

ENVIRONMENTAL PRODUCT DECLARATION

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

Uponor Comfort Pipe PLUS

Uponor Corporation



EPD HUB, HUB-1887

Published on 08.09.2024, last updated on 19.09.2024, valid until 08.09.2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Uponor Corporation
Address	Ilmalantori 4, 00240 Helsinki, 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 und ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
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: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Nemanja Nedic, 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	Uponor Comfort Pipe PLUS
Additional labels	-
Product reference	1009224 1009226 1009227 1009228 1009229 1009230 1009231 1009232 1062044 1062045 1062046 1062883 1062884 1062885 1062888 1062889 1063907 1086340 1086565 1088166 1091786 1091787 1091790 1091791 1126855
Place of production	Uponor AB, Nordanövägen 2, 73061, Virsbo, Sweden
Period for data	2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	2,08E+00
GWP-total, A1-A3 (kgCO ₂ e)	2,08E+00
Secondary material, inputs (%)	0.3
Secondary material, outputs (%)	88.4
Total energy use, A1-A3 (kWh)	8.47
Net freshwater use, A1-A3 (m ³)	0.03

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 Comfort Pipe Plus is the Uponor solution for radiant heating and cooling systems.

It reduces installation time and increases safety at the same time.

As one of the leading suppliers of plastic pipe systems, we have the highest standards when developing new products. This also applies to the consistent further development of Uponor PE-Xa pipe quality, which has been tried and tested for more than 40 years. Uponor Comfort Pipe PLUS is manufactured using the innovative UAXTM technology, giving it improved properties that make it our new benchmark for installation and operation.

- Innovative extrusion and cross-linking process (UAXTM)
- available in dimensions 14 - 25mm
- The new Comfort Pipe PLUS is clearly recognizable by two blue stripes on the white outer layer of the pipe and the Uponor trademark
- Compatible with Uponor's Quick & Easy and Vario compression fittings.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	
Minerals	0	
Fossil materials	100	EU
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	0.0009059

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
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	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	Deconstruction/ demolition	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.

Uponor Comfort Pipe PLUS is manufactured with high density polyethylene, cross-linking additive and stabilizers. The raw materials are mixed after which the mix is fed

into an extruder where the material melts and is cross-linked (UAXTM technology). The crosslinked pipe is calibrated to the correct dimension, cooled, and the finished product is packaged for transport to the construction site. Pipes are supplied in coils packed in cardboard boxes on pallets. Installation instructions come within 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.

The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is based on the actual sales average figures of the company in of the local markets and the transportation method is assumed to be lorry. Vehicle capacity utilization volume factor is assumed to be 100 which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly. Also, volume capacity utilisation factor is assumed to be <1 for the nested packaged products. Each wooden pallet is assumed to be re-used for 120 times based on the actual re-use scenarios.

PRODUCT USE AND MAINTENANCE (B1-B7)

