

ENVIRONMENTAL PRODUCT DECLARATION

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

Ultra Classic, Ultra Double Pipes
Uponor Corporation



EPD HUB, HUB-0561

Publishing date 7 July 2023, last updated on 7 July 2023, valid until 7 July 2028

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Uponor Corporation
Address	Äyritie 20, 01510 Vantaa, 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 1.0, 1 Feb 2022
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	Dr. Qian Wang, Uponor Corporation
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input type="checkbox"/> External verification
EPD verifier	Haiha Nguyen, 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	Ultra Classic, Ultra Double Pipes
Additional labels	Ultra Classic, Ultra Double Pipes
Product reference	1056763 1056764 1056765 1056766 1056767 1056768 1056769 1056770 1056771 1056772 1056773 1056774 1056775 1056776 1056777 1056778 1056779 1059440 1059441 1059442 1060628 1060629 1060630 1060631 1060632 1060633 1058710 1058711 1058712 1058713 1058714 1058715 1057889 1057890 1057891 1057892 1057894
Place of production	Uponor Infra Oy, Kouvolaantie 365, 15550 Nastola, Finland Uponor Infra Ab, Industrivägen 11, 513 32 Fristad, Sweden Jita Oy, Lakarintie 10, 34800 Virrat, Finland
Period for data	2021
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	N/A

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of pipe
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	2,2E0
GWP-total, A1-A3 (kgCO ₂ e)	2,11E0
Secondary material, inputs (%)	0.386
Secondary material, outputs (%)	5.0
Total energy use, A1-A3 (kWh)	8.03
Total water use, A1-A3 (m ³ e)	4,99E-3

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

As one of the leading suppliers of plastic pipe systems, Uponor attaches great importance to product development. Ultra Group pipes are smooth pipe system for gravity sewer applications, include Ultra Classic and Ultra Double. The structural wall design is developed for impact-resistant and durable pipes with very good properties. Like all plastic pipes, Ultra Classic offers good ergonomics and simplicity in handling and installation. The inner and outer layers of the pipe are made of solid Polypropylene (PP), while the middle layer consists of PP containing microbubbles. The product consists of the following materials 99% polypropylene and 1% additives. Outer layer of the pipe is black with two stripes and inner layer is white for easier inspection. The pipe has an in-line socket, which is a solid part of the pipe and is produced on extrusion production line. The in-line socket reduces the number of joints needed by 50%. Conversions to 1 m are provided in the annex.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
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	-
Biogenic carbon content in packaging, kg C	0.0002

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of pipe
Mass per declared unit	1 kg

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	Decommissioning	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.



Manufacturing and Packaging
 The production method is a pipe extrusion with in-line socketing. Socket and pipe of same material. The different stages are:

- Material conveying
- Extrusion (melting and processing of material)

- Pipe profile corrugation
- Cooling
- Cutting
- Packing

The finished product is packed on a wooden U-frame with a wooden lath on top of it. The amount of pipes on a frame differs depending on the pipe diameter. Pipes with diameter 800mm and bigger are not packed. The wooden frame has a nail plate on the edge to strengthen the structure as well as a plastic (NA) or steel band (FR) around to tighten the package. Differences in packaging can occur.

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.

Transportation impacts from final products delivery to construction site cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions. 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 installation scenarios in Uponor’s infrastructure product EPDs are based on TEPPFA’s (The European Plastic Pipe and Fittings Association) industry average EPDs. These documents and their background reports include industry consensus estimates of the resource use, emissions and affluents of typical European installations, including the size of installation trenches, machinery used for digging/excavation, volume of backfilling sand required for the installation, etc. These parameters have been used as input for the Uponor EPD modelling. Ref: <https://www.teppfa.eu/sustainability/environmental-footprint/epd/>

Transportation impacts from final products delivery to construction site cover direct exhaust emissions of fuel, environmental impacts of fuel production, as well as related infrastructure emissions

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. 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). 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 recycling (C3), whereas the remaining 95% is left inert under the ground (C4). Due to the recycling of PP, the end-of-life product is converted into recycled PP (D).



