ENVIRONMENTAL PRODUCT DECLARATION

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

Uponor Meltaway PEX Pipe
Uponor Corporation

EPD HUB, HUB-3376
Publishing date 1 June 2025, last updated on 1 June 2025, valid until 1 June 2030.

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	Ilmalantori 4, 00240 Helsinki, Finland, , 00240, Helsinki, , FI
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 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
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: ☐ Internal verification ☑ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

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 Meltaway PEX Pipe
Additional labels	-
Product reference	Meltway PEXb pipe dimension 25x2,3mm in various coil lengths
Place(s) of raw material origin	Germany
Place of production	97478 Knetzgau, Germany
Place(s) of installation and use	-
Period for data	Calendar year 2023
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 (%)	-13,8

ENVIRONMENTAL DATA SUMMARY

Declared unit	1kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	3,07E+00
GWP-total, A1-A3 ($kgCO_2e$)	2,88E+00
Secondary material, inputs (%)	1,32
Secondary material, outputs (%)	104
Total energy use, A1-A3 (kWh)	12,8
Net freshwater use, A1-A3 (m^3)	-0,15

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 snow and ice melting Meltaway radiant heating system is ideal for all outdoor surfaces with a solid covering.
It is especially designed for use with driveways, ramps, fire department or hospital approach roads, helicopter landing zones, sidewalks,
The pipe enclosed in this EPD is made of crosslinked HDPE (PE-Xb) and for maximum design temperature 50°C at design pressure of 4,5 Bar at 50°C.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100	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	0,0507

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	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.

A market-based approach is used in modelling the electricity mix utilized in the factory.

Uponor Meltaway PEX-b pipe is made by the silane crosslinking method of PEX production which involves grafting a reactive silane molecule to the backbone of the polyethylene. The pipe is produced by blending this grafted compound with a catalyst. Next to extrusion the pipe is exposed to either steam or hot water to induce the final cross-linking reaction in the PEX-b material.

After manufacturing the pipe is sent on large drums to final standard lengths coiling and packing to Uponor premise.

Product related production losses and plastic packaging foil are metered and calculated as 100% material for recycling, transportation distance 50km (mix of inhouse/external). Residual industry waste mix and used pallets wood goes to back as energy, transportation distance 50km to next incineration plant.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), 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.

The transportation distance is defined according to the PCR. The average distance of transportation from the production plant to the installation site is based on the actual sales average figures of the company in the local markets.

The installation scenarios in Uponor's product EPDs are based on TEPPFA's (The European Plastic Pipe and Fittings Association) industry averaged EPDs. 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 Uponor EPD modelling. Environmental impacts from installation include standardized energy and installation tools and waste packaging materials.

