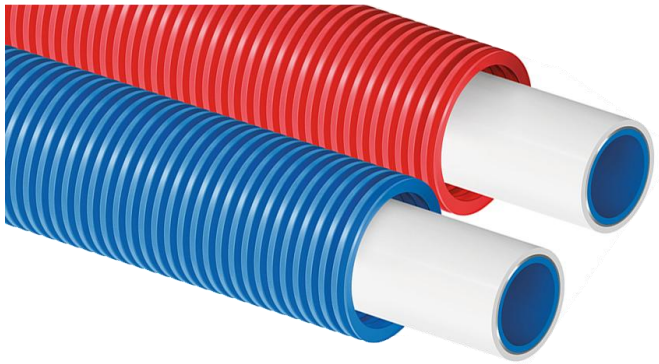
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Uponor Uni Pipe in conduit
Uponor Corporation



EPD HUB, HUB-5262
Published on 04.02.2026, last updated on 04.02.2026, valid until 03.02.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Uponor Corporation
Address	Am Köhlersgehäu 17, Zella-Mehlis, Germany
Contact details	info@uponor.com
Website	www.uponor.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025 EN 16904 Product Category Rules (PCR) for plastics piping systems inside buildings
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, D
EPD author	Thomas Vogel
EPD verification	Independent verification of this EPD and data, according to ISO 14025:
EPD verifier	Vera Durão, as an authorised verifier acting for

This EPD is intended for business-to-business and/or business-to-consumer communication. 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	Uponor Uni Pipe in conduit
Additional labels	-
Product reference	Pipe dimensions 14-25mm with
Place(s) of raw material origin	EU
Place of production	Zella-Mehlis, Thuringia, Germany
Place(s) of installation and use	EU, MENA
Period for data	Calendar year 2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	24,3

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0,01 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,03
GWP-total, A1-A3 ($kgCO_2e$)	2,81
Secondary material, inputs (%)	1,03
Secondary material, outputs (%)	84,6
Total energy use, A1-A3 (kWh)	14,8
Net freshwater use, A1-A3 (m^3)	0,03

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

With a rich history in industrial innovation since 1802, GF is actively reshaping itself to become the global leader in Flow Solutions for Buildings, Industry and Infrastructure. GF delivers Excellence in Flow through essential products and solutions that enable safe and sustainable transport of water and other fluids worldwide. Following the Uponor acquisition and integration, GF has brought together its collective expertise and technologies into a unified portfolio of Flow Solutions for Buildings. This allows GF to offer reliable systems that perform throughout a building's entire lifecycle – from construction to daily operations – ensuring they are both future-proof and sustainable. Headquartered in Switzerland, GF is listed on the SIX Swiss Exchange.

PRODUCT DESCRIPTION

The portfolio of Uponor Uni Pipe in conduits consists of a multi-layer composite pipe with outer plastic conduit pipe. The pipe dimensions 14-25mm are covered by a corrugated, watertight pipe for local rules of installation. Installation is particularly simple and economical. Fire class E according to DIN EN 13501-1, suitable for cold drinking water pipes according to DIN 1988-200 (Table 8) and for central heating pipes in floor structures. The pipe ends are equipped with a removable hygiene cap according to DIN EN 806.
Temperature resistance: Drinking water: max. permissible continuous operating temperature of 70 °C at max. continuous operating pressure of 10 bar, short-term fault temperature of 95 °C for max. 100 hours of operation. Heating: max. permissible continuous operating temperature of 80 °C at max. continuous operating pressure of 10 bar, short-term fault temperature of 100 °C for max. 100 hours of operation.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	11	EU
Minerals	-	-
Fossil materials	89	EU
Bio-based materials	-	-

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	0,052336364

FUNCTIONAL UNIT AND SERVICE LIFE

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

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	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

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.