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. In this study, as per the reference standard, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

As it is impossible to collect all energy consumption data separately for each product produced in the plant, data is allocated. Allocation is based on annual production rate and made with high accuracy and precision. The values for 1 kg of the product, which is used within this study is calculated by considering the total product weight per annual production. In the factory, several kinds of pipes are produced; since the production processes of these products are similar, the annual production percentage is taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total fuel consumption, consumed water and the

generated waste per the declared product are allocated. Subsequently, the product output fixed to 1 kg and the corresponding amount of product is used in the calculations. Besides, since the formulation of the product is certain, raw materials in the product do not need to be allocated considering the total annual production. The amounts of raw materials and packaging materials are given as per the formulations in Uponor's internal Bills of Material and the purchased amounts from the respective suppliers. This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs. All estimations and assumptions are given below:

- Module A4: The transportation distance is defined according to the standards. As installation places are located at different places around Sweden and Finland, an average transportation distance from the production plants is assumed to be 400 km. Transportation method is lorry. According to Uponor transportation doesn't cause losses as products are packaged properly. Also, volume capacity utilisation factor is assumed to be 1 for the nested packaged products.
- Module A5: Environmental impacts from installation include standardized energy and materials need, waste packaging materials (A5) and release of biogenic carbon dioxide from wood pallets. The impacts of material production, its processing and its disposal as installation waste are also included. The modelling of A5 is based on the references of well-established industry standards (TEPPFA industry average EPD) [TEPPFA, 2020], which is installation-wise closest to this product group.
- Module C1: The impacts of demolition stage are assumed zero, since the consumption of energy and natural resources for disassembling of the end-of-life product is negligible.
- Module C2: It is estimated that there is no mass loss during the use of the product, therefore the end-of-life product is assumed to have the same weight as the declared product. 5% waste is assumed to be collected from the demolition site. Since there is no follow up procedure, transportation distance to the closest disposal area is estimated as 50 km and the transportation method is assumed to be lorry, which is the most common.

- Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed to be 1 which means full load. In reality, it may vary but as role of transportation emission in total results is small and so the variety in load assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by transportation companies to serve needs of other clients.
- Module C3: It is assumed that 5% of the waste is recycled and 95% is left inert under the ground. While making this assumption, TEPFFA's Third Party Report from year 2013 is taken into account.
- Module C4: 95% of the product is left inert under the ground. While making this assumption, TEPFFA's Third Party Report from year 2013 is taken into account
- Module D: Due to the recycling process part of the end-of-life product is converted into a recycled PP raw material.

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. Ecoinvent and One Click LCA databases were used 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	2E0	1,91E-1	2,29E-3	2,19E0	5,35E-2	1,19E-1	MND	MND	MND	MND	MND	MND	MND	2,58E-6	3,19E-4	5,41E-3	6,21E-3	-5,67E-2
GWP – fossil	kg CO ₂ e	1,99E0	1,91E-1	2,96E-3	2,18E0	5,4E-2	1,18E-1	MND	MND	MND	MND	MND	MND	MND	2,58E-6	3,19E-4	1,17E-2	6,17E-3	-6,08E-2
GWP – biogenic	kg CO ₂ e	8,98E-3	1,17E-4	-6,72E-4	8,42E-3	3,31E-5	8,47E-4	MND	MND	MND	MND	MND	MND	MND	-1,81E-9	1,95E-7	-6,33E-3	3,68E-5	4,04E-3
GWP – LULUC	kg CO ₂ e	4,89E-4	6,74E-5	1,51E-6	5,58E-4	1,91E-5	1,3E-5	MND	MND	MND	MND	MND	MND	MND	7,42E-9	1,12E-7	1,3E-5	3,26E-6	3,98E-5
Ozone depletion pot.	kg CFC-11e	3,19E-8	4,38E-8	1,14E-10	7,58E-8	1,24E-8	2,48E-8	MND	MND	MND	MND	MND	MND	MND	1,85E-13	7,3E-11	1,49E-9	1,6E-9	8,99E-10
Acidification potential	mol H ⁺ e	6,89E-3	7,87E-4	9,05E-6	7,68E-3	2,22E-4	1,2E-3	MND	MND	MND	MND	MND	MND	MND	3,29E-8	1,31E-6	5,97E-5	4,62E-5	-1,51E-4
EP-freshwater ²⁾	kg Pe	2,84E-5	1,65E-6	7,1E-8	3,01E-5	4,66E-7	6,87E-7	MND	MND	MND	MND	MND	MND	MND	2,81E-10	2,75E-9	3,39E-7	9,8E-8	-9,51E-8
EP-marine	kg Ne	1,15E-3	2,33E-4	1,94E-6	1,39E-3	6,58E-5	5,27E-4	MND	MND	MND	MND	MND	MND	MND	3,72E-9	3,89E-7	2E-5	1,61E-5	-1,27E-5
EP-terrestrial	mol Ne	1,27E-2	2,57E-3	2,13E-5	1,53E-2	7,28E-4	5,78E-3	MND	MND	MND	MND	MND	MND	MND	4,34E-8	4,29E-6	1,77E-4	1,77E-4	-1,88E-4
POCP (“smog”) ³⁾	kg NMVOCe	6,09E-3	8,08E-4	6,93E-6	6,91E-3	2,28E-4	1,59E-3	MND	MND	MND	MND	MND	MND	MND	1,42E-8	1,35E-6	5,8E-5	5,06E-5	-1,73E-4
ADP-minerals & metals ⁴⁾	kg Sbe	1,71E-5	4,76E-6	1,31E-7	2,2E-5	1,35E-6	2,04E-7	MND	MND	MND	MND	MND	MND	MND	2,66E-10	7,95E-9	2,41E-7	1,01E-7	-4,45E-7
ADP-fossil resources	MJ	7,2E1	2,91E0	1,72E-2	7,49E1	8,24E-1	1,61E0	MND	MND	MND	MND	MND	MND	MND	2,92E-5	4,86E-3	1,94E-1	1,19E-1	-3,13E0
Water use ⁵⁾	m ³ e depr.	1,22E0	1,04E-2	6,06E-4	1,23E0	2,93E-3	1,16E-2	MND	MND	MND	MND	MND	MND	MND	1,32E-6	1,73E-5	3,94E-3	3,57E-3	-5,08E-2