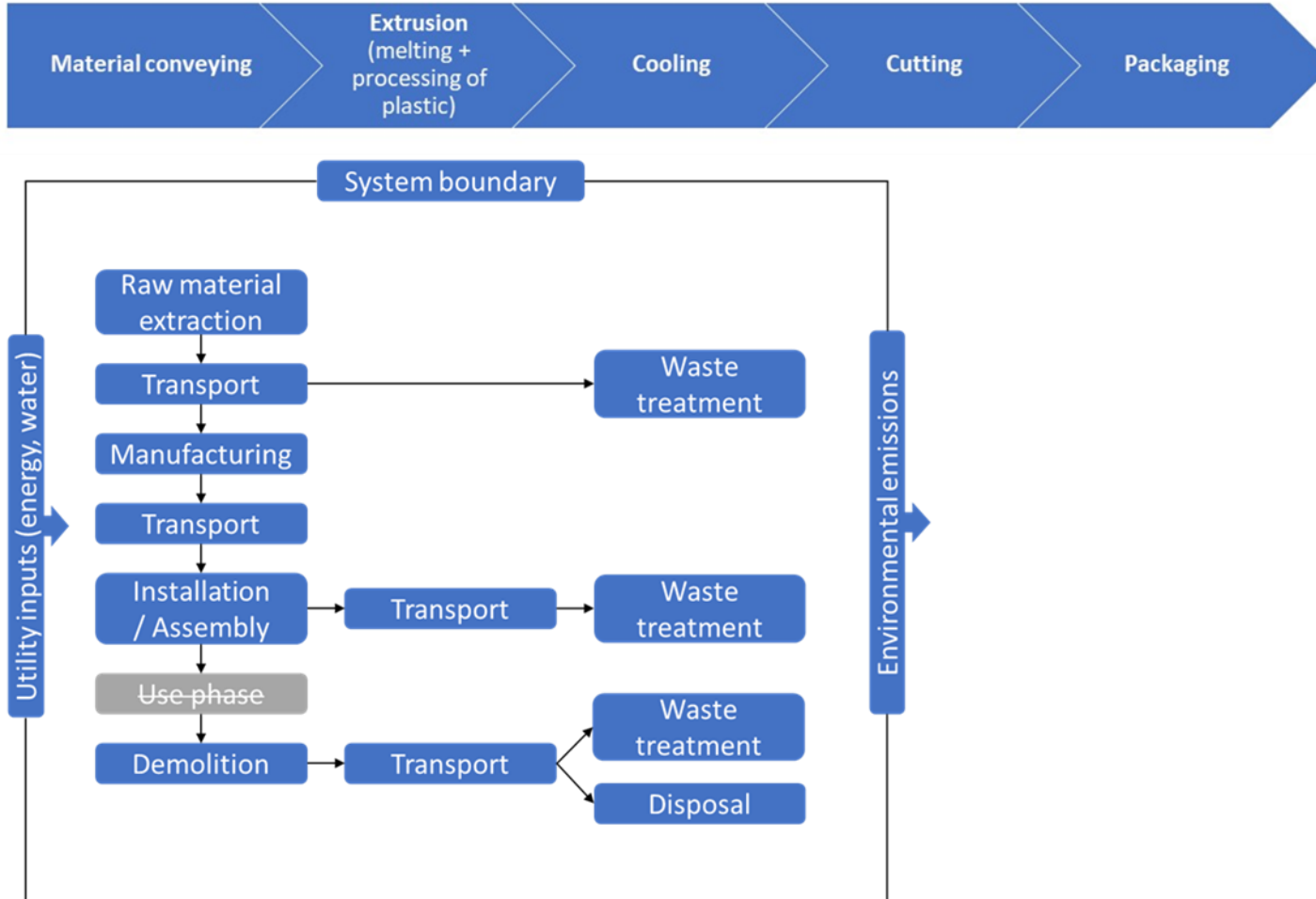
This EPD does not cover the use phase.

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). The end-of-life product is assumed to be sent to the closest facilities by lorry and is assumed to be 50 km away (C2). 100% of the end-of-life product is collected separately from the demolition site while 63% sent to recycling and 36% to incineration facilities (C3). Only 1% of the end-of-life product goes to landfill (C4). Due to the recycling and incineration potential of Polyethylene, the end-of-life product is converted into the recycled PE while energy and heat is produced from its incineration (D). The benefits and loads of waste packaging materials in A5 are also considered in module D.

