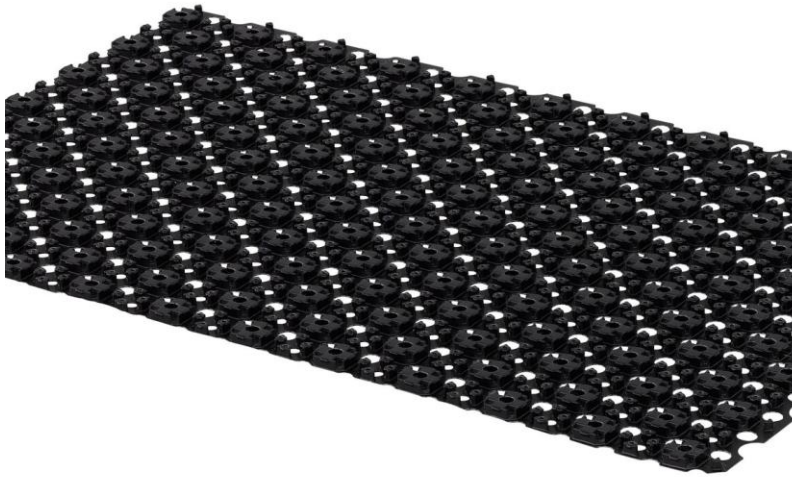
ENVIRONMENTAL PRODUCT DECLARATION

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

Uponor Minitec nubfoil
Uponor Corporation



EPD HUB, HUB-2801
Publishing date 21 March 2025, last updated on 21 March 2025, valid until 20 March 2030.

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+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

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 Minitec nubfoil
Additional labels	-
Product reference	1047318, 1083866, 1005261, A5090313, optional other numbers with only different quantities of described Minitec nubfoil
Place of production	Am Langenhorster Bahnhof 2, 48607 Ochtrup, Germany
Period for data	Calendar year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	9,90E+00
GWP-total, A1-A3 ($kgCO_2e$)	9,61E+00
Secondary material, inputs (%)	0,91
Secondary material, outputs (%)	70,2
Total energy use, A1-A3 (kWh)	18,9
Net freshwater use, A1-A3 (m^3)	0,08

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 Minitec is the solution for underfloor heating on existing screed, timber or tiled floors to fix the.pipes
It has an installation height of only 15mm and consists of the described selfadhesive foil element and additional Uponor Comfort Pipe PE-Xa 9.9mm. Minitec is optimised for near-surface underfloor heating in residential buildings.

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	0,0822792

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.

In a first step, an extruded polystyrene film with a recycled content of >60% is produced.
This is thermoformed into a structured so-called nub-foil or castellated panel. Product markings such as approval marks are applied directly in relief. In addition, holes are punched at certain points to allow thin-layer screed materials to flow into the entire volume on the construction site.
In the final production step, the glue is applied to the back for non-load-bearing fixation on the unfinished floor and a protective film is applied.
There are several quality controls and test procedures along the production line and offline to ensure the expected high quality.
In final step, the ready-to-use panels are packed in cardboard boxes and on pallets.

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.

Average distance to installation site is calculated on European average shipped from German central warehouse.
As the Minitec underfloor heating fixation panels can be cut and also used in small dimensions/paces, 1% of installation loss is calculated.
The installation of Minitec panels to the underground is done manually with no mechanical/electrical tools except a cutter, thus energy consumptions is calculated zero. For better understanding, please see our public installaton videos an site reports.
Construction waste is 1% of product, cardboard boxes and protection foil calculated to go to local recycling by 50km distance each. All pallets are EU pallets, calculated to be chipped after 120 uses.

