materials that are used to produce our feedstock are no longer fit for human consumption, and as such, do not impact food security.

Further information can be found at www.uponor.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Fossil materials	44	EU
Bio-based materials	56	EU

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.48
Biogenic carbon content in packaging, kg C	0.0014

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
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

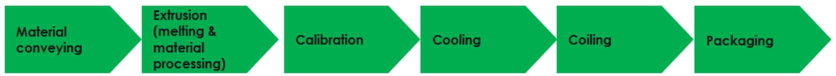
This EPD covers the life-cycle modules listed in the following table.

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.



The product is manufactured by Engel process from high density polyethylene, cross-linking additive and stabilizers. The materials are mixed after which the mix is fed into an extruder where the material melts and is cross-linked by heat. The cross-linked pipe is calibrated to correct dimension, cooled, coiled and packaged. Pipes in dimensions up to 32 mm are supplied in coils packed in cardboard boxes on pallets. From dimensions 32 mm onwards, the coils are supplied wrapped in black plastic. Most dimensions are also available as straight lengths packed in plastic sleeves in cardboard box or in plastic pipe. Installation instructions come with each pack.

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 impacts occurring from final products delivery to construction site cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions.
Environmental impacts from installation into the building (A5) include the product installation losses, emissions of energy use in installation and generation of waste at the construction site.

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 of the end-of-life product, the impacts of demolition are assumed zero (C1). After ca 50 years of service life the collected product is assumed to be sent to the closest treatment facilities (C2). 99% of the end-of-life product is assumed to be sent to recycling and incineration facilities (C3), in which 63% is recycled and 36% is sent for energy recovery. Only 1% of the end-of-life product and the ash generated in the incineration facility are sent to landfill (C4). Due to the recycling and incineration potential of PEX, the end-of-life product is converted into recycled PE and energy (D).

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 study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019. Excluded modules are use stage modules (B1-B7), which are not mandatory. 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 which data are available for are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total neglected input and output flows do also not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from raw material acquisition to production, distribution and end-of-life stages. 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;

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 energy consumption data separately for each product produced in the plant, data is allocated. Allocation is based on annual production rate and made with high accuracy and precision.
The values for 1 kg of the product, which is used within this study is calculated by considering the total product weight per annual production. In the factory, several kinds of pipes are produced; since the production processes of these products are similar, the annual production percentage is taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total energy consumption and generated waste per the declared product are allocated. Subsequently, the product output fixed to 1 kg and the corresponding amount of product is used in the calculations. Besides, since the formulation of the product is certain, raw materials in the product do not need to be allocated considering the total annual production. The amounts of raw materials and packaging materials are given as per the formulations in Uponor's internal Bills of Material and the purchased amounts from the respective suppliers.
This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below:
• Module A4: The transportation distance is defined according to standard.

As installation places are located in different countries across Europe, an average transportation distance from the production plant is assumed to be 1600 km. Transportation method is lorry. According to Uponor transportation doesn't cause losses as products are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products.

Module A5: Due to a big variety of installation sites across USA, industry average values for energy and material consumption as well as generated waste during assembly are used in the study (TEPPFA, 2019).

• Module C1: The impacts of demolition stage are assumed zero, since the consumption of energy and natural resources for disassembling of the end-of-life product is negligible.

• Module C2: 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 of end-of-life product is assumed to be collected from the demolition site. Since there is no follow up procedure, transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed to be lorry, which is the most common.

• Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as the role of transportation emission in total results is small and so the variety in load assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by transportation companies to serve needs of other clients.

• Module C3: It is assumed that 63% of the end-of-life product is recycled and 36% is incinerated. The assumption is based on Municipal Waste Statistics (Finland, 2018), REPIPE's project (2018) and Uponor's own experience with mechanical and chemical recycling of PEX scrap at its factories and re-using it in production as well as the increasing number of commercial facilities and efficient practices for recycling of PEX (Thunman H. et al, 2019) across Europe.

• Module C4: The remaining 1% of the end-of-life product is sent to landfill along with the generated ash during the incineration.

• Module D: Due to the recycling and incineration processes the end-of-life product is converted into a recycled PE raw material and energy (CHEMIK 2013, 67, 5; Energy Recovery from Waste Incineration, 2017).