MANUFACTURING PROCESS AND SYSTEM BOUNDARY



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

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per 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

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	%

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. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	2,03E+00	3,87E-02	1,62E-02	2,08E+00	2,99E-01	7,67E-03	MND	MND	MND	MND	MND	MND	MND	MNR	4,65E-03	8,48E-02	1,45E-03	-6,04E-01
GWP – fossil	kg CO ₂ e	2,02E+00	3,87E-02	2,00E-02	2,08E+00	2,99E-01	3,87E-03	MND	MND	MND	MND	MND	MND	MND	MNR	4,65E-03	8,83E-02	1,48E-03	-5,86E-01
GWP – biogenic	kg CO ₂ e	3,68E-03	0,00E+00	-3,79E-03	-1,08E-04	0,00E+00	3,79E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-3,65E-03	-3,68E-05	-1,31E-02
GWP – LULUC	kg CO ₂ e	6,29E-04	1,43E-05	9,59E-06	6,53E-04	1,10E-04	1,27E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,71E-06	1,11E-04	1,12E-07	-4,61E-03
Ozone depletion pot.	kg CFC ₋₁₁ e	4,60E-08	8,90E-09	4,23E-10	5,53E-08	6,88E-08	2,09E-10	MND	MND	MND	MND	MND	MND	MND	MNR	1,07E-09	3,01E-09	3,21E-11	-1,88E-07
Acidification potential	mol H ⁺ e	7,19E-03	1,64E-04	2,50E-05	7,38E-03	1,27E-03	1,42E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1,97E-05	3,05E-04	9,13E-07	-2,48E-02
EP-freshwater ²⁾	kg Pe	3,13E-05	3,17E-07	1,76E-07	3,18E-05	2,45E-06	5,61E-08	MND	MND	MND	MND	MND	MND	MND	MNR	3,80E-08	2,04E-06	1,76E-09	-2,67E-04
EP-marine	kg Ne	1,25E-03	4,87E-05	6,78E-06	1,31E-03	3,76E-04	2,84E-06	MND	MND	MND	MND	MND	MND	MND	MNR	5,85E-06	9,72E-05	5,63E-07	-2,89E-03
EP-terrestrial	mol Ne	1,37E-02	5,37E-04	6,41E-05	1,43E-02	4,15E-03	3,08E-05	MND	MND	MND	MND	MND	MND	MND	MNR	6,45E-05	9,52E-04	3,38E-06	-3,35E-02
POCP (“smog”) ³⁾	kg	6,70E-03	1,72E-04	2,20E-05	6,90E-03	1,33E-03	1,36E-05	MND	MND	MND	MND	MND	MND	MND	MNR	2,06E-05	3,04E-04	1,30E-06	-9,30E-03
ADP-minerals &	kg Sbe	1,39E-05	9,07E-08	1,34E-07	1,41E-05	7,01E-07	2,41E-08	MND	MND	MND	MND	MND	MND	MND	MNR	1,09E-08	9,39E-07	3,64E-10	-4,83E-06
ADP-fossil resources	MJ	7,06E+01	5,81E-01	5,67E-02	7,12E+01	4,49E+00	1,22E-01	MND	MND	MND	MND	MND	MND	MND	MNR	6,98E-02	4,68E-01	2,46E-03	-5,60E+01
Water use ⁵⁾	m ³ e depr.	9,88E-01	2,60E-03	2,27E-03	9,93E-01	2,01E-02	1,67E-03	MND	MND	MND	MND	MND	MND	MND	MNR	3,12E-04	1,67E-02	1,48E-05	-1,06E+00