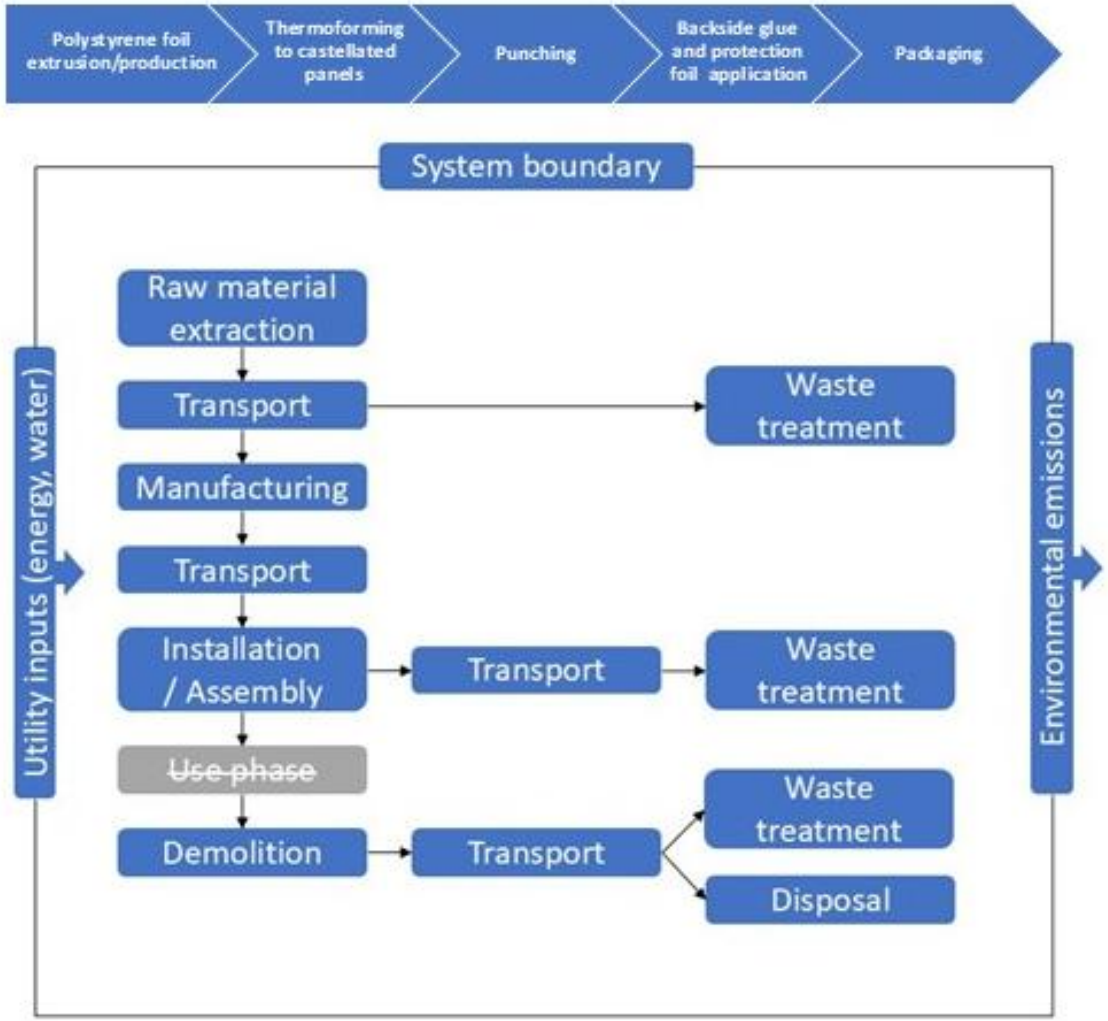
PRODUCT USE AND MAINTENANCE (B1-B7)

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)

As the consumption of energy and natural resources for the dismantling of the old product (a structural compound of Minitec elements and at least one hardened, predominantly cementitious screed compound and possibly other materials) is negligible or cannot be separated by calculation, the impact of demolition is assumed to be zero (C1). It is assumed that the collected product will be sent to the nearest treatment facilities after a service life of approx. 50 years (C2). It is assumed that 30% of the old product will be sent to a construction waste landfill and 70% to an incineration plant. recycling plant (C3, C4). Due to the recycling of polystyrene and glue components, the end-of-life product is converted into incinerated PS (D).