A market-based approach is used in modelling the electricity mix utilized in the factory.
All incoming raw-, ancillary- and packaging materials have been calculated with the individual transportation distance from suppliers and individual transport modes (trucks/lorries).
Certified electric energy (wind) was used, as well as natural gas for process heating and LPG for internal transportation (forklifts).
Production: As first step, an aluminum tube is produced (formed from coil and welded).
Further, a PE-layer and an adhesive layer are co-extruded into the aluminum tube and applied on the aluminum inner surface.
Subsequently another PE-layer is co-extruded together with an adhesive layer and applied on the outer surface of the aluminum tube.
In a further step the complete pipe runs through a water bath in order to cool down the pipe materials. An online printer marks the pipe with necessary information e.g. dimension, naming and approvals.
Last production step is the co-extrusion of corrugated PE plastic conduit pipe in different colors. This last step happens in the Multi-layer pipe factory in D-Zella-Mehlis and in other factories in SE-Virsbo and DE-Knetzgau.
There are several quality checking and test procedures along the production line and off-line to ensure the expected high quality.
As ancillary materials incoming packaging and water use have been used.
Finally, the pipe is cut, coiled and packaged into card boxes and onto wooden pallets.
No electricity with contractual instruments, e.g. certificate of origin, has been virtually allocated to specific products.
A3 waste handling - hazardous waste is send to incineration (80km/truck). Waste plastic goes to external recycling (80km) where it is separated. Other production waste is card boxes, wood and PE foil from incoming packaging; PE foil is collected and sent to PE plastic recycling (80km/truck). Cardboard is also collected and sent to paper recycling (80km/truck), whilst wood is

small to be used again internally but considered in full for incineration (80km/truck).
The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs), and its use is ensured throughout the validity period of this EPD.

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.
Distance to installation (transportation) is defined as annual sales across Europe by truck, 1.100km.
Material loss during installation is calculated by 1% of product during installation (cut-off, coils remain; TEPPFA study, Ref: https://www.teppfa.eu/sustainability/environmental-footprint/epd/).
These documents and their background reports include industry consensus estimates of the resource use, emissions and affluents of typical European installations; these parameters have been used as input for the EPD modelling. Environmental impacts from installation include standardized energy and installation tools, waste packaging materials and release of biogenic carbon dioxide from wood pallets. Installation materials used during installation are considered by metal and electricity to fix the pipes to the building.
Assumptions for EoL for A5 waste are modelled for cardboard, PE stretch foil, 1-way pallets and EUR pallets (multiple uses).
Waste treatment of wooden pallets is modelled according to the average EU scenario, which includes recycling and incineration rates based on EUROSTAT data. 32% of the wooden packaging is recycled, 30% is incinerated and 38% is landfilled, considering a transportation distance of 50km each.
Cardboard packaging is collected with unsorted paper waste separately on sites at 100% within existing collection equipment and transported to recycling facilities at 50km.
PE stretch foil is collected unsorted within site plastic waste collections and shipped to next sorting and recycling facility at 50km.
The mode of all transport is by lorry.