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, 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	7,16E-08	4,46E-09	3,91E-10	7,65E-08	3,45E-08	1,89E-10	MND	MND	MND	MND	MND	MND	MND	MNR	5,35E-10	4,04E-08	1,82E-11	-1,78E-07
Ionizing radiation ⁶⁾	kBq	1,34E-01	2,77E-03	3,05E-04	1,37E-01	2,14E-02	2,59E-04	MND	MND	MND	MND	MND	MND	MND	MNR	3,32E-04	2,71E-03	1,19E-05	-1,11E+00
Ecotoxicity (freshwater)	CTUe	1,15E+01	5,23E-01	1,40E-01	1,21E+01	4,04E+00	2,94E-02	MND	MND	MND	MND	MND	MND	MND	MNR	6,28E-02	3,46E+00	2,64E-03	-6,59E+01
Human toxicity, cancer	CTUh	6,04E-10	1,28E-11	2,06E-11	6,37E-10	9,92E-11	1,28E-12	MND	MND	MND	MND	MND	MND	MND	MNR	1,54E-12	4,05E-10	8,09E-14	-1,06E-09
Human tox. non-cancer	CTUh	1,33E-08	5,18E-10	1,67E-10	1,39E-08	4,00E-09	3,09E-11	MND	MND	MND	MND	MND	MND	MND	MNR	6,21E-11	2,35E-09	1,56E-12	-3,48E-08
SQP ⁷⁾	-	1,94E+00	6,70E-01	3,00E-01	2,91E+00	5,17E+00	1,40E-02	MND	MND	MND	MND	MND	MND	MND	MNR	8,04E-02	9,27E-01	5,93E-03	-2,11E+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	1,21E+00	6,55E-03	6,37E-01	1,85E+00	5,06E-02	3,08E-03	MND	MND	MND	MND	MND	MND	MND	MNR	7,86E-04	4,76E-02	4,59E-05	-1,02E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,49E-02	3,49E-02	0,00E+00	-3,49E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,21E+00	6,55E-03	6,72E-01	1,88E+00	5,06E-02	-3,18E-02	MND	MND	MND	MND	MND	MND	MND	MNR	7,86E-04	4,76E-02	4,59E-05	-1,02E+01
Non-re. PER as energy	MJ	2,80E+01	5,81E-01	5,42E-02	2,87E+01	4,49E+00	5,39E-02	MND	MND	MND	MND	MND	MND	MND	MNR	6,98E-02	4,68E-01	2,46E-03	-5,59E+01
Non-re. PER as material	MJ	4,26E+01	0,00E+00	2,44E-03	4,26E+01	0,00E+00	-2,44E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-4,22E+01	-4,26E-01	0,00E+00
Total use of non-re. PER	MJ	7,06E+01	5,81E-01	5,67E-02	7,12E+01	4,49E+00	5,15E-02	MND	MND	MND	MND	MND	MND	MND	MNR	6,98E-02	-4,17E+01	-4,23E-01	-5,59E+01
Secondary materials	kg	3,02E-03	1,61E-04	9,35E-04	4,11E-03	1,25E-03	9,31E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,94E-05	3,03E-03	8,78E-07	-4,05E-03
Renew. secondary fuels	MJ	2,81E-05	1,63E-06	9,27E-04	9,56E-04	1,26E-05	1,56E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,95E-07	2,57E-05	3,38E-08	-2,37E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	2,55E-02	7,53E-05	4,35E-05	2,56E-02	5,82E-04	4,21E-05	MND	MND	MND	MND	MND	MND	MND	MNR	9,04E-06	3,35E-04	2,64E-06	-4,53E-02

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	4,77E-02	7,71E-04	8,26E-04	4,93E-02	5,96E-03	9,10E-05	MND	MND	MND	MND	MND	MND	MND	MNR	9,25E-05	9,51E-03	0,00E+00	-2,83E-01
Non-hazardous waste	kg	1,33E+00	1,27E-02	1,45E-02	1,36E+00	9,78E-02	3,58E-03	MND	MND	MND	MND	MND	MND	MND	MNR	1,52E-03	9,19E-02	1,00E-02	-1,42E+01
Radioactive waste	kg	4,27E-05	3,89E-06	1,86E-07	4,67E-05	3,00E-05	1,27E-07	MND	MND	MND	MND	MND	MND	MND	MNR	4,67E-07	1,48E-06	0,00E+00	-3,32E-04

