ENVIRONMENTAL PRODUCT DECLARATION

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

UPONOR WIPEX BRASS FITTINGS 25-140MM, UPONOR ECOFLEX BRASS FITTINGS 25-110MM



EPD HUB, EPDHUB-HUB-8015

Publishing date 03/11/2026, last updated date 0311/2026, valid until 02/11/2031

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 GmbH
Address	Uponor GmbH, 97437 Haßfurt, Germany
Contact details	info@georgfischer.com
Website	www.georgfischer.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
c-PCR	
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	Yazan Badour as an authorized verifier for EPD Hub

This EPD is intended for business-to-business 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 Wipex brass fittings 25-110mm,
Additional labels	-
Product reference	-
Place(s) of raw material origin	EU
Place of production	Kungsör/Sweden; Noormarkku, Finland
Place(s) of installation and use	Europe
Place(s) of end-of-life	Europe
Period for data	Calendar year 2025
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-	-15% / +23%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product	-
A1-A3 Specific data (%)	6,91

ENVIRONMENTAL DATA SUMMARY

Declared unit	1
Declared unit mass	1 kg
Mass of packaging	0,093 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	6,49
GWP-total, A1-A3 ($kgCO_2e$)	6,5
Secondary material, inputs (%)	25,5
Total energy use, A1-A3 (kWh)	31,3
Net freshwater use, A1-A3 (m^3)	0,17

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

With a rich history in industrial innovation since 1802, GF is actively reshaping itself to become the global leader in Flow Solutions for Buildings, Industry and Infrastructure. GF delivers Excellence in Flow through essential products and solutions that enable safe transport of water and other fluids worldwide. Following the Uponor acquisition and integration, GF has brought together its collective expertise and technologies into a unified portfolio of Flow Solutions for Buildings. This allows GF to offer reliable systems that perform throughout a building's entire lifecycle – from construction to daily operations – ensuring they are both future-proof and sustainable. Headquartered in Switzerland, GF is listed on the SIX Swiss Exchange.

PRODUCT DESCRIPTION

Uponor Wipex and Uponor Ecoflex fittings are mechanical connection components used within polyethylene (PE), cross-linked polyethylene (PEX), and pre-insulated piping systems for water supply, district heating, district cooling, and building services applications. The fittings are manufactured primarily from brass with elastomeric sealing components and ancillary fastening elements.
The fitting portfolio in this study comprises 71 Wipex fittings and 30 Ecoflex fittings, with Wipex fittings covering diameters from 25 to 110 mm and Ecoflex fittings from 25 to 160 mm, in variants such as couplings, elbows, tees, reducers, threaded adapters, transition fittings and flanges.
The fittings are intended for underground, outdoor, and building infrastructure installations and are engineered to provide long-term mechanical strength, corrosion resistance, dimensional stability, and operational reliability under the specified service conditions of the connected piping systems.
Further information can be found at: www.georgfischer.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

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

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0,0415

1 kg of biogenic carbon is equivalent to 44/12 kg of CO_2

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1
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	ND	ND	ND	ND	ND	ND	ND	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

Not declared = ND

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.

The product stage covers the supply of raw materials and components, their transport to the respective manufacturing facilities, and the manufacturing and packaging processes required to produce the finished Wipex and Ecoflex fittings. The results are expressed per declared unit of 1 kg of finished product and are based on production data for the calendar year 2025.

Module A1 includes the production of brass and the associated metal-working processes, together with synthetic rubber used for sealing components and stainless-steel fastening components. The brass and metal-working inputs are represented through separate supply-chain entries associated with the Swedish and Finnish production routes.

Module A2 includes the transport of the input materials and components to the relevant manufacturing locations. The principal brass and metal-working inputs are transported by EURO 6 diesel lorry over modelled distances of 1,431 km for the Swedish supply chain and 2,231 km for the Finnish supply chain. Additional transport distances are modelled separately for the synthetic-rubber sealing components and stainless-steel fastening components. The stated transport distances are input-specific.

Module A3 includes manufacturing energy, ancillary materials, packaging materials and the treatment of manufacturing waste. The model includes hydroelectricity for the Swedish and Finnish production routes, including electricity-transformation losses. Natural gas and propane are additionally included for the Finnish production route. A minor quantity of lubricating oil is included as an ancillary material.