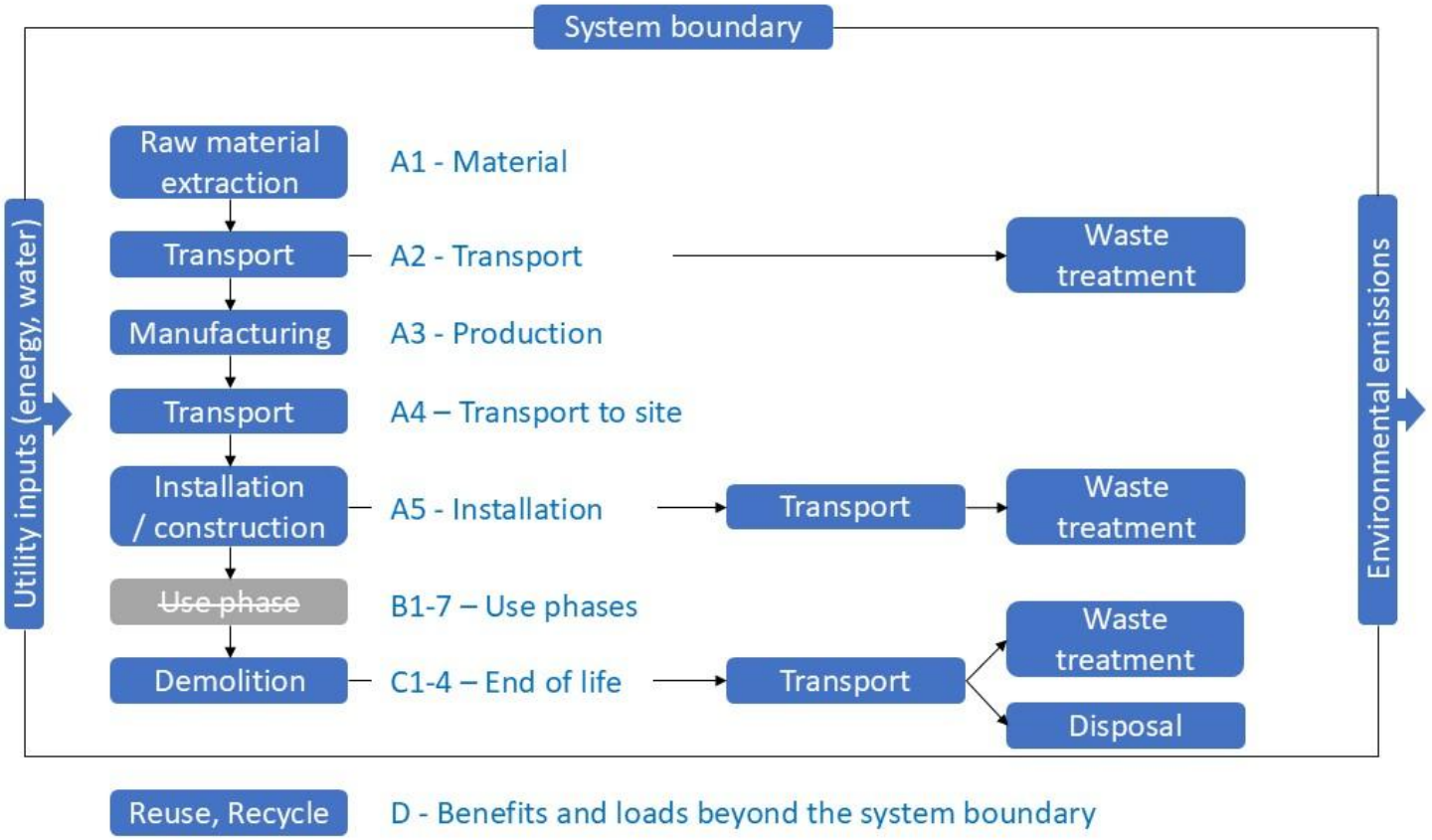
PRODUCT USE AND MAINTENANCE (B1-B7)

Not declared.
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 to be zero (C1). After 50 years of service life the collected product is assumed to be sent to the closest treatment facilities (C2) by truck/80km. 100% of the end-of-life product is assumed to be sent to incineration (C3) and nothing is sent to landfill (C4).
The EoL scenario included in the EPD are currently in use and are representative of one of the most likely scenarios, EoL happens mainly in the EU.
Beyond the system boundaries (D), loads and benefits for the treatment of polyethylene (product) by incineration, polyethylene (packaging foil) by recycling, waste cardboard packaging recycling and waste wood packaging incineration into energy have been studied and considered.
Products meet the legal requirements at validation date on limited Substances of Very High Concern (SVHC).

SYSTEM DIAGRAM



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 that is 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 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.
No processes have been excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