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	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	1,77E-03	1,77E-03	0,00E+00	5,12E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	6,24E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	9,00E-03	9,00E-03	0,00E+00	1,44E-05	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,60E-01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,80E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,12E+01	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	1,92E+00	3,83E-02	1,98E-02	1,98E+00	2,96E-01	3,76E-03	MND	MND	MND	MND	MND	MND	MND	MNR	4,60E-03	9,12E-02	1,20E-03	-5,35E-01
Ozone depletion Pot.	kg CFC ₁₁ e	3,97E-08	7,05E-09	3,58E-10	4,71E-08	5,45E-08	1,71E-10	MND	MND	MND	MND	MND	MND	MND	MNR	8,46E-10	2,58E-09	2,55E-11	-1,57E-07
Acidification	kg SO ₂ e	6,00E-03	1,27E-04	1,99E-05	6,15E-03	9,84E-04	1,17E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1,53E-05	2,37E-04	6,93E-07	-2,12E-02
Eutrophication	kg PO ₄ ³ e	1,59E-03	2,90E-05	5,58E-05	1,67E-03	2,24E-04	5,20E-06	MND	MND	MND	MND	MND	MND	MND	MNR	3,48E-06	1,12E-03	5,58E-05	-9,14E-03
POCP (“smog”)	kg C ₂ H ₄ e	6,11E-04	4,97E-06	1,84E-06	6,18E-04	3,84E-05	1,08E-06	MND	MND	MND	MND	MND	MND	MND	MNR	5,97E-07	3,16E-05	2,18E-07	-9,02E-04
ADP-elements	kg Sbe	1,39E-05	8,79E-08	1,33E-07	1,41E-05	6,79E-07	2,40E-08	MND	MND	MND	MND	MND	MND	MND	MNR	1,05E-08	9,33E-07	3,52E-10	-4,83E-06
ADP-fossil	MJ	7,06E+01	5,81E-01	5,67E-02	7,12E+01	4,49E+00	1,22E-01	MND	MND	MND	MND	MND	MND	MND	MNR	6,98E-02	4,68E-01	2,46E-03	-5,59E+01

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

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 ₂ e	2,02E+00	3,87E-02	2,00E-02	2,08E+00	2,99E-01	3,87E-03	MND	MND	MND	MND	MND	MND	MND	MNR	4,65E-03	8,83E-02	1,48E-03	-5,86E-01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization 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 ₂ e	1,87E+00	3,83E-02	1,97E-02	1,92E+00	2,96E-01	3,66E-03	MND	MND	MND	MND	MND	MND	MND	MNR	4,60E-03	8,87E-02	1,05E-03	-5,05E-01
Ozone Depletion	kg CFC-11e	3,95E-08	7,05E-09	3,57E-10	4,69E-08	5,45E-08	1,71E-10	MND	MND	MND	MND	MND	MND	MND	MNR	8,46E-10	2,57E-09	2,54E-11	-1,53E-07
Acidification	kg SO ₂ e	3,17E-01	7,79E-03	1,14E-03	3,26E-01	6,02E-02	6,36E-04	MND	MND	MND	MND	MND	MND	MND	MNR	9,35E-04	1,83E-02	4,48E-05	-1,07E+00
Eutrophication	kg Ne	2,90E-04	1,63E-05	3,17E-06	3,09E-04	1,26E-04	7,74E-07	MND	MND	MND	MND	MND	MND	MND	MNR	1,96E-06	2,80E-05	4,35E-07	-4,45E-04
POCP ("smog")	kg O ₃ e	3,76E-03	1,26E-04	1,52E-05	3,90E-03	9,73E-04	8,11E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,51E-05	2,37E-04	8,89E-07	-7,46E-03
ADP-fossil	MJ	9,70E+00	7,95E-02	5,82E-03	9,79E+00	6,14E-01	1,68E-02	MND	MND	MND	MND	MND	MND	MND	MNR	9,54E-03	3,75E-02	3,27E-04	-2,51E+00