The packaging system comprises wooden EUR pallets, corrugated-board packaging and LDPE packaging film. Packaging materials are included in Module A3, while their treatment after unpacking is accounted for in Module A5.

Manufacturing waste streams include metal scrap, paperboard, LDPE packaging waste, wood waste and mixed municipal waste.

Recycling, energy-recovery, incineration and landfill processes are applied according to the waste-specific modelling assumptions. Transport of manufacturing waste to the respective treatment facility is modelled over a distance of 50 km by truck.
The environmental results represent the mass-weighted average of the declared Wipex and Ecoflex product portfolio and the associated Swedish and Finnish production routes. Inputs available only as annual or site-level data are normalised to the total annual production mass and expressed per declared unit of 1 kg of finished product.
The use of renewable energy in manufacturing is demonstrated through contractual instruments (GOs, RECs), and its use is ensured throughout the validity period of this EPD.

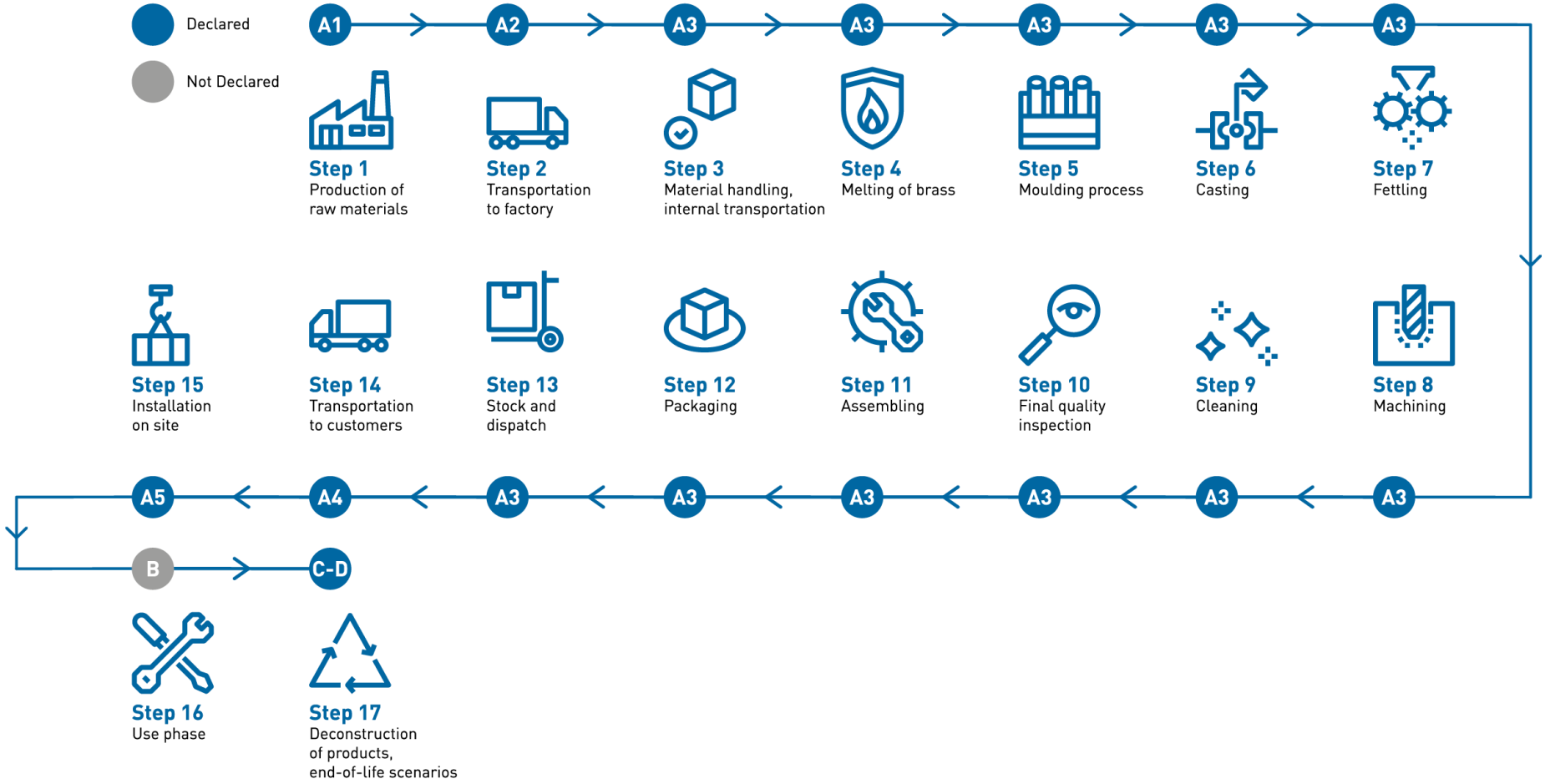
TRANSPORT AND INSTALLATION (A4-A5)