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 made according to 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 material	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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.
The EPD Generator uses Ecoinvent v3.10.1 and 3.11 and One Click LCA databases as sources of environmental data.
- Products apply to EN 16904 Product Category Rules (PCR) for plastics piping systems inside buildings
- Allocation used in Ecoinvent environmental data sources follow the methodology allocation, Cut-off, EN 15804+A2.
- Specific dataset used is EPD HUB-2541 Aluminum-reinforced polyethylene composite plumbing pipe, Uponor Uni Pipe Plus, Uponor MLC (Uponor Corporation), 2025.
- EU wooden packaging EoL scenario by EUROSTAT.
- Product Eol scenario (incineration) is based on current standard practice for construction products that cannot be manually dismantled into individual materials.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	2,83E+00	4,55E-02	-6,83E-02	2,81E+00	2,33E-01	2,41E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-02	2,91E+00	0,00E+00	2,84E+00
GWP – fossil	kg CO_2e	2,82E+00	4,55E-02	1,58E-01	3,03E+00	2,33E-01	4,87E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-02	2,91E+00	0,00E+00	2,84E+00
GWP – biogenic	kg CO_2e	9,03E-03	9,97E-06	-2,27E-01	-2,18E-01	4,61E-05	1,92E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,58E-06	2,84E-04	0,00E+00	-2,22E-03
GWP – LULUC	kg CO_2e	1,22E-03	1,98E-05	2,37E-04	1,48E-03	8,22E-05	2,24E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,84E-06	9,11E-05	0,00E+00	1,04E-05
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,07E-07	7,09E-10	1,47E-09	1,09E-07	4,63E-09	1,33E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,64E-10	1,66E-09	0,00E+00	4,04E-10
Acidification potential	mol H^+e	9,14E-03	1,54E-04	4,38E-04	9,73E-03	7,28E-04	1,60E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,12E-05	6,65E-04	0,00E+00	3,61E-04
EP-freshwater[2)]	kg Pe	3,76E-04	3,47E-06	2,33E-05	4,03E-04	1,54E-05	4,71E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,24E-06	3,00E-05	0,00E+00	2,86E-06
EP-marine	kg Ne	1,78E-03	5,08E-05	1,19E-04	1,95E-03	2,45E-04	7,12E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,66E-05	2,35E-04	0,00E+00	1,82E-04
EP-terrestrial	mol Ne	1,85E-02	5,53E-04	1,23E-03	2,02E-02	2,67E-03	3,87E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,80E-04	2,51E-03	0,00E+00	1,92E-03
POCP ("smog")[3)]	kg NMVOCe	1,32E-02	2,30E-04	4,51E-04	1,39E-02	1,14E-03	2,08E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,63E-05	6,62E-04	0,00E+00	4,78E-04
ADP-minerals & metals[4)]	kg Sbe	1,20E-05	1,27E-07	2,32E-06	1,44E-05	7,61E-07	2,59E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,42E-08	8,90E-06	0,00E+00	7,78E-08
ADP-fossil resources	MJ	7,79E+01	6,60E-01	1,20E+01	9,05E+01	3,27E+00	1,14E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,27E-01	1,05E+00	0,00E+00	2,75E-01
Water use[5)]	m^3e depr.	4,93E-01	3,28E-03	3,83E-02	5,35E-01	1,61E-02	4,28E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,18E-03	9,46E-02	0,00E+00	6,52E-02

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.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	9,78E-08	4,55E-09	7,87E-09	1,10E-07	1,83E-08	1,82E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,33E-09	3,63E-09	0,00E+00	1,76E-09
Ionizing radiation[6]	kBq U235e	3,52E-01	6,08E-04	3,79E-03	3,57E-01	4,17E-03	4,22E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,81E-04	6,29E-03	0,00E+00	-4,63E-05
Ecotoxicity (freshwater)	CTUe	5,60E+01	9,10E-02	1,03E+00	5,71E+01	4,29E-01	6,12E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,51E-02	2,95E+00	0,00E+00	6,53E-01
Human toxicity, cancer	CTUh	3,85E-08	7,50E-12	2,89E-10	3,88E-08	3,97E-11	4,21E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,73E-12	1,69E-10	0,00E+00	8,37E-11
Human tox. non-cancer	CTUh	4,48E-08	4,27E-10	1,75E-09	4,69E-08	2,05E-09	6,43E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,43E-10	6,33E-09	0,00E+00	4,04E-09
SQP[7]	-	5,10E+00	6,64E-01	2,28E+01	2,86E+01	1,95E+00	3,56E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,79E-01	4,77E-01	0,00E+00	1,00E-01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

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	8,93E+00	9,30E-03	4,03E+00	1,30E+01	5,65E-02	-1,23E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,98E-03	1,05E-01	0,00E+00	1,64E-02
Renew. PER as material	MJ	7,26E+00	0,00E+00	1,71E+00	8,97E+00	0,00E+00	-1,71E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-7,26E+00	0,00E+00	2,05E-02
Total use of renew. PER	MJ	1,62E+01	9,30E-03	5,74E+00	2,19E+01	5,65E-02	-2,94E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,98E-03	-7,16E+00	0,00E+00	3,69E-02
Non-re. PER as energy	MJ	3,98E+01	6,60E-01	-2,70E-01	4,02E+01	3,27E+00	6,30E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,27E-01	-3,49E+01	0,00E+00	-3,57E+01
Non-re. PER as material	MJ	4,96E+01	0,00E+00	1,08E-01	4,97E+01	0,00E+00	-1,08E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-4,96E+01	0,00E+00	3,80E-03
Total use of non-re. PER	MJ	8,94E+01	6,60E-01	-1,62E-01	8,99E+01	3,27E+00	5,23E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,27E-01	-8,45E+01	0,00E+00	-3,57E+01
Secondary materials	kg	1,03E-02	2,82E-04	4,47E-02	5,53E-02	1,50E-03	6,25E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-04	1,09E-01	0,00E+00	1,06E-03
Renew. secondary fuels	MJ	5,40E-05	3,57E-06	4,07E-02	4,07E-02	1,89E-05	4,08E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,27E-06	7,50E-06	0,00E+00	4,07E-06
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	2,37E-02	9,75E-05	1,18E-03	2,50E-02	4,40E-04	1,79E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,44E-05	3,06E-03	0,00E+00	5,21E-04