MANUFACTURING PROCESS AND SYSTEM BOUNDARIES



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_2e	9,52E+00	3,44E-02	4,66E-02	9,61E+00	4,05E-01	4,47E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,41E-03	2,44E+00	0,00E+00	1,22E+00
GWP – fossil	kg CO_2e	9,52E+00	3,44E-02	3,45E-01	9,90E+00	4,04E-01	1,48E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,40E-03	2,44E+00	0,00E+00	1,22E+00
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-2,99E-01	-2,99E-01	0,00E+00	2,99E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO_2e	2,45E-03	1,27E-05	1,11E-03	3,57E-03	1,14E-04	5,03E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,49E-06	3,41E-06	0,00E+00	-3,96E-05
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,17E-05	7,93E-09	1,96E-08	1,17E-05	9,28E-08	1,19E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,51E-09	9,66E-10	0,00E+00	-3,21E-08
Acidification potential	mol H^+e	1,85E-02	1,45E-04	1,65E-03	2,03E-02	1,83E-03	2,85E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,09E-05	1,94E-03	0,00E+00	-1,81E-03
EP-freshwater[2)]	kg Pe	1,08E-04	2,79E-07	1,45E-05	1,23E-04	2,54E-06	1,57E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,43E-08	5,39E-08	0,00E+00	-1,20E-05
EP-marine	kg Ne	2,98E-03	4,33E-05	4,58E-04	3,48E-03	5,85E-04	6,45E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,58E-06	8,87E-04	0,00E+00	2,08E-04
EP-terrestrial	mol Ne	3,27E-02	4,77E-04	4,08E-03	3,72E-02	6,43E-03	6,59E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	5,09E-05	9,59E-03	0,00E+00	1,15E-03
POCP ("smog")[3)]	kg NMVOCe	1,49E-02	1,53E-04	1,53E-03	1,66E-02	1,91E-03	2,52E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,97E-05	5,07E-03	0,00E+00	4,89E-03
ADP-minerals & metals[4)]	kg Sbe	2,21E-05	8,06E-08	2,01E-06	2,42E-05	7,10E-07	3,65E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,56E-08	1,10E-08	0,00E+00	6,06E-06
ADP-fossil resources	MJ	8,90E+01	5,17E-01	7,84E+00	9,74E+01	5,93E+00	1,15E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,00E-01	7,44E-02	0,00E+00	4,19E+01
Water use[5)]	m^3e depr.	3,10E+00	2,32E-03	2,33E-01	3,33E+00	2,18E-02	4,08E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,48E-04	1,93E-02	0,00E+00	1,98E+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	2,02E-07	3,97E-09	2,23E-08	2,29E-07	3,48E-08	6,95E-09	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,28E-10	1,59E-07	0,00E+00	-5,84E-10
Ionizing radiation[6)]	kBq U235e	1,78E-01	2,47E-03	2,65E-02	2,07E-01	2,79E-02	3,20E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,80E-04	3,61E-04	0,00E+00	-7,14E-02
Ecotoxicity (freshwater)	CTUe	4,58E+01	4,63E-01	7,61E+00	5,38E+01	4,79E+00	1,52E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,92E-02	5,44E+01	0,00E+00	-1,80E+01
Human toxicity, cancer	CTUh	1,64E-09	1,14E-11	5,19E-10	2,17E-09	1,07E-10	6,81E-11	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,18E-12	1,11E-08	0,00E+00	3,38E-10
Human tox. non-cancer	CTUh	2,99E-08	4,60E-10	4,12E-09	3,45E-08	5,25E-09	9,10E-10	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,59E-11	8,42E-08	0,00E+00	-2,88E-09
SQP[7)]	-	6,51E+00	5,96E-01	2,95E+01	3,66E+01	5,26E+00	5,82E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,15E-01	1,79E-01	0,00E+00	-9,84E+00

