

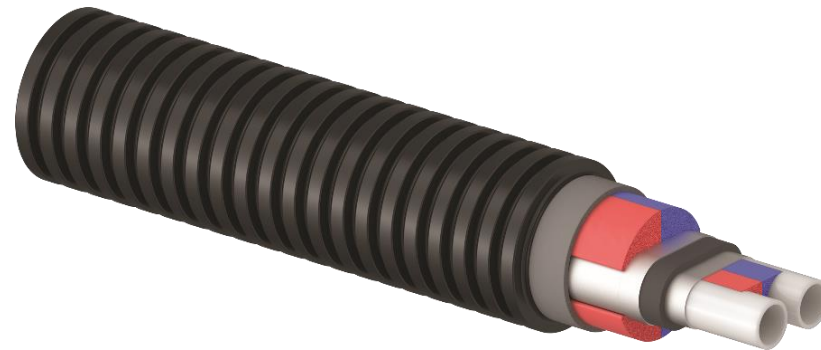


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Uponor Ecoflex VIP Thermo Twin 2.0

Uponor Corporation



EPD HUB, HUB-4109

Published on 12.10.2025, last updated on 12.10.2025, valid until 12.04.2027

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
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
Sector	Construction product
Category of EPD	Design phase EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Dr. Shima Holder Hjort
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub

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 Ecoflex VIP Thermo Twin 2.0
Place(s) of raw material origin	Germany, Sweden
Place of production	Industriestraße 56, 97437 Hassfurt, Germany
Place(s) of installation and use	Europe
Period for data	2024 (calendar year)
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
A1-A3 Specific data (%)	50,4

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3,61E+00
GWP-total, A1-A3 (kgCO ₂ e)	3,61E+00
Secondary material, inputs (%)	3,06
Secondary material, outputs (%)	2,93
Total energy use, A1-A3 (kWh)	15,8
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

The European Union's ambitious sustainability and decarbonization goals call for energy-efficient and cost-effective solutions for local and district heating. However, the complexity of installation has slowed down the adoption of high-performance alternatives. Additionally, the decline in skilled labor and rising installation costs require more flexible and easier-to-install solutions.

Uponor Ecoflex VIP 2.0 is the second generation of Ecoflex VIP pipes and introduces the most efficient heat distribution pipe ever, designed for medium-to-large sized local heat distribution network applications where the outer pipe size reduction is vital. By leveraging cutting-edge Vacuum Insulated Panel (VIP) technology, this innovation delivers unmatched thermal performance with a significantly smaller outer pipe diameter, making installation faster, easier and more sustainable.

Uponor Ecoflex VIP Thermo Single 2.0 and Twin 2.0 pre-insulated pipes are for local district heating, installed into ground of residential areas for heating and cooling application networks. The product consists of EVAL PEX-a

medium pipe(s). Twin pipes are separated by a cut center profile PE insulation, covered by VIP and several layers of PEX foam insulation and a corrugated HDPE casing/jacket pipe.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0,34	EU
Minerals	14,39	EU
Fossil materials	84,26	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