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	5,99E-8	1,47E-8	1,22E-10	7,48E-8	4,17E-9	3,17E-8	MND	MND	MND	MND	MND	MND	MND	2,44E-13	2,46E-11	8,91E-10	7,89E-10	6E-12
Ionizing radiation ⁶⁾	kBq U235e	3,54E-2	1,27E-2	4,73E-5	4,82E-2	3,6E-3	6,86E-3	MND	MND	MND	MND	MND	MND	MND	7,87E-8	2,12E-5	5,01E-4	4,76E-4	-8,84E-4
Ecotoxicity (freshwater)	CTUe	9,2E0	2,28E0	5,91E-2	1,15E1	6,43E-1	1,03E0	MND	MND	MND	MND	MND	MND	MND	2,7E-4	3,8E-3	2,69E-1	9,97E-2	3,6E-1
Human toxicity, cancer	CTUh	3,91E-10	6,44E-11	5,85E-12	4,62E-10	1,82E-11	5,34E-11	MND	MND	MND	MND	MND	MND	MND	1,09E-14	1,08E-13	1,7E-11	3,54E-12	1,95E-11
Human tox. non-cancer	CTUh	1,17E-8	2,61E-9	8,14E-11	1,44E-8	7,38E-10	1,03E-9	MND	MND	MND	MND	MND	MND	MND	3,4E-13	4,35E-12	2,62E-10	8,61E-11	9,25E-12
SQP ⁷⁾	-	3,95E-1	3,25E0	1,87E-2	3,66E0	9,18E-1	4,87E-2	MND	MND	MND	MND	MND	MND	MND	2,19E-5	5,42E-3	1,29E-1	3,12E-1	1,31E-1

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	9,99E-1	4,14E-2	2,49E-1	1,29E0	1,17E-2	1,28E-2	MND	MND	MND	MND	MND	MND	MND	3,89E-4	6,9E-5	8,29E-3	2,05E-3	-1,22E-2
Renew. PER as material	MJ	0E0	0E0	9,4E-3	9,4E-3	0E0	-1E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	9,99E-1	4,14E-2	2,59E-1	1,3E0	1,17E-2	2,76E-3	MND	MND	MND	MND	MND	MND	MND	3,89E-4	6,9E-5	8,29E-3	2,05E-3	-1,22E-2
Non-re. PER as energy	MJ	2,42E1	2,91E0	1,72E-2	2,71E1	8,24E-1	1,61E0	MND	MND	MND	MND	MND	MND	MND	2,92E-5	4,86E-3	1,94E-1	1,19E-1	-7,42E-1
Non-re. PER as material	MJ	4,78E1	0E0	0E0	4,78E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-4,78E1	0E0	-2,39E0
Total use of non-re. PER	MJ	7,2E1	2,91E0	1,72E-2	7,49E1	8,24E-1	1,61E0	MND	MND	MND	MND	MND	MND	MND	2,92E-5	4,86E-3	-4,76E1	1,19E-1	-3,13E0
Secondary materials	kg	3,86E-3	0E0	0E0	3,86E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	4,98E-2
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m ³	4,35E-3	5,52E-4	1,35E-5	4,92E-3	1,56E-4	6,04E-4	MND	MND	MND	MND	MND	MND	MND	3,61E-8	9,21E-7	4,67E-5	9,37E-5	-6,11E-5