Reference: https://www.teppfa.eu/sustainability/environmental-footprint/epd/

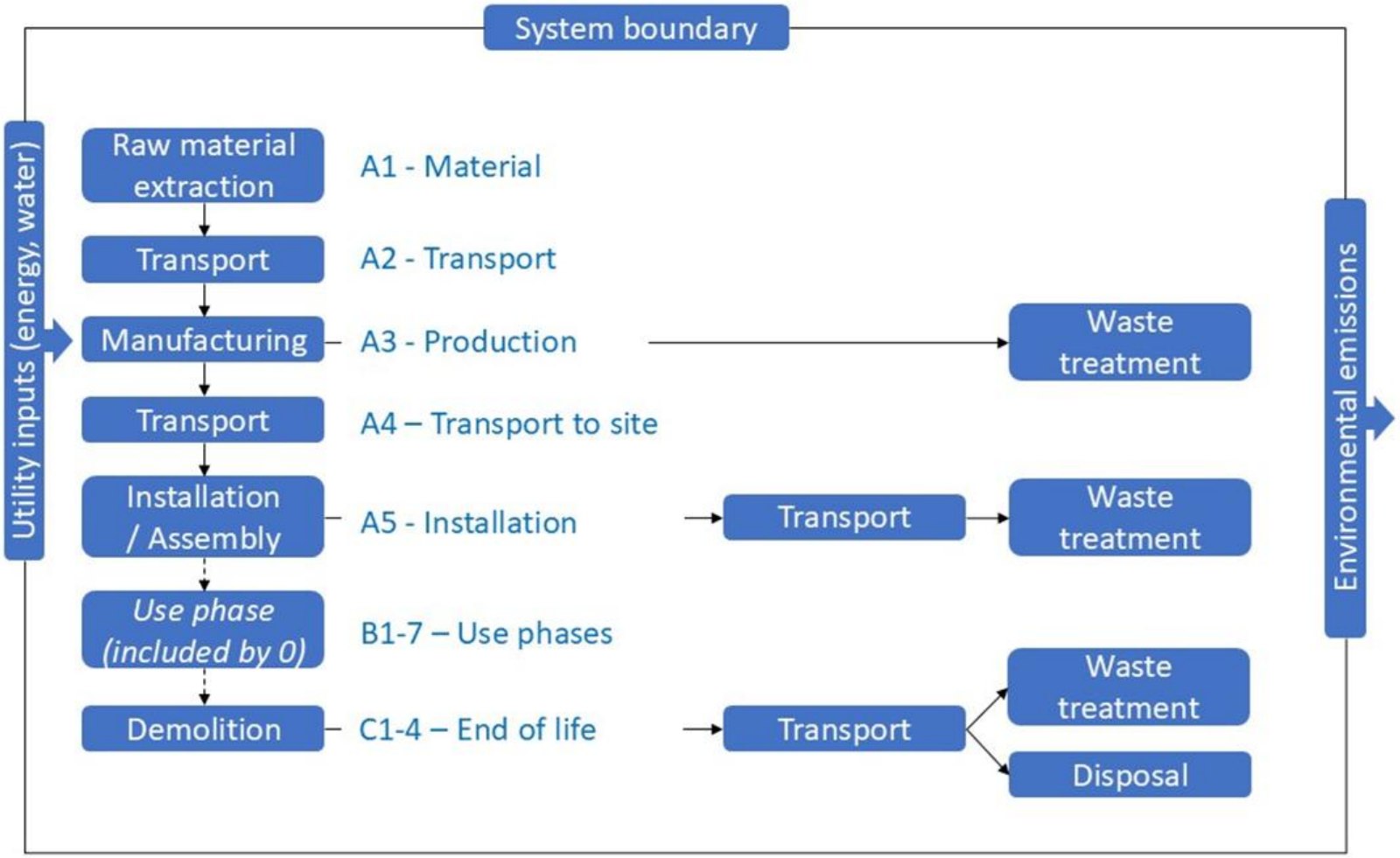
PRODUCT USE AND MAINTENANCE (B1-B7)

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 negligible (C1). Benefits by recycling of clean and sorted packaging materials collected in installation are calculated as balanced EOL loads/benefits. After ca 100 years of service life 63% of the end-of-life product is assumed to be sent to the closest treatment facilities (C2), adding the load of recycling. The collected 36% from the demolition site is sent to incineration (C3), whereas the remaining 1% is left inert underground (C4).

MANUFACTURING PROCESS



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 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.

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 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