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.
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.
A5 is not in scope. Only packaging waste is accounted for in this module.
Transportation of the final product from the production site to the building site is included in this stage. Items are packed in PE-bags and cardboard boxes are transported on wooden Euro pallets.
The products are shipped from the production site to stockholding distributors and distribution centres and then distributed locally.
Transportation of 100% of product mass to EU markets by heavy trucks is considered for an average of 1073 km. No materials are lost in transportation.
The product installation is done manually and is a long-time introduced standard process in jointing of metal pipes in heating, water and gas installations. No extra energy is needed. A small amount of 0,1 kg/kg of water for flushing the installation (cleaning) and pressure testing is considered. Wipex and Ecoflex fittings are one component of a piping system connected to other piping components by a standardised interface (jointing thread). The mass of sealing materials (such as hemp or PTFE) is much lower than 1% of fitting mass and therefore negligible. The generation of product waste (losses or damaged) of 1% product mass at the construction site is considered in this scenario. Wastes related to installation are the packaging materials on site, which are PE packaging bags, cardboard, and wooden pallets. Wooden pallets, PE foils and cardboard are collected and sent to specific recycling plants 50km by truck.

PRODUCT END OF LIFE (C1-C4, D)

At EoL 95% of the fittings are assumed to collected with metals and to be send to brass recycling (C3) 5% is left underground as landfill (C4).
Beyond the system boundaries (D), loads and benefits for the treatment of brass disposal, waste handling of cardboard, wood and waste plastics packaging are considered by EoL packaging EU scenarios of One Click LCA .
Products meets the legal requirements at validation date on limited Substances of Very High Concern (SVHC).

LIFE CYCLE FLOW DIAGRAM



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

This study does not exclude any modules or processes which are stated mandatory in the EN 15804:2012 + A2:2019. Excluded modules are Use stage modules (B1-B7).
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 process which data are 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 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	Physical Properties
Packaging material	Physical Properties
Ancillary materials	Not applicable
Manufacturing energy and waste	Physical Properties

A minor deviation may occur between the results reported for Primary Energy (PENRT, A1–A3, "Total use of non-renewable primary energy resources" in the resource use table) and the ADP fossil fuels indicator (ADPfossil, A1–A3) reported in the impact category results according to EN 15804+A2.
This deviation is due to differences in the underlying methodological approaches and characterisation factors applied for the respective indicators, as well as the specific datasets used within the validated LCA model. While both indicators are related to fossil resource use, they are defined and calculated differently in accordance with EN 15804+A2.
The identified deviation is considered methodologically justified and does not represent an inconsistency in the data quality or modelling approach applied in this EPD.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple factories
Grouping method	Based on average results of product
Variation in GWP-fossil for A1-	-15% / +23%