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	4,2E-2	3,03E-3	2,64E-4	4,53E-2	8,57E-4	2,53E-3	MND	MND	MND	MND	MND	MND	MND	3,76E-7	5,06E-6	0E0	2,16E-4	1,03E-3
Non-hazardous waste	kg	1,25E0	2,52E-1	5,72E-3	1,51E0	7,12E-2	2,81E-2	MND	MND	MND	MND	MND	MND	MND	1,91E-5	4,2E-4	0E0	3,08E-1	5,95E-3
Radioactive waste	kg	2,81E-5	1,99E-5	5,09E-8	4,81E-5	5,63E-6	1,11E-5	MND	MND	MND	MND	MND	MND	MND	8,02E-11	3,32E-8	0E0	7,27E-7	-4,04E-7

END OF LIFE – OUTPUT FLOWS

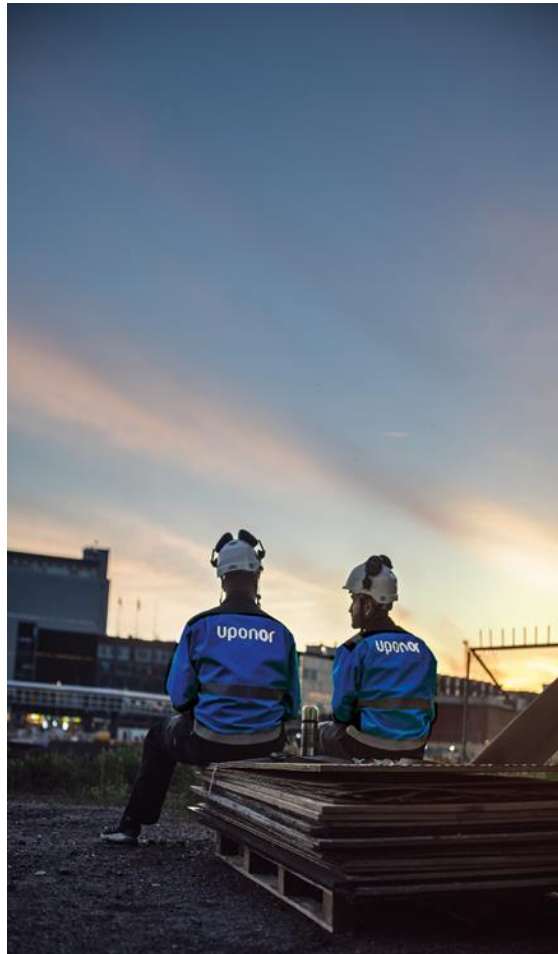
Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	1,4E-3	1,4E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	5E-2	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	4E-4	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

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	1,82E0	1,89E-1	2,98E-3	2,01E0	5,35E-2	1,17E-1	MND	MND	MND	MND	MND	MND	MND	2,5E-6	3,16E-4	1,31E-2	6,09E-3	-5,22E-2
Ozone depletion Pot.	kg CFC ₁₁ e	3,29E-8	3,48E-8	1,01E-10	6,79E-8	9,85E-9	1,96E-8	MND	MND	MND	MND	MND	MND	MND	1,7E-13	5,81E-11	1,21E-9	1,27E-9	4,2E-10
Acidification	kg SO ₂ e	5,81E-3	3,89E-4	7,27E-6	6,2E-3	1,1E-4	1,85E-4	MND	MND	MND	MND	MND	MND	MND	2,85E-8	6,49E-7	4,44E-5	2,29E-4	-1,27E-4
Eutrophication	kg PO ₄ ³ e	1,26E-3	8,1E-5	5,01E-6	1,34E-3	2,29E-5	3,82E-5	MND	MND	MND	MND	MND	MND	MND	1,24E-8	1,35E-7	4,51E-5	7,98E-6	7,19E-5
POCP ("smog")	kg C ₂ H ₄ e	3,79E-4	2,52E-5	5,42E-7	4,04E-4	7,11E-6	1,93E-5	MND	MND	MND	MND	MND	MND	MND	1,53E-9	4,2E-8	3,77E-6	1,29E-6	-9,73E-6
ADP-elements	kg Sbe	1,71E-5	4,76E-6	1,31E-7	2,2E-5	1,35E-6	2,04E-7	MND	MND	MND	MND	MND	MND	MND	2,66E-10	7,95E-9	2,41E-7	1,01E-7	-4,45E-7
ADP-fossil	MJ	7,2E1	2,91E0	1,72E-2	7,49E1	8,24E-1	1,61E0	MND	MND	MND	MND	MND	MND	MND	2,92E-5	4,86E-3	1,94E-1	1,19E-1	-3,13E0