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 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 v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2,65E+00	2,13E-01	1,86E-02	2,88E+00	2,98E-01	2,23E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,71E-03	6,93E-02	1,20E-03	-5,09E-01
GWP – fossil	kg CO_2e	2,65E+00	2,13E-01	2,03E-01	3,07E+00	2,98E-01	3,68E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,71E-03	6,85E-02	1,20E-03	-5,03E-01
GWP – biogenic	kg CO_2e	-6,50E-04	0,00E+00	-1,86E-01	-1,86E-01	0,00E+00	1,86E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	6,44E-04	6,50E-06	0,00E+00
GWP – LULUC	kg CO_2e	1,62E-03	9,52E-05	9,82E-04	2,69E-03	1,33E-04	3,31E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,55E-06	1,26E-04	7,30E-08	-5,51E-03
Ozone depletion pot.	kg CFC_{-11}e	1,08E-07	3,14E-09	2,37E-09	1,13E-07	4,40E-09	1,23E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,43E-11	3,87E-10	2,89E-12	-4,10E-08
Acidification potential	mol H^+e	7,88E-03	7,26E-04	8,92E-04	9,50E-03	1,02E-03	1,23E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,95E-05	3,11E-04	7,95E-07	-2,39E-02
EP-freshwater[2)]	kg Pe	4,52E-04	1,66E-05	3,39E-04	8,07E-04	2,32E-05	9,14E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,44E-07	1,87E-05	1,18E-08	-2,27E-03
EP-marine	kg Ne	1,58E-03	2,38E-04	3,30E-03	5,13E-03	3,34E-04	7,30E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,39E-06	2,50E-04	2,65E-06	-3,29E-03
EP-terrestrial	mol Ne	1,64E-02	2,60E-03	2,75E-03	2,18E-02	3,63E-03	3,25E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,96E-05	9,41E-04	3,24E-06	-3,24E-02
POCP ("smog")[3)]	kg NMVOCe	1,35E-02	1,07E-03	8,90E-04	1,54E-02	1,50E-03	1,93E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,87E-05	2,99E-04	1,41E-06	-1,05E-02
ADP-minerals & metals[4)]	kg Sbe	2,15E-05	5,94E-07	1,02E-06	2,31E-05	8,31E-07	2,48E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,59E-08	6,06E-07	2,52E-10	-3,98E-06
ADP-fossil resources	MJ	8,05E+01	3,09E+00	2,31E+00	8,59E+01	4,32E+00	9,47E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,28E-02	5,19E-01	2,48E-03	-5,83E+01
Water use[5)]	m^3e depr.	7,14E-01	1,53E-02	6,31E-02	7,92E-01	2,14E-02	9,33E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,09E-04	1,58E-02	1,22E-05	-1,03E+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	5,75E-08	2,13E-08	1,23E-08	9,11E-08	2,98E-08	1,53E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,71E-10	1,14E-08	1,80E-11	-2,09E-07
Ionizing radiation[6)]	kBq U235e	1,90E-01	2,69E-03	1,01E-02	2,03E-01	3,77E-03	2,18E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,21E-05	1,61E-03	2,47E-06	-1,08E+00
Ecotoxicity (freshwater)	CTUe	5,83E+00	4,37E-01	6,79E+00	1,31E+01	6,12E-01	1,52E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,17E-02	6,40E-01	3,70E-03	-6,63E+00
Human toxicity, cancer	CTUh	5,18E-10	3,51E-11	5,69E-10	1,12E-09	4,92E-11	1,34E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,42E-13	1,60E-10	5,85E-14	-6,37E-10
Human tox. non-cancer	CTUh	2,01E-08	2,00E-09	1,22E-08	3,43E-08	2,80E-09	4,54E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,36E-11	1,51E-09	1,15E-11	-2,63E-08
SQP[7)]	-	6,67E+00	3,11E+00	7,27E+01	8,25E+01	4,35E+00	9,11E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,34E-02	1,02E+00	5,80E-03	-2,16E+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	2,44E+00	4,23E-02	3,48E+00	5,95E+00	5,92E-02	-1,26E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,14E-03	5,56E-02	3,89E-05	-1,38E+01
Renew. PER as material	MJ	3,39E-02	0,00E+00	1,64E+00	1,67E+00	0,00E+00	-1,64E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-3,36E-02	-3,39E-04	0,00E+00
Total use of renew. PER	MJ	2,47E+00	4,23E-02	5,12E+00	7,63E+00	5,92E-02	-2,90E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,14E-03	2,20E-02	-3,00E-04	-1,38E+01
Non-re. PER as energy	MJ	3,75E+01	3,09E+00	-3,38E-01	4,02E+01	4,32E+00	4,52E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,28E-02	-4,38E+01	-3,89E-01	-9,92E+01
Non-re. PER as material	MJ	4,30E+01	0,00E+00	1,53E-01	4,32E+01	0,00E+00	-1,53E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-4,26E+01	-4,30E-01	0,00E+00
Total use of non-re. PER	MJ	8,05E+01	3,09E+00	-1,86E-01	8,34E+01	4,32E+00	2,99E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,28E-02	-8,64E+01	-8,19E-01	-9,92E+01
Secondary materials	kg	1,32E-02	1,31E-03	1,41E-02	2,87E-02	1,84E-03	3,37E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,53E-05	3,25E-03	8,99E-07	-5,66E-03
Renew. secondary fuels	MJ	1,10E-04	1,67E-05	5,32E-02	5,33E-02	2,34E-05	5,34E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,48E-07	2,73E-05	1,69E-08	-1,04E-04
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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,90E-02	4,57E-04	-1,66E-01	-1,47E-01	6,39E-04	-1,57E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,22E-05	2,99E-04	-3,70E-05	-4,37E-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	8,69E-02	5,23E-03	1,27E-02	1,05E-01	7,32E-03	1,41E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,40E-04	9,50E-03	4,37E-06	-2,56E-01
Non-hazardous waste	kg	2,14E+01	9,69E-02	1,68E+02	1,90E+02	1,36E-01	2,10E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,60E-03	2,18E-01	4,97E-02	-9,96E+00
Radioactive waste	kg	1,84E-04	6,59E-07	2,52E-06	1,87E-04	9,22E-07	1,91E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,77E-08	4,08E-07	6,04E-10	-2,78E-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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	2,05E-01	2,05E-01	0,00E+00	3,20E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	6,65E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	1,46E-02	1,46E-02	0,00E+00	6,11E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,80E-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	1,42E-01	MND	MND	MND	MND	MND	MND	MND	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	6,00E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,87E+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	8,20E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,00E+01	0,00E+00	0,00E+00