This EPD covers both the Uponor Wipex and Uponor Ecoflex product families, comprising brass fittings for tap water and heating applications within buildings and in underground installations for water networks. The full portfolio consists of 71 fittings from Wipex and 30 from Ecoflex portfolio, the technical difference is only the already mounted or to-be installed O-ring of synthetic rubber. Uponor Wipex brass fittings are in diameters 25-110mm, Uponor Ecoflex brass fittings in diameters 25-160mm. Both fittings are produced in 2 factories in Finland and Sweden.
The environmental impacts reported in this EPD are based on a production-volume-weighted average of the products included within the declared scope. The average product group represents a brass fitting system for different water-based applications. The environmental impacts declared in this EPD are based on average data.The results are representative of the included products, manufacturing processes, and supply chains within the declared scope. While the EPD provides a reliable basis for assessing the average environmental performance of the product family, deviations may occur for individual product variants.
The GWP-fossil results for modules A1–A3 of the products covered by the EPD range from 15% below to 23% above the declared reference value. The observed variation is attributable to differences in product-specific parameters within the declared product group, such as product mass and material composition. The minimum and maximum values were determined by comparing the individual product results with the declared reference value.
The declared results are applicable within the geographical scope defined in this EPD and are representative for regions with comparable production conditions, energy mixes, transport scenarios, and end-of-life treatments. The applicability of the results outside this scope should be assessed carefully, particularly where significant regional differences exist. Comparisons with other EPDs are only valid when based on the same standards, system boundaries, and functional or declared units.

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 higher, and One Click LCA databases as sources of environmental data.
- Allocation used in Ecoinvent environmental data sources follow the methodology allocation, Cut-off, EN 15804+A2.
- EU wooden packaging EoL scenario by EUROSTAT.