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	6,39E-02	1,09E-03	9,41E-03	7,44E-02	4,69E-03	1,53E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,73E-04	3,02E-02	0,00E+00	2,31E-02
Non-hazardous waste	kg	2,08E+01	2,04E-02	3,14E-01	2,11E+01	9,89E-02	6,06E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,64E-03	1,07E+00	0,00E+00	1,17E+00
Radioactive waste	kg	7,85E-04	1,49E-07	1,52E-06	7,86E-04	1,04E-06	8,02E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,97E-08	1,61E-06	0,00E+00	-1,32E-08

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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,21E-03	0,00E+00	1,11E-01	1,14E-01	0,00E+00	2,43E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	6,87E-03	6,87E-03	0,00E+00	6,87E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,02E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,33E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,60E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,70E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	2,79E+00	4,52E-02	1,57E-01	2,99E+00	2,31E-01	5,02E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,58E-02	2,91E+00	0,00E+00	2,84E+00
Ozone depletion Pot.	kg CFC_{-11}e	8,69E-08	5,65E-10	1,21E-09	8,86E-08	3,68E-09	1,11E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,11E-10	1,37E-09	0,00E+00	3,36E-10
Acidification	kg SO_2e	7,57E-03	1,17E-04	3,38E-04	8,02E-03	5,53E-04	1,30E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,92E-05	5,00E-04	0,00E+00	2,49E-04
Eutrophication	kg PO_4^3e	3,71E-03	2,87E-05	1,13E-03	4,87E-03	1,41E-04	5,84E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,79E-06	1,19E-04	0,00E+00	8,76E-05
POCP (“smog”)	kg C_2H_4e	9,88E-04	1,05E-05	3,57E-05	1,03E-03	5,27E-05	1,61E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,58E-06	3,16E-05	0,00E+00	1,61E-05
ADP-elements	kg Sbe	1,17E-05	1,24E-07	2,29E-06	1,41E-05	7,44E-07	2,56E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,28E-08	8,86E-06	0,00E+00	6,17E-08
ADP-fossil	MJ	7,49E+01	6,50E-01	1,19E+01	8,74E+01	3,20E+00	1,10E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,22E-01	9,54E-01	0,00E+00	2,77E-01

ENVIRONMENTAL IMPACTS – FRENCH NATIONAL COMPLEMENTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements	kg Sbe	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Hazardous waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-haz. waste disposed	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Air pollution	m^3	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Water pollution	m^3	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	2,82E+00	4,55E-02	1,59E-01	3,03E+00	2,33E-01	4,87E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,59E-02	2,91E+00	0,00E+00	2,84E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Ozone Depletion	kg $CFC_{-11}e$	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Acidification	kg SO_2e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Eutrophication	kg Ne	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
POCP (“smog”)	kg O_3e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP-fossil	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Market for heat, central or small-scale, natural gas, Albania, Ecoinvent, 0.0777 kgCO2e/MJ
2. Wood pellets (6,2% moisture / 5,8% H2O content), Germany, GaBi, -1.645101 kgCO2e/kg
3. District heating, Liquid gas (LPG) heating-DE-2020, Germany, ProBas, 0.0941 kgCO2e/MJ
4. Market for light fuel oil, World, Ecoinvent, 0.83 kgCO2e/kg
5. Electricity production, wind, 1-3MW turbine, onshore, Germany, Ecoinvent, 0.0207 kgCO2e/kWh
6. Electricity production, wind, 1-3MW turbine, onshore, Germany, Ecoinvent, 0.0207 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry 16-32 metric ton, EURO5, 1100.0 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	80
Bulk density of transported products	0,00E+00
Volume capacity utilization factor	