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

AVERAGES AND VARIABILITY

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. 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_2e	8,73E-1	5,92E-2	4,36E-1	1,37E0	3,03E-1	1,36E-1	MND	MND	MND	MND	MND	MND	MND	0E0	6,62E-3	4,43E-1	1,67E-3	8,48E-1
GWP – fossil	kg CO_2e	2,29E0	5,91E-2	4,59E-1	2,8E0	3,06E-1	4,84E-2	MND	MND	MND	MND	MND	MND	MND	0E0	6,62E-3	4,12E-1	1,58E-3	8,22E-1
GWP – biogenic	kg CO_2e	-2,05E0	4,16E-5	-2,31E-2	-2,07E0	1,87E-4	8,77E-2	MND	MND	MND	MND	MND	MND	MND	0E0	3E-6	3,11E-2	8,81E-5	2,62E-2
GWP – LULUC	kg CO_2e	6,34E-1	1,83E-5	1,04E-4	6,34E-1	1,08E-4	1,94E-5	MND	MND	MND	MND	MND	MND	MND	0E0	2,44E-6	3,16E-4	1,13E-7	-4,33E-4
Ozone depletion pot.	kg CFC_{11}e	8,27E-8	1,39E-8	5,89E-9	1,02E-7	7,01E-8	6,29E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,45E-9	3,71E-8	6,22E-11	-6,67E-8
Acidification potential	mol H^+e	1,08E-2	2,55E-4	5,43E-4	1,16E-2	1,26E-3	1,88E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,77E-5	1,51E-3	2,44E-6	-8,21E-3
EP-freshwater[3)]	kg Pe	1,68E-4	4,83E-7	4,06E-6	1,72E-4	2,64E-6	1,1E-6	MND	MND	MND	MND	MND	MND	MND	0E0	6,61E-8	8,49E-6	8,82E-8	-6,62E-5
EP-marine	kg Ne	8,73E-3	7,62E-5	1,2E-4	8,93E-3	3,73E-4	5,21E-5	MND	MND	MND	MND	MND	MND	MND	0E0	8,04E-6	4,5E-4	8,39E-7	-8,56E-4
EP-terrestrial	mol Ne	3,58E-2	8,41E-4	1,61E-3	3,82E-2	4,12E-3	5,63E-4	MND	MND	MND	MND	MND	MND	MND	0E0	8,89E-5	4,55E-3	6,43E-6	-1,03E-2
POCP (“smog”)	kg NMVOCe	7,5E-3	2,68E-4	4,56E-4	8,23E-3	1,29E-3	1,95E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,78E-5	1,48E-3	2,24E-6	-2,85E-3
ADP-minerals & metals	kg Sbe	1,61E-5	1,06E-6	4,45E-6	2,16E-5	7,63E-6	7,76E-7	MND	MND	MND	MND	MND	MND	MND	0E0	1,61E-7	6,22E-6	2,27E-9	-7,62E-8
ADP-fossil resources	MJ	4,5E1	9,17E-1	1,12E0	4,7E1	4,67E0	5,4E-1	MND	MND	MND	MND	MND	MND	MND	0E0	9,88E-2	5E0	4,79E-3	-1,34E1
Water use[2)]	m^3e depr.	1,32E0	3,37E-3	3,25E-2	1,35E0	1,66E-2	2,16E-2	MND	MND	MND	MND	MND	MND	MND	0E0	4,09E-4	1,05E-1	2,1E-4	-1,11E-1