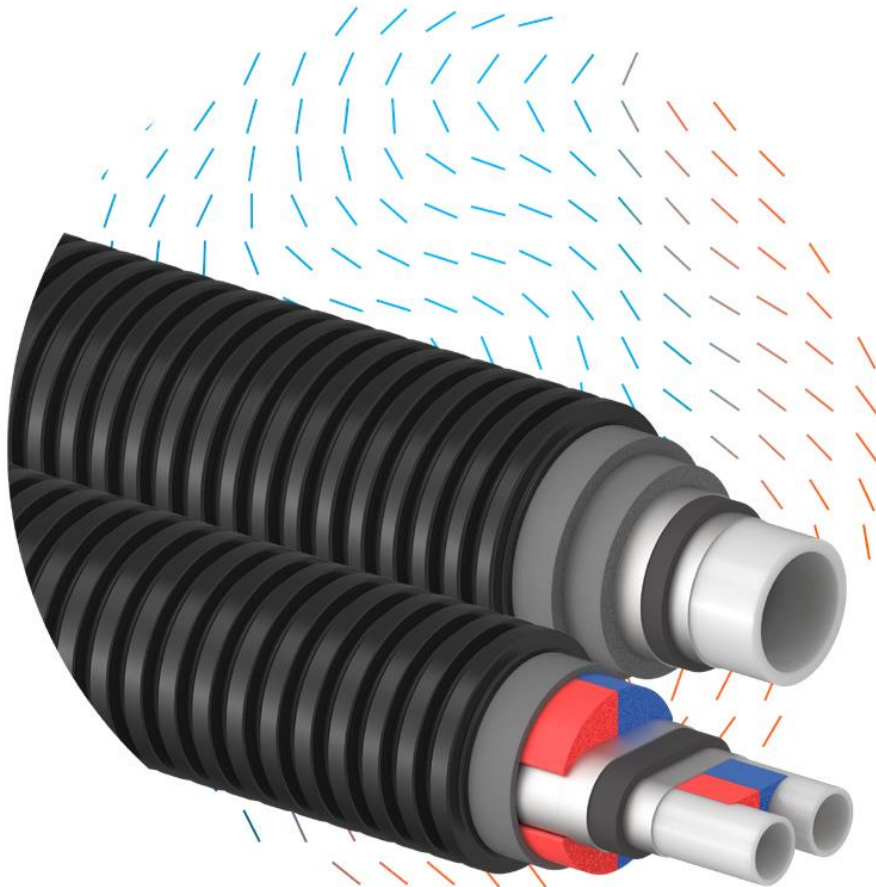
Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	-

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.

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

Raw materials are transported by large trucks with an average transport distance of 1050km.

Production losses are any raw material or finished product that is unsuitable due to contamination or failure to meet quality standards and cannot be reworked or recycled for reuse in Ecoflex VIP 2.0 production. Product-related production losses are sorted and sent to an external recycling (50%) or waste-to-energy (50%) facility located approximately 50 km away. Other production wastes are packaging related wastes which are sent to incineration facilities approximately 50km away. All A3 waste quantities are calculated by allocation of waste mass as percentage of the produced yearly total factory mass.

The production method is the pre-insulation of medium polyethylene pipe(s) by wrapping VIP and several PEX foam layers around the medium pipe(s) and extrude a corrugated polyethylene casing/ jacket pipe around the last foam layer.

The different stages are:

- supporting the media pipe(s) in the machine
- wrapping VIP panel
- wrapping foam layer(s)
- melting foam layers together
- extruding corrugated jacket pipe
- printing marking on jacket pipe
- cooling jacket pipe
- coiling the pipe
- cutting the pipe
- binding the pipe coil
- packaging and labelling the pipe coil

The finished pipe coil is packed with several layers of stretch foil. The meters of pipes on the coil differ depending on the pipe diameter.

100% wind medium voltage electricity is used for manufacturing and natural gas is used for heating. 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 sites primarily in Europe is based on annual analysis of identical and similar products. Transportation is done with lorries (>32 metric tons, Euro 5) and an average 976km distance. No materials are lost in transportation.

The installation on site is outside buildings in dedicated trenches for local heat distribution systems, for which energy for excavation, stumping and filling the trench has been considered. Water usage for first flushing, testing and cleaning is calculated is also considered.

Installation wastes are packaging-related (packaging film, polyester bands, plastic protectors). These materials are all collected onsite and sent for recycling (50km).