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	2,07E+00	5,87E-03	8,60E+00	1,07E+01	5,39E-02	1,15E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,13E-03	1,41E-03	0,00E+00	-2,25E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	2,63E+00	2,63E+00	0,00E+00	-2,63E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,07E+00	5,87E-03	1,12E+01	1,33E+01	5,39E-02	-2,51E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,13E-03	1,41E-03	0,00E+00	-2,25E+00
Non-re. PER as energy	MJ	5,23E+01	5,17E-01	4,59E+00	5,74E+01	5,93E+00	7,54E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,00E-01	7,44E-02	0,00E+00	1,48E+01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	3,23E+00	3,23E+00	0,00E+00	-3,23E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	5,23E+01	5,17E-01	7,83E+00	6,06E+01	5,93E+00	-2,48E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,00E-01	7,44E-02	0,00E+00	1,48E+01
Secondary materials	kg	9,06E-03	1,44E-04	9,52E-02	1,04E-01	1,29E-03	1,37E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,78E-05	2,65E-05	0,00E+00	1,74E-03
Renew. secondary fuels	MJ	2,02E-03	1,44E-06	9,63E-02	9,83E-02	1,32E-05	9,85E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,81E-07	1,02E-06	0,00E+00	7,03E-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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	7,33E-02	6,71E-05	5,75E-03	7,91E-02	6,25E-04	8,60E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,30E-05	7,95E-05	0,00E+00	3,87E-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	1,48E-01	6,78E-04	2,00E-02	1,69E-01	6,26E-03	2,77E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,32E-04	0,00E+00	0,00E+00	-6,18E-02
Non-hazardous waste	kg	2,47E+00	1,12E-02	4,29E-01	2,91E+00	1,01E-01	1,97E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,17E-03	3,01E-01	0,00E+00	-4,66E+00
Radioactive waste	kg	9,54E-05	3,46E-06	1,08E-05	1,10E-04	4,05E-05	1,91E-06	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,76E-07	0,00E+00	0,00E+00	-3,78E-05

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	5,00E-04	5,00E-04	0,00E+00	2,34E-01	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	0,00E+00	0,00E+00	2,46E-03	2,46E-03	0,00E+00	1,00E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,02E-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	3,40E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	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_2e	8,44E+00	3,40E-02	3,39E-01	8,82E+00	4,01E-01	1,44E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,34E-03	2,35E+00	0,00E+00	1,07E+00
Ozone depletion Pot.	kg CFC_{-11}e	1,44E-05	6,28E-09	1,63E-08	1,45E-05	7,35E-08	1,46E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,19E-09	7,67E-10	0,00E+00	-9,15E-09
Acidification	kg SO_2e	1,55E-02	1,13E-04	1,30E-03	1,69E-02	1,40E-03	2,33E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,69E-05	1,38E-03	0,00E+00	-1,66E-03
Eutrophication	kg PO_4^3e	3,44E-03	2,57E-05	6,42E-04	4,11E-03	3,04E-04	3,92E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,70E-06	2,16E-03	0,00E+00	-9,98E-04
POCP (“smog”)	kg C_2H_4e	1,31E-03	4,41E-06	1,59E-04	1,48E-03	4,63E-05	2,12E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,80E-07	1,66E-03	0,00E+00	6,54E-04
ADP-elements	kg Sbe	2,14E-05	7,81E-08	1,99E-06	2,35E-05	6,88E-07	3,56E-07	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,52E-08	1,07E-08	0,00E+00	5,91E-06
ADP-fossil	MJ	8,90E+01	5,17E-01	7,83E+00	9,74E+01	5,93E+00	1,15E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,00E-01	7,44E-02	0,00E+00	4,19E+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_2e	9,52E+00	3,44E-02	3,46E-01	9,90E+00	4,05E-01	1,48E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,41E-03	2,44E+00	0,00E+00	1,22E+00