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	7,17E-8	5,22E-9	1,41E-8	9,1E-8	2,36E-8	3,51E-9	MND	MND	MND	MND	MND	MND	MND	0E0	5,04E-10	2,95E-8	3,32E-11	-6,43E-8
Ionizing radiation[5)]	kBq U235e	1,81E-1	4,01E-3	2,98E-3	1,88E-1	2,04E-2	2,29E-3	MND	MND	MND	MND	MND	MND	MND	0E0	4,12E-4	1,38E-2	1,9E-5	-6,46E-2
Ecotoxicity (freshwater)	CTUe	1,24E1	7,01E-1	2,54E0	1,56E1	3,64E0	1,19E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,45E-2	6,16E0	1,78E-2	-2,15E1
Human toxicity, cancer	CTUh	4,28E-10	1,83E-11	2,61E-10	7,08E-10	1,03E-10	6,96E-11	MND	MND	MND	MND	MND	MND	MND	0E0	2,2E-12	5,81E-10	2,17E-13	-2,39E-10
Human tox. non-cancer	CTUh	1,22E-8	8,27E-10	3,71E-9	1,68E-8	4,18E-9	8,83E-10	MND	MND	MND	MND	MND	MND	MND	0E0	8,94E-11	7,47E-9	5,13E-12	-7,53E-9
SQP	-	2,9E1	1,33E0	6,81E-1	3,1E1	5,2E0	4,59E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,09E-1	3,13E0	1,65E-2	-8,42E-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	1,24E1	1,17E-2	9,01E0	2,14E1	6,63E-2	2,28E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,13E-3	2,3E-1	1,02E-4	-3,63E0
Renew. PER as material	MJ	3,02E1	0E0	7,43E-1	3,09E1	0E0	-7,4E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-5,07E1	0E0	-2,32E-1
Total use of renew. PER	MJ	4,26E1	1,17E-2	9,75E0	5,23E1	6,63E-2	-7,17E-1	MND	MND	MND	MND	MND	MND	MND	0E0	1,13E-3	-5,05E1	1,02E-4	-3,86E0
Non-re. PER as energy	MJ	2,39E1	9,17E-1	9,44E-1	2,57E1	4,67E0	5,4E-1	MND	MND	MND	MND	MND	MND	MND	0E0	9,88E-2	5E0	4,79E-3	-1,32E1
Non-re. PER as material	MJ	2,42E1	0E0	1,74E-1	2,44E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-9,18E0	0E0	-1,77E-1
Total use of non-re. PER	MJ	4,81E1	9,17E-1	1,12E0	5,01E1	4,67E0	5,4E-1	MND	MND	MND	MND	MND	MND	MND	0E0	9,88E-2	-4,18E0	4,79E-3	-1,34E1
Secondary materials	kg	6,56E-1	0E0	3,47E-5	6,56E-1	0E0	1,3E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	2,56E-2
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	7,73E-2	1,88E-4	6,48E-4	7,82E-2	8,84E-4	1,05E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,89E-5	1,35E-3	5,3E-6	-2,34E-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	2,28E-2	8,98E-4	1,08E-2	3,45E-2	4,85E-3	2,72E-3	MND	MND	MND	MND	MND	MND	MND	0E0	1,3E-4	0E0	1,28E-5	-6,75E-2
Non-hazardous waste	kg	7,84E-1	9,53E-2	3,27E-1	1,21E0	4,04E-1	7,52E-2	MND	MND	MND	MND	MND	MND	MND	0E0	8,81E-3	0E0	1,86E-2	-1,99E0
Radioactive waste	kg	2E-5	6,29E-6	3,01E-6	2,93E-5	3,19E-5	3,04E-6	MND	MND	MND	MND	MND	MND	MND	0E0	6,54E-7	0E0	2,85E-8	-5,89E-5