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

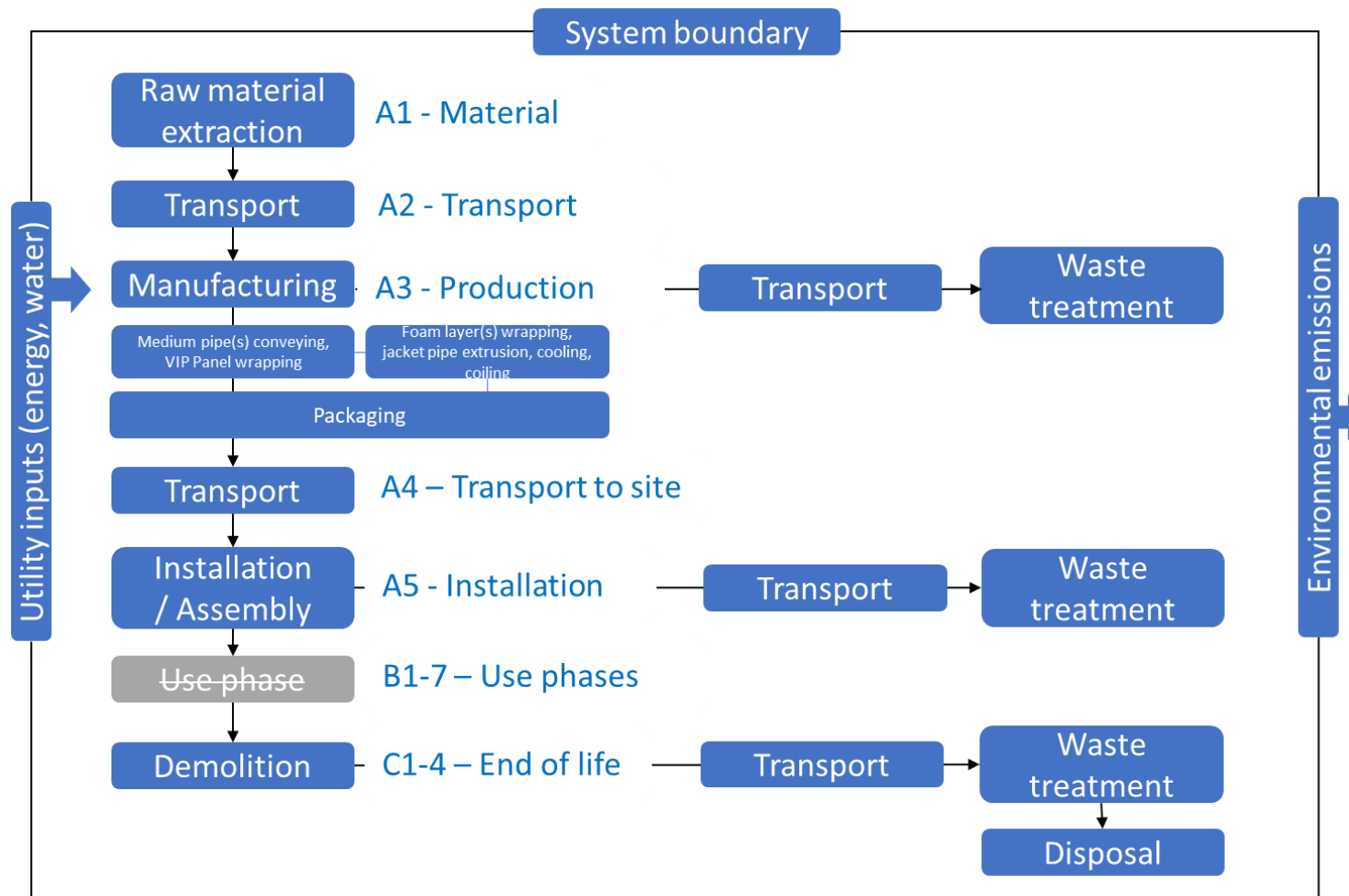
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life scenarios included in the EPD are currently in use and are representative of one of the most likely scenarios. Product end-of-life takes place in Europe.

End-of-life happens in Europe. 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). After ca 100 years of service life 5% of the end-of-life product is assumed to be sent to the closest treatment facilities (C2). The collected 5% from the demolition site is sent to incineration (C3), whereas the remaining 95% is left inert under the ground (C4). Beyond the system boundaries (D), loads and benefits for the treatment of the product and packaging wastes by recycling, and waste wood packaging by incineration into energy have been studied and considered.

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.

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.

The study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012+A2:2019 and RTS 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 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.

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, %	Not applicable

This EPD is product and factory specific.