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_2e	5,98E+00	3,22E-01	1,95E-01	6,50E+00	2,19E-01	1,57E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,20E-03	-1,33E-02	4,81E-04	-8,80E-02
GWP – fossil	kg CO_2e	5,91E+00	3,22E-01	2,52E-01	6,49E+00	2,19E-01	1,01E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,20E-03	2,22E-02	4,79E-04	-2,09E-02
GWP – biogenic	kg CO_2e	5,63E-02	5,62E-05	-5,85E-02	-2,16E-03	4,16E-05	5,52E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,75E-06	-3,55E-02	2,17E-06	-6,73E-02
GWP – LULUC	kg CO_2e	1,27E-02	1,06E-04	1,77E-03	1,46E-02	7,20E-05	1,51E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,02E-06	1,61E-05	1,21E-07	2,23E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	8,21E-08	7,28E-09	2,76E-08	1,17E-07	4,96E-09	1,27E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,08E-10	1,54E-10	1,61E-11	-9,75E-10
Acidification potential	mol H^+e	3,96E-01	6,67E-04	9,41E-04	3,98E-01	4,54E-04	4,00E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,91E-05	9,40E-05	5,40E-06	-9,09E-05
EP-freshwater[2)]	kg Pe	3,21E-02	2,27E-05	5,96E-05	3,22E-02	1,55E-05	3,23E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,49E-07	8,86E-06	8,25E-07	-2,31E-05
EP-marine	kg Ne	2,13E-02	1,71E-04	3,11E-04	2,18E-02	1,16E-04	2,42E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,88E-06	7,57E-05	1,35E-06	-4,79E-05
EP-terrestrial	mol Ne	2,88E-01	1,83E-03	2,78E-03	2,93E-01	1,25E-03	3,02E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,24E-05	2,58E-04	1,45E-05	-4,27E-04
POCP ("smog")[3)]	kg NMVOCe	8,11E-02	1,13E-03	1,40E-03	8,36E-02	7,67E-04	8,70E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,22E-05	7,31E-05	5,25E-06	-1,90E-04
ADP-minerals & metals[4)]	kg Sbe	5,48E-03	1,14E-06	8,68E-07	5,48E-03	7,76E-07	5,48E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,26E-08	3,72E-07	8,32E-10	-3,66E-08
ADP-fossil resources	MJ	7,82E+01	4,55E+00	9,85E+00	9,26E+01	3,10E+00	1,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,30E-01	1,54E-01	1,13E-02	-6,52E-01
Water use[5)]	m^3e depr.	5,16E+00	2,40E-02	9,06E-02	5,27E+00	1,63E-02	5,48E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,85E-04	4,92E-03	5,36E-04	2,87E-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	9,46E-07	2,41E-08	7,90E-09	9,78E-07	1,64E-08	1,06E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,89E-10	1,30E-09	8,21E-11	-3,96E-10
Ionizing radiation[6)]	kBq U235e	7,65E-01	5,26E-03	1,47E-02	7,85E-01	3,58E-03	8,07E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,50E-04	2,04E-03	1,43E-05	2,87E-03
Ecotoxicity (freshwater)	CTUe	1,02E+03	6,82E-01	2,06E+01	1,04E+03	4,65E-01	1,06E+01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,95E-02	2,23E-01	6,07E-01	7,48E-01
Human toxicity, cancer	CTUh	4,43E-08	5,17E-11	1,52E-10	4,45E-08	3,52E-11	4,50E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,48E-12	1,55E-11	1,93E-13	2,48E-12
Human tox. non-cancer	CTUh	4,19E-06	2,78E-09	1,57E-09	4,19E-06	1,90E-09	4,21E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,95E-11	5,16E-10	1,21E-11	6,98E-11
SQP[7)]	-	1,33E+02	2,74E+00	5,70E+00	1,42E+02	1,87E+00	1,48E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,84E-02	7,93E-01	2,80E-02	-4,68E+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	2,00E+01	7,58E-02	7,52E+00	2,76E+01	5,16E-02	-9,99E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,17E-03	2,84E-02	2,18E-04	-6,47E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	1,29E+00	1,29E+00	0,00E+00	-1,29E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,77E-01
Total use of renew. PER	MJ	2,00E+01	7,58E-02	8,81E+00	2,89E+01	5,16E-02	-2,29E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,17E-03	2,84E-02	2,18E-04	3,05E-02
Non-re. PER as energy	MJ	7,80E+01	4,55E+00	2,32E+00	8,49E+01	3,10E+00	-1,17E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,30E-01	1,54E-01	1,13E-02	-6,51E-01
Non-re. PER as material	MJ	2,01E-01	0,00E+00	1,13E+00	1,33E+00	0,00E+00	-1,13E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,91E-01	-1,00E-02	4,50E-01
Total use of non-re. PER	MJ	7,82E+01	4,55E+00	3,45E+00	8,62E+01	3,10E+00	-1,25E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,30E-01	-3,62E-02	1,30E-03	-2,01E-01
Secondary materials	kg	2,55E-01	2,07E-03	5,40E-02	3,11E-01	1,41E-03	3,20E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,92E-05	2,92E-04	3,63E-06	4,00E-02
Renew. secondary fuels	MJ	1,95E-03	2,72E-05	2,49E-02	2,69E-02	1,85E-05	2,70E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,78E-07	2,28E-05	6,85E-08	-4,27E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,62E-01	5,45E-04	2,04E-03	1,65E-01	3,71E-04	1,58E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,56E-05	7,59E-05	-1,35E-04	2,28E-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	1,20E+02	2,82E-02	2,20E-02	1,20E+02	1,92E-02	1,21E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,05E-04	1,24E-02	1,80E-05	1,35E-03
Non-hazardous waste	kg	1,33E+02	3,71E-01	7,82E-01	1,34E+02	2,53E-01	1,59E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,06E-02	1,09E-01	1,60E-01	-3,78E-01
Radioactive waste	kg	1,98E-04	1,27E-06	3,67E-06	2,03E-04	8,68E-07	2,08E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,64E-08	5,15E-07	3,44E-09	7,52E-07

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	ND	ND	ND	ND	ND	ND	ND	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	2,16E-02	2,16E-02	0,00E+00	6,03E-02	ND	ND	ND	ND	ND	ND	ND	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	2,29E-03	2,29E-03	0,00E+00	2,29E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+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	2,31E-01	ND	ND	ND	ND	ND	ND	ND	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	9,72E-02	ND	ND	ND	ND	ND	ND	ND	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	1,34E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	5,93E+00	3,20E-01	2,53E-01	6,50E+00	2,18E-01	1,07E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,14E-03	3,05E-02	4,75E-04	-1,98E-02
Ozone depletion Pot.	kg CFC_{-11}e	6,67E-08	5,78E-09	2,35E-08	9,60E-08	3,94E-09	1,04E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,65E-10	1,29E-10	1,29E-11	-7,95E-10
Acidification	kg SO_2e	3,47E-01	5,31E-04	7,31E-04	3,49E-01	3,62E-04	3,51E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,52E-05	7,36E-05	4,33E-06	-6,37E-05
Eutrophication	kg PO_4^3e	1,75E-02	1,46E-04	1,76E-03	1,94E-02	9,91E-05	2,07E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,16E-06	3,88E-05	1,19E-06	-2,55E-05
POCP (“smog”)	kg C_2H_4e	1,45E-02	5,62E-05	9,83E-05	1,47E-02	3,83E-05	1,50E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,61E-06	7,59E-06	2,80E-07	-1,09E-05
ADP-elements	kg Sbe	5,47E-03	1,11E-06	7,43E-07	5,47E-03	7,59E-07	5,48E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,18E-08	3,69E-07	8,03E-10	-3,71E-08
ADP-fossil	MJ	6,66E+01	4,46E+00	9,60E+00	8,06E+01	3,04E+00	8,80E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,28E-01	1,19E-01	1,11E-02	-7,03E-01