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	1,84E0	1,89E-1	2,98E-3	2,03E0	5,34E-2	1,16E-1	MND	MND	MND	MND	MND	MND	MND	2,49E-6	3,15E-4	1,33E-2	6,07E-3	-5,29E-2
Ozone Depletion	kg CFC ₁₁ e	4,03E-8	4,64E-8	1,28E-10	8,69E-8	1,31E-8	2,62E-8	MND	MND	MND	MND	MND	MND	MND	2,11E-13	7,74E-11	1,61E-9	1,7E-9	8,1E-10
Acidification	kg SO ₂ e	5,69E-3	6,84E-4	7,8E-6	6,38E-3	1,93E-4	1,1E-3	MND	MND	MND	MND	MND	MND	MND	2,65E-8	1,14E-6	5,22E-5	4,12E-5	-1,13E-4
Eutrophication	kg Ne	3,85E-4	9,66E-5	1,28E-6	4,83E-4	2,73E-5	9,79E-5	MND	MND	MND	MND	MND	MND	MND	3,01E-9	1,61E-7	1,09E-5	4,69E-6	3,08E-6
POCP ("smog")	kg O ₃ e	7,22E-2	1,48E-2	1,04E-4	8,71E-2	4,17E-3	3,35E-2	MND	MND	MND	MND	MND	MND	MND	2,16E-7	2,46E-5	1,01E-3	1,02E-3	-1,08E-3
ADP-fossil	MJ	1,04E1	4,16E-1	1,61E-3	1,08E1	1,18E-1	2,34E-1	MND	MND	MND	MND	MND	MND	MND	2,45E-6	6,93E-4	2,42E-2	1,62E-2	-4,79E-1



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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
07.07.2023