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, 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 ₂ e	3,45E+00	9,84E-02	6,39E-02	3,61E+00	1,05E-01	1,38E-01	MND	MND	MND	MND	MND	MND	MND	3,37E-06	2,69E-04	1,19E-01	1,45E-02	5,17E-03
GWP – fossil	kg CO ₂ e	3,45E+00	9,84E-02	6,39E-02	3,61E+00	1,05E-01	1,38E-01	MND	MND	MND	MND	MND	MND	MND	3,35E-06	2,69E-04	1,19E-01	1,45E-02	5,32E-03
GWP – biogenic	kg CO ₂ e	-1,09E-03	2,23E-05	1,24E-05	-1,05E-03	2,39E-05	1,69E-04	MND	MND	MND	MND	MND	MND	MND	4,08E-09	6,10E-08	-7,03E-06	-2,21E-05	-6,95E-05
GWP – LULUC	kg CO ₂ e	2,82E-03	4,40E-05	1,29E-05	2,88E-03	4,71E-05	2,41E-05	MND	MND	MND	MND	MND	MND	MND	7,98E-09	1,20E-07	9,21E-07	4,30E-05	-8,10E-05
Ozone depletion pot.	kg CFC-11e	2,98E-07	1,45E-09	2,10E-08	3,21E-07	1,56E-09	2,52E-09	MND	MND	MND	MND	MND	MND	MND	3,57E-14	3,97E-12	4,39E-11	2,68E-10	-9,48E-10
Acidification potential	mol H ⁺ e	1,16E-02	3,35E-04	7,13E-05	1,20E-02	3,59E-04	1,16E-03	MND	MND	MND	MND	MND	MND	MND	3,84E-08	9,18E-07	2,71E-05	8,70E-05	-7,89E-04
EP-freshwater ²⁾	kg Pe	3,78E-04	7,66E-06	4,12E-06	3,90E-04	8,20E-06	8,91E-06	MND	MND	MND	MND	MND	MND	MND	2,95E-09	2,09E-08	3,71E-07	6,17E-06	-5,61E-05
EP-marine	kg Ne	2,38E-03	1,10E-04	1,77E-05	2,51E-03	1,18E-04	5,36E-04	MND	MND	MND	MND	MND	MND	MND	4,62E-09	3,01E-07	1,54E-05	2,83E-05	-9,29E-05
EP-terrestrial	mol Ne	2,48E-02	1,20E-03	1,73E-04	2,61E-02	1,28E-03	5,78E-03	MND	MND	MND	MND	MND	MND	MND	5,11E-08	3,28E-06	1,31E-04	3,05E-04	-9,94E-04
POCP (“smog”) ³⁾	kg NMVOCe	1,35E-02	4,94E-04	9,32E-05	1,41E-02	5,30E-04	1,76E-03	MND	MND	MND	MND	MND	MND	MND	1,65E-08	1,35E-06	3,30E-05	1,06E-04	-3,22E-04
ADP-minerals & metals ⁴⁾	kg Sbe	1,78E-05	2,74E-07	1,64E-07	1,82E-05	2,94E-07	1,04E-07	MND	MND	MND	MND	MND	MND	MND	3,97E-10	7,51E-10	8,54E-09	4,35E-08	-5,75E-08
ADP-fossil resources	MJ	7,83E+01	1,43E+00	4,35E-01	8,02E+01	1,53E+00	1,79E+00	MND	MND	MND	MND	MND	MND	MND	3,76E-05	3,90E-03	2,32E-02	2,32E-01	-1,38E+00
Water use ⁵⁾	m ³ e depr.	1,03E+00	7,05E-03	6,50E-03	1,04E+00	7,55E-03	8,84E-03	MND	MND	MND	MND	MND	MND	MND	1,28E-06	1,93E-05	7,83E-03	1,18E-03	-1,02E-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	1,06E-07	9,85E-09	7,29E-10	1,17E-07	1,06E-08	3,25E-08	MND	MND	MND	MND	MND	MND	MND	3,36E-13	2,69E-11	1,40E-10	1,64E-09	-7,93E-09
Ionizing radiation ⁶⁾	kBq 11235e	3,18E-01	1,24E-03	1,12E-03	3,20E-01	1,33E-03	2,71E-03	MND	MND	MND	MND	MND	MND	MND	1,51E-07	3,40E-06	4,18E-05	2,03E-04	-1,50E-02