Installation scenario documentation - A5 (Installation resources)

1. Market group for electricity, low voltage, Ecoinvent, 0.00124 kWh
2. Market group for tap water, Ecoinvent, 0.204 kg
3. Steel screw, IDEMAT, Plastics Europe, 0.00371 kg

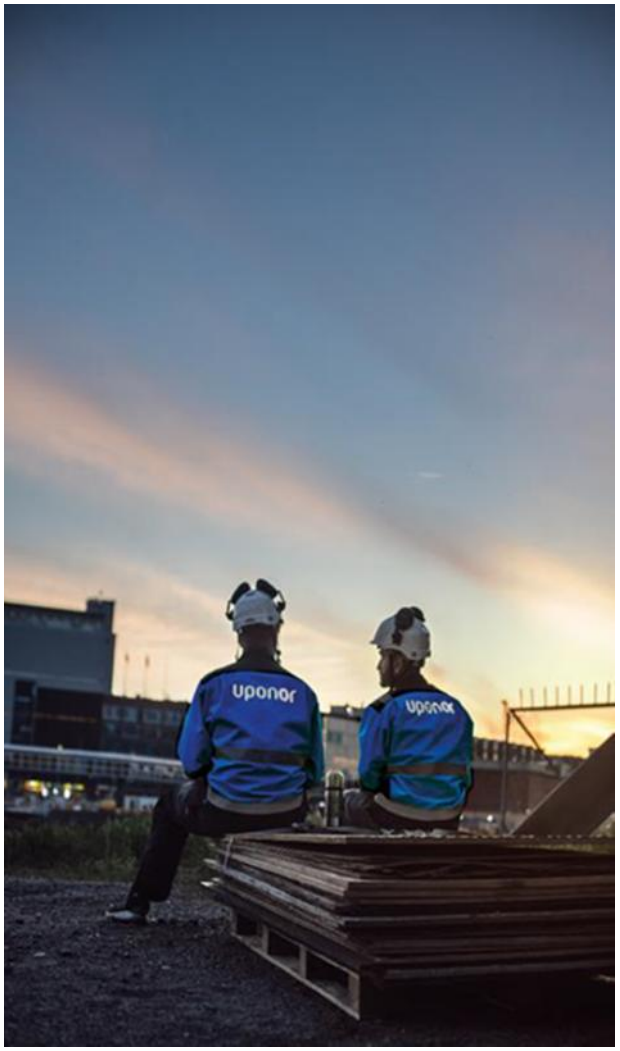
Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste paper, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0108 kg
2. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 3.58E-5 kg
3. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 1.07E-4 kg
4. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.014 kg
5. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.013 kg
6. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.013 kg
7. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.012 kg
8. Exported Energy: Electricity, Ecoinvent, 0.029 MJ
9. Exported Energy: Electricity, Ecoinvent, 0.027 MJ
10. Exported Energy: Thermal, Ecoinvent, 0.04 MJ
11. Exported Energy: Thermal, Ecoinvent, 0.037 MJ
12. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.016 kg
13. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.015 kg
14. Treatment of wastewater, unpolluted, wastewater treatment, Ecoinvent, Materials for recycling, 2.04E-4 m3

End-of-life scenario documentation - C1-C4 (Data source)

1. Treatment of aluminium scrap, post-consumer, prepared for recycling, at refiner, Ecoinvent, Materials for energy recovery, 0.105 kg
2. Treatment of waste polyethylene, municipal incineration, Ecoinvent, Materials for energy recovery, 0.918011 kg

Scenario information	Value
Scenario assumptions e.g. transportation	At EoL 100% of the pipe including the conduit is assumed to be send to incineration (C2) within mixed plastic construction waste by lorry (50km), nothing is sent to landfill (C4).Beyond the system boundaries (D), loads and benefits for the treatment of mixed plastic and aluminum (product) by incineration, polyethylene (packaging foil) and polypropylene plastic straps by recycling, waste cardboard packaging recycling and waste wood packaging incineration into energy have been studied and considered. Products meets the legal requirements at validation date on limited Substances of Very High Concern (SVHC).



THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub cannot identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Vera Durão, as an authorised verifier acting for EPD Hub Limited

04.02.2026

VERIFIED ISO 14025