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)
1056763	ULTRA CLASSIC SOCKET PIPE 110 SN4 0,5M PP	1,17	2,47E+00	0,5	1,23E+00
1056764	ULTRA CLASSIC SOCKET PIPE 110 SN4 1M PP	1,09	2,30E+00	1	2,30E+00
1056765	ULTRA CLASSIC SOCKET PIPE 110 SN4 2M PP	1,05	2,22E+00	2	4,43E+00
1056766	ULTRA CLASSIC SOCKET PIPE 110 SN4 3M PP	1,07	2,26E+00	3	6,77E+00
1056767	ULTRA CLASSIC SOCKET PIPE 110 SN4 6M PP	1,03	2,17E+00	6	1,30E+01
1056768	ULTRA CLASSIC SOCKET PIPE 110 SN8 1M PP	1,21	2,55E+00	1	2,55E+00
1056769	ULTRA CLASSIC SOCKET PIPE 110 SN8 2M PP	1,17	2,47E+00	2	4,94E+00
1056770	ULTRA CLASSIC SOCKET PIPE 110 SN8 3M PP	1,15	2,43E+00	3	7,28E+00
1056771	ULTRA CLASSIC SOCKET PIPE 110 SN8 6M PP	1,28	2,70E+00	6	1,62E+01
1056772	ULTRA CLASSIC SOCKET PIPE 160 SN4 1M PP	2,36	4,98E+00	1	4,98E+00
1056773	ULTRA CLASSIC SOCKET PIPE 160 SN4 2M PP	2,25	4,75E+00	2	9,50E+00
1056774	ULTRA CLASSIC SOCKET PIPE 160 SN4 3M PP	2,21	4,66E+00	3	1,40E+01
1056775	ULTRA CLASSIC SOCKET PIPE 160 SN4 6M PP	2,18	4,60E+00	6	2,76E+01
1056776	ULTRA CLASSIC SOCKET PIPE 160 SN8 1M PP	2,59	5,46E+00	1	5,46E+00
1056777	ULTRA CLASSIC SOCKET PIPE 160 SN8 2M PP	2,48	5,23E+00	2	1,05E+01
1056778	ULTRA CLASSIC SOCKET PIPE 160 SN8 3M PP	2,43	5,13E+00	3	1,54E+01
1056779	ULTRA CLASSIC SOCKET PIPE 160 SN8 6M PP	2,43	5,13E+00	6	3,08E+01
1059440	ULTRA CLASSIC SOCKET PIPE 200 SN8 2M PP	3,39	7,15E+00	2	1,43E+01
1059441	ULTRA CLASSIC SOCKET PIPE 200 SN8 3M PP	3,65	7,70E+00	3	2,31E+01
1059442	ULTRA CLASSIC SOCKET PIPE 200 SN8 6M PP	3,61	7,62E+00	6	4,57E+01
1060628	ULTRA CLASSIC SOCKET PIPE 250 SN8 3M PP	5,65	1,19E+01	3	3,58E+01
1060629	ULTRA CLASSIC SOCKET PIPE 250 SN8 6M PP	5,54	1,17E+01	6	7,01E+01
1060630	ULTRA CLASSIC SOCKET PIPE 315 SN8 3M PP	9,35	1,97E+01	3	5,92E+01
1060631	ULTRA CLASSIC SOCKET PIPE 315 SN8 6M PP	9,13	1,93E+01	6	1,16E+02
1060632	ULTRA CLASSIC SOCKET PIPE 400 SN8 3M PP	15,24	3,22E+01	3	9,65E+01
1060633	ULTRA CLASSIC SOCKET PIPE 400 SN8 6M PP	14,78	3,12E+01	6	1,87E+02
1058710	ULTRA DOUBLE SEWER PIPE 200 SN8 RED BROWN 3M PP	2,10	4,43E+00	3	1,33E+01

1058711	ULTRA DOUBLE SEWER PIPE 200 SN8 RED BROWN 6M PP	2,02	4,26E+00	6	2,56E+01
1058712	ULTRA DOUBLE SEWER PIPE 250 SN8 RED BROWN 3M PP	3,13	6,60E+00	3	1,98E+01
1058713	ULTRA DOUBLE SEWER PIPE 250 SN8 RED BROWN 6M PP	3,00	6,33E+00	6	3,80E+01
1058714	ULTRA DOUBLE SEWER PIPE 315 SN8 RED BROWN 3M PP	4,73	9,98E+00	3	2,99E+01
1058715	ULTRA DOUBLE SEWER PIPE 315 SN8 RED BROWN 6M PP	4,60	9,71E+00	6	5,82E+01
1057889	ULTRA DOUBLE SEWER PIPE 450 SN8 3M PP	7,67	1,62E+01	3	4,86E+01
1057890	ULTRA DOUBLE SEWER PIPE 450 SN8 6M PP	8,39	1,77E+01	6	1,06E+02
1057891	ULTRA DOUBLE SEWER PIPE 560 SN8 3M PP	11,67	2,46E+01	3	7,39E+01
1057892	ULTRA DOUBLE SEWER PIPE 560 SN8 6M PP	13,87	2,93E+01	6	1,76E+02
1057894	ULTRA DOUBLE SEWER PIPE 680 SN8 6M PP	21,07	4,45E+01	2,8	1,24E+02
1058710	ULTRA DOUBLE SEWER PIPE 200 SN8 RED BROWN 3M PP	16,17	3,41E+01	6	2,05E+02