ENVIRONMENTAL IMPACTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Radioactive waste, high	kg	7,58E-05	3,15E-07	8,79E-07	7,70E-05	2,14E-07	7,84E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,99E-09	1,20E-07	8,05E-10	1,75E-07
Radioactive waste, int/low	kg	1,22E-04	9,60E-07	2,79E-06	1,26E-04	6,54E-07	1,30E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,74E-08	3,96E-07	2,64E-09	5,76E-07

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_2e	5,92E+00	3,22E-01	2,54E-01	6,50E+00	2,19E-01	1,02E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,20E-03	2,22E-02	4,79E-04	-2,07E-02

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

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	5,90E+00	3,17E-01	2,48E-01	6,47E+00	2,16E-01	1,06E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,06E-03	2,95E-02	4,68E-04	-1,94E-02
Ozone Depletion	kg CFC_{-11}e	8,50E-08	7,64E-09	2,88E-08	1,21E-07	5,20E-09	1,32E-09	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,18E-10	1,64E-10	1,70E-11	-1,04E-09
Acidification	kg SO_2e	3,07E-01	5,72E-04	8,31E-04	3,09E-01	3,90E-04	3,11E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,63E-05	8,09E-05	4,60E-06	-8,61E-05
Eutrophication	kg Ne	1,80E-02	1,01E-04	7,53E-04	1,89E-02	6,89E-05	2,09E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,89E-06	4,90E-05	5,70E-07	-3,46E-05
POCP (“smog”)	kg O_3e	1,26E+00	1,27E-02	1,76E-02	1,29E+00	8,64E-03	1,34E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,62E-04	1,34E-03	8,93E-05	-2,64E-03
ADP-fossil	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,21E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, hydro, run-of-river, Finland, Ecoinvent, 0.0043 kgCO2e/kWh
2. Electricity production, hydro, run-of-river, Sweden, Ecoinvent, 0.0043 kgCO2e/kWh
3. Electricity production, hydro, run-of-river, Finland, Ecoinvent, 0.0043 kgCO2e/kWh
4. Electricity production, hydro, run-of-river, Sweden, Ecoinvent, 0.0043 kgCO2e/kWh
5. Market for natural gas, high pressure, Finland, Ecoinvent, 0.74 kgCO2e/m3
6. Market for propane, burned in building machine, World, Ecoinvent, 0.0858 kgCO2e/MJ

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6, 1073.0 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	80
Bulk density of transported products	25,4
Volume capacity utilization factor	<1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	No energy consumption due to manual installation process.
Water use (m^3)	0,1kg/kg Tap water for cleaning and pressure test.
Ancillary materials: type and mass (kg)	0
Waste materials: type and mass (kg)	1% of product for installation corrections. 0,1 kg tap water from cleaning and pressure test.
Waste materials: output routes	1% of product lost due to installation mistakes or damage, colleted the same process (95%to recycling, 5% landfill)
Direct emissions (kg)	none

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	0,95
Collection process: Mixed waste (kg)	0,05
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0,95
Recovery: energy recovery (kg)	0
Disposal (kg)	0,05
Scenario assumptions e.g. transportation (mode, km) & other	50km by truck to next landfill/recycling plant.

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 15804+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

Yazan Badour as an authorized verifier for EPD Hub Limited 03.11.2026



VERIFIED ISO 14025