ENVIRONMENTAL IMPACTS – BEPALINGSMETODE, NETHERLANDS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Shadow price	€	2,12E-01	5,08E-03	5,71E-03	2,23E-01	3,92E-02	4,75E-04	MND	MND	MND	MND	MND	MND	MND	MNR	6,09E-04	1,46E-01	5,97E-04	-3,80E-01
Terrestrial ecotoxicity	DCB eq	2,44E-03	1,13E-04	5,85E-04	3,14E-03	8,72E-04	7,31E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,35E-05	6,12E-03	4,03E-07	1,72E-02
Seawater ecotoxicity	DCB eq	2,34E+02	5,99E+00	6,09E+00	2,46E+02	4,63E+01	4,92E-01	MND	MND	MND	MND	MND	MND	MND	MNR	7,19E-01	4,07E+01	1,54E-01	-1,27E+03
Freshwater ecotoxicity	DCB eq	7,56E-03	6,65E-04	2,07E-03	1,03E-02	5,14E-03	2,71E-05	MND	MND	MND	MND	MND	MND	MND	MNR	7,98E-05	1,49E-02	1,09E-04	8,73E-02
Human ecotoxicity	DCB eq	5,30E-01	1,90E-02	3,81E-02	5,87E-01	1,47E-01	1,47E-03	MND	MND	MND	MND	MND	MND	MND	MNR	2,28E-03	1,39E+00	1,35E-04	-6,26E-01
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,20E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	1,68E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,60E-03	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	9,48E+00	0,00E+00	0,00E+00
ADP Fossil Fuels	kg Sbe	3,40E-02	2,80E-04	2,72E-05	3,43E-02	2,16E-03	5,87E-05	MND	MND	MND	MND	MND	MND	MND	MNR	3,36E-05	2,25E-04	1,18E-06	-2,69E-02

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:

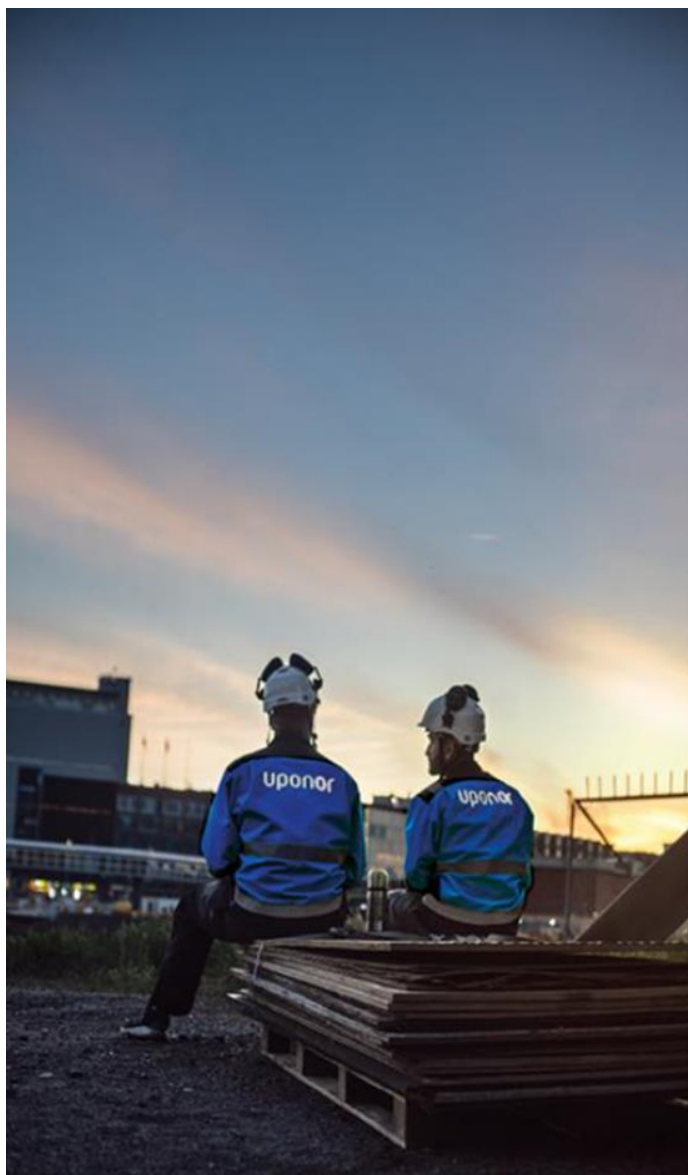
- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

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.