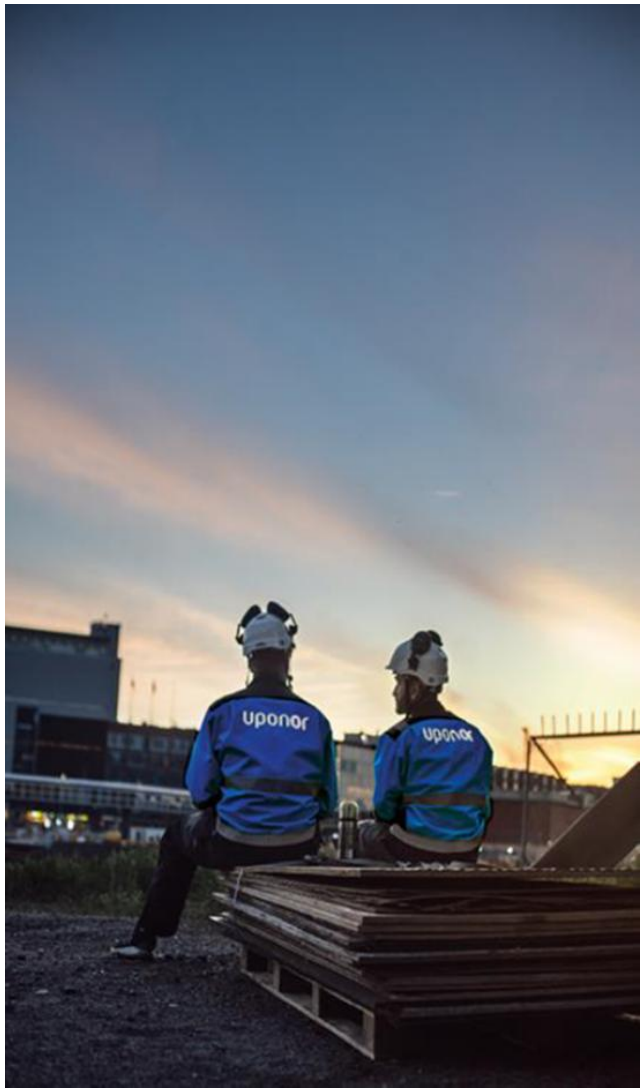
9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated 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_2e	8,50E+00	3,41E-02	3,31E-01	8,87E+00	3,08E-01	1,42E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	6,34E-03	2,37E+00	0,00E+00	9,77E-01
Ozone Depletion	kg CFC_{-11}e	1,86E-06	6,28E-09	1,62E-08	1,88E-06	7,34E-08	2,04E-08	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,19E-09	7,66E-10	0,00E+00	-7,26E-09
Acidification	kg SO_2e	8,11E-01	6,92E-03	7,35E-02	8,91E-01	6,75E-02	1,30E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,46E-04	1,25E-01	0,00E+00	-7,61E-02
Eutrophication	kg Ne	1,02E-03	1,45E-05	2,06E-04	1,24E-03	1,57E-04	2,59E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,34E-06	1,16E-04	0,00E+00	3,60E-04
POCP (“smog”)	kg O_3e	8,18E-03	1,12E-04	1,07E-03	9,37E-03	1,03E-03	1,57E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,19E-05	4,31E-03	0,00E+00	1,16E-03
ADP-fossil	MJ	1,15E+01	7,07E-02	9,56E-01	1,25E+01	8,24E-01	1,46E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,37E-02	9,85E-03	0,00E+00	6,96E+00

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	€	7,82E-01	4,51E-03	6,51E-02	8,52E-01	4,82E-02	2,90E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	8,28E-04	1,30E+01	0,00E+00	2,72E-02
Terrestrial ecotoxicity	DCB eq	1,08E-02	1,00E-04	2,27E-03	1,32E-02	1,01E-03	7,53E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,94E-05	4,90E-01	0,00E+00	1,11E-04
Seawater ecotoxicity	DCB eq	1,00E+03	5,30E+00	1,16E+02	1,13E+03	5,10E+01	1,88E+01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,03E+00	1,29E+03	0,00E+00	-5,15E+02
Freshwater ecotoxicity	DCB eq	2,58E-02	5,92E-04	7,49E-03	3,38E-02	5,98E-03	1,96E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,14E-04	1,09E+00	0,00E+00	-2,42E-03
Human ecotoxicity	DCB eq	1,72E+00	1,69E-02	2,70E-01	2,01E+00	1,55E-01	1,70E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,26E-03	1,40E+02	0,00E+00	4,05E-01
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,40E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,00E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADP Fossil Fuels	kg Sbe	4,28E-02	2,49E-04	3,77E-03	4,68E-02	2,85E-03	5,55E-04	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,83E-05	3,58E-05	0,00E+00	2,01E-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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
21.03.2025