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)
1056763	ULTRA CLASSIC SOCKET PIPE 110 SN4 0,5M PP	1,17	2,3751	0,5	1,18755
1056764	ULTRA CLASSIC SOCKET PIPE 110 SN4 1M PP	1,09	2,2127	1	2,2127
1056765	ULTRA CLASSIC SOCKET PIPE 110 SN4 2M PP	1,05	2,1315	2	4,263
1056766	ULTRA CLASSIC SOCKET PIPE 110 SN4 3M PP	1,07	2,1721	3	6,5163
1056767	ULTRA CLASSIC SOCKET PIPE 110 SN4 6M PP	1,03	2,0909	6	12,5454
1056768	ULTRA CLASSIC SOCKET PIPE 110 SN8 1M PP	1,21	2,4563	1	2,4563
1056769	ULTRA CLASSIC SOCKET PIPE 110 SN8 2M PP	1,17	2,3751	2	4,7502
1056770	ULTRA CLASSIC SOCKET PIPE 110 SN8 3M PP	1,15	2,3345	3	7,0035
1056771	ULTRA CLASSIC SOCKET PIPE 110 SN8 6M PP	1,28	2,5984	6	15,5904
1056772	ULTRA CLASSIC SOCKET PIPE 160 SN4 1M PP	2,36	4,7908	1	4,7908
1056773	ULTRA CLASSIC SOCKET PIPE 160 SN4 2M PP	2,25	4,5675	2	9,135
1056774	ULTRA CLASSIC SOCKET PIPE 160 SN4 3M PP	2,21	4,4863	3	13,4589
1056775	ULTRA CLASSIC SOCKET PIPE 160 SN4 6M PP	2,18	4,4254	6	26,5524

1056776	ULTRA CLASSIC SOCKET PIPE 160 SN8 1M PP	2,59	5,2577	1	5,2577
1056777	ULTRA CLASSIC SOCKET PIPE 160 SN8 2M PP	2,48	5,0344	2	10,0688
1056778	ULTRA CLASSIC SOCKET PIPE 160 SN8 3M PP	2,43	4,9329	3	14,7987
1056779	ULTRA CLASSIC SOCKET PIPE 160 SN8 6M PP	2,43	4,9329	6	29,5974
1059440	ULTRA CLASSIC SOCKET PIPE 200 SN8 2M PP	3,39	6,8817	2	13,7634
1059441	ULTRA CLASSIC SOCKET PIPE 200 SN8 3M PP	3,65	7,4095	3	22,2285
1059442	ULTRA CLASSIC SOCKET PIPE 200 SN8 6M PP	3,61	7,3283	6	43,9698
1060628	ULTRA CLASSIC SOCKET PIPE 250 SN8 3M PP	5,65	11,4695	3	34,4085
1060629	ULTRA CLASSIC SOCKET PIPE 250 SN8 6M PP	5,54	11,2462	6	67,4772
1060630	ULTRA CLASSIC SOCKET PIPE 315 SN8 3M PP	9,35	18,9805	3	56,9415
1060631	ULTRA CLASSIC SOCKET PIPE 315 SN8 6M PP	9,13	18,5339	6	111,2034
1060632	ULTRA CLASSIC SOCKET PIPE 400 SN8 3M PP	15,24	30,9372	3	92,8116
1060633	ULTRA CLASSIC SOCKET PIPE 400 SN8 6M PP	14,78	30,0034	6	180,0204
1058710	ULTRA DOUBLE SEWER PIPE 200 SN8 RED BROWN 3M PP	2,10	4,263	3	12,789
1058711	ULTRA DOUBLE SEWER PIPE 200 SN8 RED BROWN 6M PP	2,02	4,1006	6	24,6036
1058712	ULTRA DOUBLE SEWER PIPE 250 SN8 RED BROWN 3M PP	3,13	6,3539	3	19,0617
1058713	ULTRA DOUBLE SEWER PIPE 250 SN8 RED BROWN 6M PP	3,00	6,09	6	36,54
1058714	ULTRA DOUBLE SEWER PIPE 315 SN8 RED BROWN 3M PP	4,73	9,6019	3	28,8057
1058715	ULTRA DOUBLE SEWER PIPE 315 SN8 RED BROWN 6M PP	4,60	9,338	6	56,028
1057889	ULTRA DOUBLE SEWER PIPE 450 SN8 3M PP	7,67	15,5701	3	46,7103
1057890	ULTRA DOUBLE SEWER PIPE 450 SN8 6M PP	8,39	17,0317	6	102,1902
1057891	ULTRA DOUBLE SEWER PIPE 560 SN8 3M PP	11,67	23,6901	3	71,0703
1057892	ULTRA DOUBLE SEWER PIPE 560 SN8 6M PP	13,87	28,1561	6	168,9366
1057894	ULTRA DOUBLE SEWER PIPE 680 SN8 6M PP	21,07	42,7721	2,8	119,7619
1058710	ULTRA DOUBLE SEWER PIPE 200 SN8 RED BROWN 3M PP	16,17	32,8251	6	196,9506