Nemanja Nedic, as an authorized verifier acting for EPD Hub Limited
08.09.2024



ANNEX 1: CONVERSION TABLE FOR PRODUCT STAGE (A1-A3) GWP – EN 15804+A2, PEF

Product Number	Product Description	Unit Product Weight (kg/m of pipe)	GWP – total, Stages A1-A3 (kg CO2e/m of pipe)	Product Length (m)	GWP – total, Stages A1-A3 (kg CO2e)
1009224	Uponor Comfort Pipe PLUS 17x2,0 60m	0,115	2,39E-1	60	1,44E+1
1009226	Uponor Comfort Pipe PLUS 17x2,0 240m	0,115	2,39E-1	240	5,74E+1
1009227	Uponor Comfort Pipe PLUS 17x2,0 640m	0,115	2,39E-1	640	1,53E+2
1009228	Uponor Comfort Pipe PLUS 20x2,0 120m	0,115	2,39E-1	120	2,87E+1
1009229	Uponor Comfort Pipe PLUS 20x2,0 60m	0,11	2,29E-1	60	1,37E+1
1009230	Uponor Comfort Pipe PLUS 20x2,0 240m	0,115	2,39E-1	240	5,74E+1
1009231	Uponor Comfort Pipe PLUS 20x2,0 480m	0,115	2,39E-1	480	1,15E+2
1009232	Uponor Comfort Pipe PLUS 20x2,0 1000m	0,11	2,29E-1	1000	2,29E+2
1062044	Uponor Comfort Pipe PLUS 16x2,0 120m	0,091	1,89E-1	120	2,27E+1
1062045	Uponor Comfort Pipe PLUS 16x2,0 240m	0,091	1,89E-1	240	4,54E+1
1062046	Uponor Comfort Pipe PLUS 16x2,0 640m	0,091	1,89E-1	640	1,21E+2
1062883	Uponor Comfort Pipe PLUS 14x2,0 120m	0,079	1,64E-1	120	1,97E+1
1062884	Uponor Comfort Pipe PLUS 14x2,0 240m	0,079	1,64E-1	240	3,94E+1
1062885	Uponor Comfort Pipe PLUS 14x2,0 960m	0,082	1,71E-1	960	1,64E+2
1062888	Uponor Comfort Pipe PLUS 25x2,3 220m	0,168	3,49E-1	220	7,69E+1
1062889	Uponor Comfort Pipe PLUS 25x2,3 300m	0,168	3,49E-1	300	1,05E+2
1063907	Uponor Comfort Pipe PLUS 25x2,3 640m	0,16	3,33E-1	640	2,13E+2
1086340	Uponor Comfort Pipe PLUS 17x2,0 480m	0,125	2,60E-1	480	1,25E+2
1086565	Uponor Comfort Pipe PLUS UCPP 20x2,0 480m	0,125	2,60E-1	480	1,25E+2
1088166	Uponor Comfort Pipe PLUS 14x2,0 640m	0,091	1,89E-1	640	1,21E+2
1091786	Uponor Comfort Pipe PLUS FR 16x2,0 240m	0,091	1,89E-1	240	4,54E+1
1091787	Uponor Comfort Pipe PLUS FR 16x2,0 640m	0,091	1,89E-1	640	1,21E+2
1091790	Uponor Comfort Pipe PLUS FR 20x2,0 240m	0,115	2,39E-1	240	5,74E+1
1091791	Uponor Comfort Pipe PLUS FR 20x2,0 480m	0,115	2,39E-1	480	1,15E+2
1126855	Uponor Comfort Pipe PLUS 20x2,0 600m	0,118	2,45E-1	600	1,47E+2