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_2e	2,65E+00	2,13E-01	2,04E-01	3,07E+00	2,98E-01	3,69E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,71E-03	6,86E-02	1,20E-03	-5,09E-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 – BEPALINGSMETHODE, 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	€	3,53E-01	2,68E-02	8,05E-02	4,61E-01	3,76E-02	5,70E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,20E-04	1,20E-01	1,36E-04	-3,27E-01
Terrestrial ecotoxicity	DCB eq	2,07E-02	7,62E-04	8,09E-03	2,95E-02	1,07E-03	3,36E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,04E-05	8,95E-03	1,90E-05	1,78E-02
Seawater ecotoxicity	DCB eq	4,53E+02	3,29E+01	7,58E+01	5,61E+02	4,60E+01	7,17E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,82E-01	3,58E+01	2,74E-01	-1,12E+03
Freshwater ecotoxicity	DCB eq	2,92E-02	2,97E-03	1,66E-02	4,88E-02	4,16E-03	5,86E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,96E-05	8,99E-03	2,17E-04	7,79E-02
Human ecotoxicity	DCB eq	1,39E+00	1,01E-01	2,72E-01	1,77E+00	1,41E-01	2,18E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,70E-03	1,22E+00	4,18E-04	-9,80E-01
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,00E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,87E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,20E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,00E+01	0,00E+00	0,00E+00
ADP Fossil Fuels	kg Sbe	3,42E-02	1,47E-03	8,38E-04	3,65E-02	2,05E-03	4,06E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,93E-05	2,37E-04	1,18E-06	-1,89E-02

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	100% certified green electricity from wind or solar in Germany, 6% transformation loss from high to medium voltage
Electricity CO2e / kWh	0,0206
District heating data source and quality	-
District heating CO2e / kWh	-

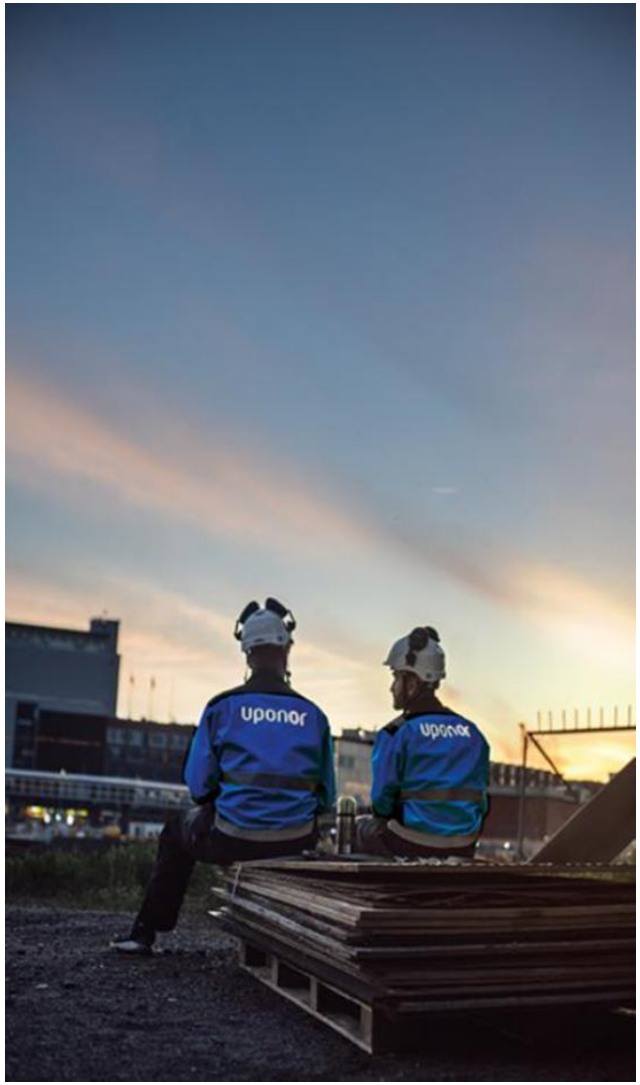
Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	2,95E-01
Average transport distance, km	2636
Capacity utilization (including empty return) %	100
Bulk density of transported products	-
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	0,01
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	0,01
Direct emissions to ambient air, soil and water / kg	0

THIRD-PARTY 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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
01.06.2025