Ecotoxicity (freshwater)	CTUe	4,00E+01	2,02E-01	1,08E-01	4,04E+01	2,16E-01	1,31E-01	MND	MND	MND	MND	MND	MND	MND	4,44E-05	5,52E-04	2,34E-01	1,34E-01	4,67E-02
Human toxicity, cancer	CTUh	1,20E-09	1,62E-11	8,24E-12	1,23E-09	1,74E-11	2,20E-11	MND	MND	MND	MND	MND	MND	MND	5,70E-15	4,44E-14	1,01E-11	4,49E-12	-1,19E-11
Human tox. non-cancer	CTUh	8,55E-08	9,24E-10	2,85E-10	8,67E-08	9,90E-10	3,72E-10	MND	MND	MND	MND	MND	MND	MND	3,17E-13	2,53E-12	3,56E-10	2,10E-10	-5,72E-10
SQP ⁷⁾	-	9,88E+00	1,44E+00	8,25E-02	1,14E+01	1,54E+00	1,65E-01	MND	MND	MND	MND	MND	MND	MND	3,49E-05	3,93E-03	6,53E-03	2,99E-01	-7,64E-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	4,70E+00	1,96E-02	4,38E-01	5,16E+00	2,10E-02	3,27E-02	MND	MND	MND	MND	MND	MND	MND	3,90E-04	5,35E-05	9,52E-04	3,46E-03	-2,69E-01
Renew. PER as material	MJ	7,01E-02	0,00E+00	0,00E+00	7,01E-02	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-3,50E-03	-6,66E-02	0,00E+00
Total use of renew. PER	MJ	4,77E+00	1,96E-02	4,38E-01	5,23E+00	2,10E-02	3,27E-02	MND	MND	MND	MND	MND	MND	MND	3,90E-04	5,35E-05	-2,55E-03	-6,31E-02	-2,69E-01
Non-re. PER as energy	MJ	5,07E+01	1,43E+00	-2,60E-01	5,19E+01	1,53E+00	1,69E+00	MND	MND	MND	MND	MND	MND	MND	3,77E-05	3,91E-03	-1,79E+00	2,33E-01	-3,19E+00
Non-re. PER as material	MJ	3,70E+01	0,00E+00	1,03E-01	3,71E+01	0,00E+00	-1,03E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,85E+00	-3,51E+01	0,00E+00
Total use of non-re. PER	MJ	8,77E+01	1,43E+00	-1,57E-01	8,90E+01	1,53E+00	1,58E+00	MND	MND	MND	MND	MND	MND	MND	3,77E-05	3,91E-03	-3,64E+00	-3,49E+01	-3,19E+00
Secondary materials	kg	3,06E-02	6,08E-04	2,61E-04	3,15E-02	6,51E-04	2,84E-03	MND	MND	MND	MND	MND	MND	MND	2,05E-07	1,66E-06	2,11E-05	9,79E-05	-1,24E-04
Renew. secondary fuels	MJ	1,49E-03	7,72E-06	5,15E-06	1,51E-03	8,27E-06	5,49E-06	MND	MND	MND	MND	MND	MND	MND	7,94E-10	2,11E-08	6,92E-07	1,41E-06	-1,67E-08
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	2,88E-02	2,11E-04	1,40E-04	2,91E-02	2,26E-04	1,88E-04	MND	MND	MND	MND	MND	MND	MND	3,60E-08	5,77E-07	1,34E-04	-1,09E-03	-8,65E-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	1,37E-01	2,42E-03	1,70E-03	1,41E-01	2,59E-03	3,81E-03	MND	MND	MND	MND	MND	MND	MND	5,76E-07	6,62E-06	2,05E-03	4,35E-04	-7,66E-03
Non-hazardous waste	kg	1,74E+01	4,48E-02	9,51E-02	1,76E+01	4,79E-02	4,74E-01	MND	MND	MND	MND	MND	MND	MND	1,44E-05	1,22E-04	5,53E-02	1,50E+00	-2,20E-01
Radioactive waste	kg	2,52E-03	3,04E-07	2,81E-07	2,52E-03	3,26E-07	6,86E-07	MND	MND	MND	MND	MND	MND	MND	3,79E-11	8,33E-10	1,06E-08	4,96E-08	-3,84E-06