END OF LIFE – OUTPUT FLOWS

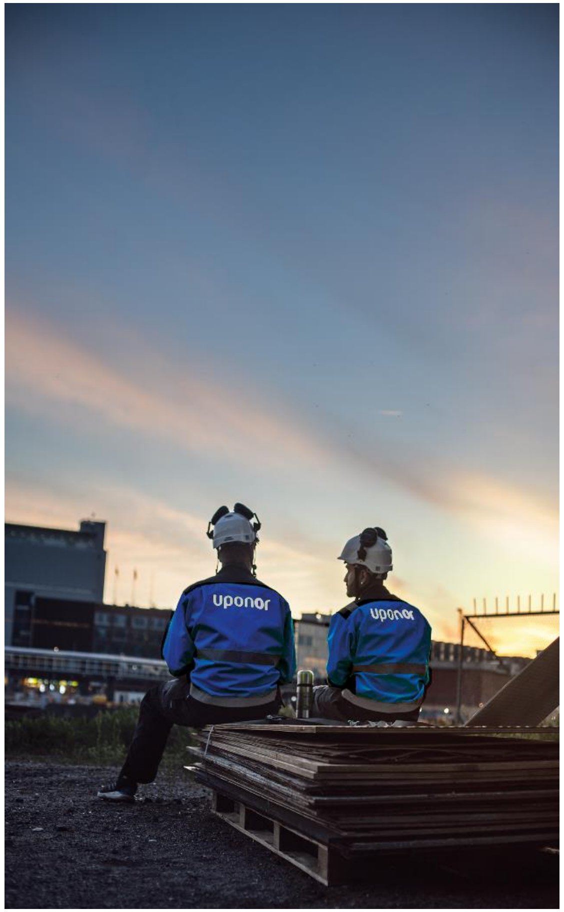
Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	1,49E-1	1,49E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	6,3E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	3,6E-1	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	5,5E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	3,61E1	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	6,38E-1	5,86E-2	4,58E-1	1,16E0	3,03E-1	4,97E-2	MND	MND	MND	MND	MND	MND	MND	0E0	6,55E-3	4,15E-1	1,18E-3	8,49E-1
Ozone depletion Pot.	kg $CFC_{-11}e$	2,87E-6	1,1E-8	5,33E-9	2,89E-6	5,58E-8	5,25E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,15E-9	3,05E-8	5,02E-11	-6,27E-8
Acidification	kg SO_2e	8,32E-3	1,27E-4	3,97E-4	8,84E-3	6,23E-4	1,25E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,01E-5	1,08E-3	1,26E-5	-7,26E-3
Eutrophication	kg PO_4^3e	5,31E-3	2,5E-5	2,28E-4	5,56E-3	1,3E-4	8,91E-5	MND	MND	MND	MND	MND	MND	MND	0E0	4,61E-6	1,42E-3	5,49E-5	-1,91E-3
POCP (“smog”)	kg C_2H_4e	6,59E-4	7,81E-6	2,9E-5	6,95E-4	4,03E-5	1,2E-5	MND	MND	MND	MND	MND	MND	MND	0E0	8,7E-7	9,67E-5	2,82E-7	-2,99E-4
ADP-elements	kg Sbe	1,61E-5	1,06E-6	4,45E-6	2,16E-5	7,63E-6	7,76E-7	MND	MND	MND	MND	MND	MND	MND	0E0	1,61E-7	6,22E-6	2,27E-9	-7,62E-8
ADP-fossil	MJ	4,5E1	9,17E-1	1,12E0	4,7E1	4,67E0	5,4E-1	MND	MND	MND	MND	MND	MND	MND	0E0	9,88E-2	5E0	4,79E-3	-1,34E1

ENVIRONMENTAL IMPACTS – TRACI 2.1. / 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	9,49E-1	5,85E-2	4,58E-1	1,47E0	3,03E-1	4,97E-2	MND	MND	MND	MND	MND	MND	MND	0E0	6,54E-3	4,17E-1	1,25E-3	8,46E-1
Ozone Depletion	kg $CFC_{-11}e$	3,29E-8	1,47E-8	6,7E-9	5,43E-8	7,43E-8	6,85E-9	MND	MND	MND	MND	MND	MND	MND	0E0	1,54E-9	4,04E-8	6,62E-11	-8,12E-8
Acidification	kg SO_2e	3,03E-3	2,22E-4	4,48E-4	3,7E-3	1,1E-3	1,63E-4	MND	MND	MND	MND	MND	MND	MND	0E0	2,42E-5	1,36E-3	2,13E-6	-6,75E-3
Eutrophication	kg Ne	2,58E-4	3,05E-5	5,78E-5	3,47E-4	1,55E-4	2,48E-5	MND	MND	MND	MND	MND	MND	MND	0E0	3,36E-6	2,11E-4	1,15E-6	-5,61E-4
POCP (“smog”)	kg O_3e	4,04E-2	4,83E-3	7,16E-3	5,24E-2	2,36E-2	3,12E-3	MND	MND	MND	MND	MND	MND	MND	0E0	5,1E-4	2,58E-2	3,69E-5	-5,4E-2
ADP-fossil	MJ	5,13E0	1,31E-1	1,18E-1	5,38E0	6,66E-1	6,08E-2	MND	MND	MND	MND	MND	MND	MND	0E0	1,39E-2	6,19E-1	6,47E-4	-6,81E-1



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
01.07.2022

VERIFIED ISO 14025