ANNEX 2 : CONVERSION TABLE FOR PRODUCT STAGE (A1-A3) GWP – EN 15804+A1, CML/ISO 21930

Product Number	Product Description	Unit Product Weight (kg/m of pipe)	GWP – total, Stages A1-A3 (kg CO2e/m of pipe)	Product Length (m)	GWP – total, Stages A1-A3 (kg CO2e)
1009224	Uponor Comfort Pipe PLUS 17x2,0 60m	0,115	2,28E-1	60	1,37E+1
1009226	Uponor Comfort Pipe PLUS 17x2,0 240m	0,115	2,28E-1	240	5,46E+1
1009227	Uponor Comfort Pipe PLUS 17x2,0 640m	0,115	2,28E-1	640	1,46E+2
1009228	Uponor Comfort Pipe PLUS 20x2,0 120m	0,115	2,28E-1	120	2,73E+1
1009229	Uponor Comfort Pipe PLUS 20x2,0 60m	0,11	2,18E-1	60	1,31E+1
1009230	Uponor Comfort Pipe PLUS 20x2,0 240m	0,115	2,28E-1	240	5,46E+1
1009231	Uponor Comfort Pipe PLUS 20x2,0 480m	0,115	2,28E-1	480	1,09E+2
1009232	Uponor Comfort Pipe PLUS 20x2,0 1000m	0,11	2,18E-1	1000	2,18E+2
1062044	Uponor Comfort Pipe PLUS 16x2,0 120m	0,091	1,80E-1	120	2,16E+1
1062045	Uponor Comfort Pipe PLUS 16x2,0 240m	0,091	1,80E-1	240	4,32E+1
1062046	Uponor Comfort Pipe PLUS 16x2,0 640m	0,091	1,80E-1	640	1,15E+2
1062883	Uponor Comfort Pipe PLUS 14x2,0 120m	0,079	1,56E-1	120	1,88E+1
1062884	Uponor Comfort Pipe PLUS 14x2,0 240m	0,079	1,56E-1	240	3,75E+1
1062885	Uponor Comfort Pipe PLUS 14x2,0 960m	0,082	1,62E-1	960	1,56E+2
1062888	Uponor Comfort Pipe PLUS 25x2,3 220m	0,168	3,33E-1	220	7,32E+1
1062889	Uponor Comfort Pipe PLUS 25x2,3 300m	0,168	3,33E-1	300	9,98E+1
1063907	Uponor Comfort Pipe PLUS 25x2,3 640m	0,16	3,17E-1	640	2,03E+2
1086340	Uponor Comfort Pipe PLUS 17x2,0 480m	0,125	2,48E-1	480	1,19E+2
1086565	Uponor Comfort Pipe PLUS UCPP 20x2,0 480m	0,125	2,48E-1	480	1,19E+2
1088166	Uponor Comfort Pipe PLUS 14x2,0 640m	0,091	1,80E-1	640	1,15E+2
1091786	Uponor Comfort Pipe PLUS FR 16x2,0 240m	0,091	1,80E-1	240	4,32E+1
1091787	Uponor Comfort Pipe PLUS FR 16x2,0 640m	0,091	1,80E-1	640	1,15E+2
1091790	Uponor Comfort Pipe PLUS FR 20x2,0 240m	0,115	2,28E-1	240	5,46E+1
1091791	Uponor Comfort Pipe PLUS FR 20x2,0 480m	0,115	2,28E-1	480	1,09E+2
1126855	Uponor Comfort Pipe PLUS 20x2,0 600m	0,118	2,34E-1	600	1,40E+2