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	1,62E-02	0,00E+00	6,45E-03	2,27E-02	0,00E+00	3,16E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	1,48E-04	0,00E+00	9,34E-03	9,49E-03	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	5,00E-02	0,00E+00	0,00E+00
Exported energy	MJ	7,37E-02	0,00E+00	0,00E+00	7,37E-02	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
Exported energy – Electricity	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
Exported energy – Heat	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

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 ₂ e	3,45E+00	9,84E-02	6,39E-02	3,61E+00	1,05E-01	1,38E-01	MND	MND	MND	MND	MND	MND	MND	3,36E-06	2,69E-04	1,19E-01	1,45E-02	5,24E-03

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.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity production, wind, 1-3MW turbine, onshore, Reference product: electricity, high voltage; Ecoinvent 3.10.1
Electricity CO2e / kWh	0,021
District heating data source and quality	Heat production, natural gas, at boiler fan burner low-NOx non-modulating <100kW (Reference product: heat, central or small-scale, natural gas); Ecoinvent 3.10.1
District heating CO2e / kWh	0,023

Transport scenario documentation A4

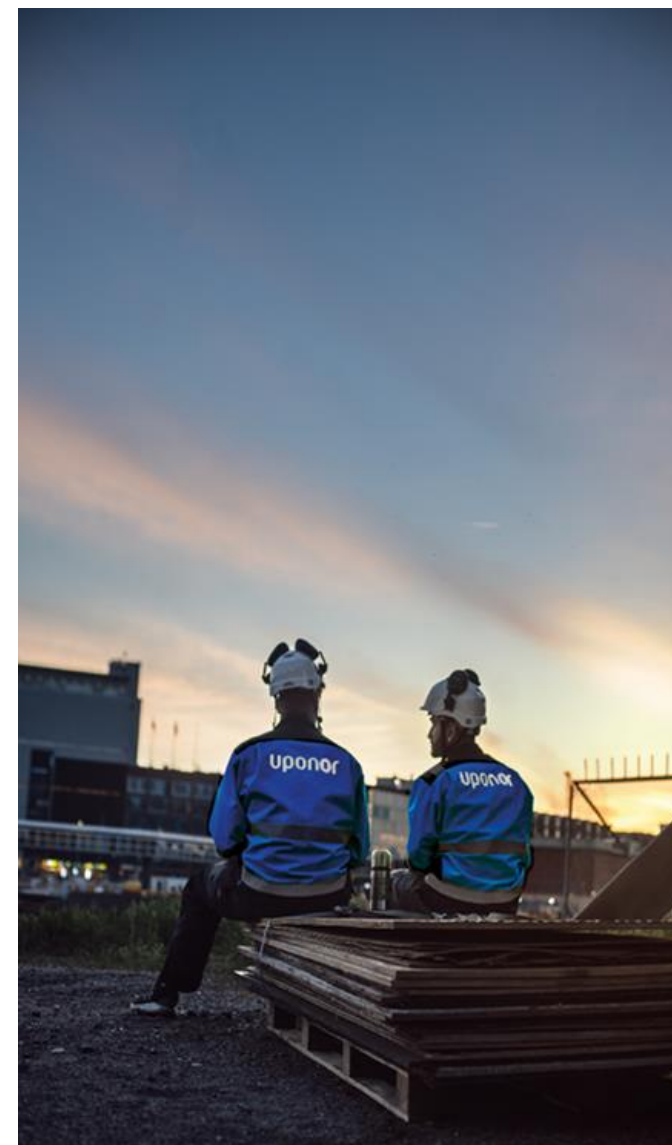
Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Market for transport, freight, lorry >32 metric ton, EURO5
Average transport distance, km	976
Capacity utilization (including empty return), %	100
Bulk density of transported products	70 (average)
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	-
Water use, m ³	0,00037
Other resource use, kg	Steel: 0,0037
Quantitative description of energy type (regional mix) and consumption during the installation process, kWh	Market group for electricity, low voltage (Reference product: electricity, low voltage): 0,0012 Diesel, burned in building machine (Reference product: diesel, burned in building machine): 0,036
Waste materials on the building site before waste processing, generated by the product's installation (specified by type), kg	Stretch Film: 0,00011 Straps: 0,0013 End Caps: 0,0017
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	kg recycled as material; recycled as energy (incineration); disposed (landfilled): Stretch film:0,00011;0;0 Straps:0,0013;0;0 Endcaps:0,0017;0;0
Direct emissions to ambient air, soil and water / kg	-

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	-
Collection process – kg collected with mixed waste	0,05
Recovery process – kg for re-use	-
Recovery process – kg for recycling	-
Recovery process – kg for energy recovery	0,05
Disposal (total) – kg for final desposition	0,95
Scenario assumptions, e.g. transporation	Market for transport, freight, lorry >32 metric ton, EURO5; 50 km



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 is not able to identify any unjustified deviations from the PCR and EN 15802+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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited
12.10.2025

