Environmental Product Declaration (EPD)
According to ISO 14025 and EN 15804+A2:2019

Merika Wallbox

Registration number:	EPD-Kiwa-EE-197929-EN
Issue date:	29-10-2025
Valid until:	29-10-2030
Declaration owner:	Meriser Oy
Publisher:	Kiwa-Ecobility Experts
Programme operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

Merika Wallbox

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-197929-EN

1.3 VALIDITY

Issue date: 29-10-2025

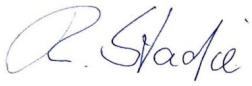
Valid until: 29-10-2030

1.4 PROGRAMME OPERATOR

Kiwa-Ecobility Experts
Wattstraße 11-13
13355 Berlin
DE

Raoul Mancke

(Head of programme operations, Kiwa-Ecobility Experts)



Dr. Ronny Stadie

(Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Declaration owner: Meriser Oy

Address: Kauppatie 2, 29900 Merikarvia, Finland

E-mail: merika@meriser.fi

Website: www.meriser.fi

Production location: Meriser Oy - Kauppatie

Address production location: Kauppatie 2, 29900 Merikarvia, Finland

1.6 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804+A2:2019 serves as the core PCR.

☐ Internal ☒ External

Niklas van Dijk, Kiwa GmbH

1.7 STATEMENTS

The owner of this EPD shall be liable for the underlying information and evidence. The programme operator Kiwa-Ecobility Experts shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

1.8 PRODUCT CATEGORY RULES

Kiwa-Ecobility Experts (Kiwa-EE) – General Programme Instructions “ Product Level"(R.2.0)" (2025)

Kiwa-Ecobility Experts (Kiwa-EE) - General Programme Instructions Annex B1 (Program rules for construction products) (2025).

Institute Construction and Environment e.V. - Part B: Requirements on the EPD for Fittings and connections for water supply (2024-08-01 v11)

1 General information

1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2:2019. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2:2019 and ISO 14025.

1.10 CALCULATION BASIS

LCA method R<THINK: Ecobility Experts | EN15804+A2

LCA software*: Simapro 9.6

Characterization method: RETHINK characterization method (see references for more details)

LCA database profiles: ecoinvent (for version see references)

Version database: v3.20 (2025-10-21)

** Simapro is used for calculating the characterized results of the Environmental profiles within R<THINK.*

1.11 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report 'Merika Wallbox' with the calculation identifier ReTHiNK-97929.

2 Product

2.1 PRODUCT DESCRIPTION

The Merika wallboxes are manufactured in Meriser Oy's factory in Merikarvia. Merika wallboxes are made of plastic and come with brass inner part, which are assembled together. The boxes are leak-proof. The production is powered by electricity, using the company's own solar power plant and purchased electricity.

This environmental declaration has been prepared per kilogram (1 kg) of product. The EPD ist a worst-case EPD, covering the products listed in the table below. The products are categorised into their own product groups.

Product groups

Product group	Products codes
Wallbox for PEX pipes (installation depth 47 mm)	2242, 2270, 2271, 22711, 22714
Wallbox (installation depth 40 mm)	2235, 223550
Double wallbox (installation depth 47 mm)	2274
Double wallbox (installation depth 40 mm)	2238
Mekapex-wallbox	2230_11, 2236
MekaPjk-wallbox	2237

The number of components in the Merika wallboxes varies slightly between types. All Merika wallboxes contain a brass inner part and a plastic outer shell. The table below shows the percentages of raw materials in Merika wallbox which this EPD based.

Materials	Unit %
Brass	32.23
Thermoplastic vulcanizates	1.14
Polypropylene	61.48
Covering plastic for brass parts	3.34
Colorant	1.17
Additives	0.64

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

MERIKA wallboxes are designed for connecting flow pipes and water fixtures. They are suitable for wooden and concrete structures. The Merika wallboxes are available in 1 and 2 pieces, with compression fitting, fixed support sleeves or push fit fittings. The Merika wallboxes are available with various optional accessories such as leakage buckets, test pressure plugs, waterproofing strips, spacers, installation tools, etc. These accessories are not covered by this EPD.

The Merika wallboxes are approved for 10 bar service water systems. The brass inner part is type approved and the Merika wallboxes are tested according to NT VVS 129.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

RSL is not relevant as the stage of use is not reported. The lifetime of similar products has been reported as 50 years in other publications. The reference service life does not indicate the actual service life of the product, nor does it provide any guarantee of performance characteristics or warranties.

USED RSL (YR) IN THIS LCA CALCULATION:

50

2.4 TECHNICAL DATA

The Merika wallboxes covered by the EPD are type-approved and product-certified by Eurofins Expert Services Oy. The type approval is valid until 4.8.2029 and 20.8.2030.

The Merika wallboxes covered by the type approval meet the requirements of the Finnish National Decree of the Ministry of the Environment on the essential technical requirements for PEX pipe fittings intended for use in building water systems (499/2019). The main properties are summarized in the table below.

Property	Value
Temperature of continuously flowing water	70°C
Maximum temperature of instantaneously flowing water	95°C
Maximum operating pressure	1 MPa
Bulk density	571.54 kg/m3

The Merika wallboxes covered by the product certificate meet the requirements of Eurofins Expert Services Oy's certification criteria R060 and type testing requirements.

2 Product

2.5 SUBSTANCES OF VERY HIGH CONCERN

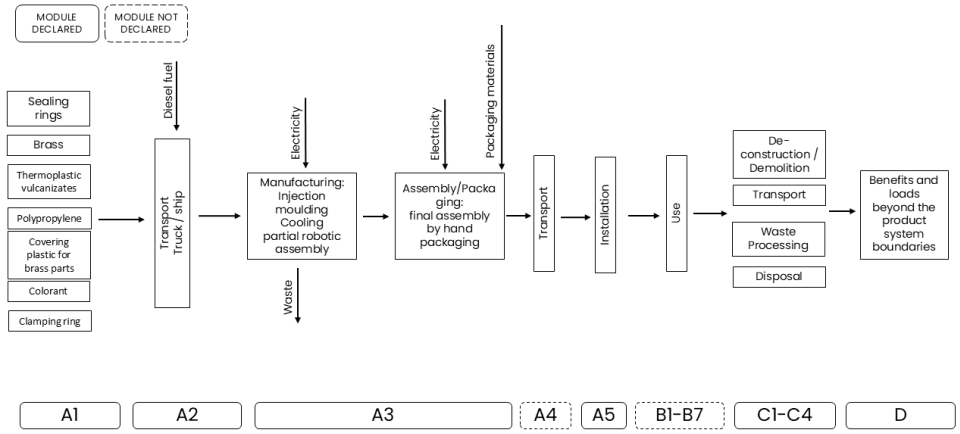
The product does not contain any substances from the “Candidate List of Substances of Very High Concern” (SVHC) in amounts greater than 0,1% (1.000 ppm).

2.6 DESCRIPTION PRODUCTION PROCESS

The components for the Merika wallboxes are manufactured by injection moulding. First, the raw material granulates are fed into an injection moulding machine, where the plastic melts. Then the melted raw material is injected into the selected mould. After injection into the mould, the raw material is cooled for removal and further processing. The inside brass part of the wallboxes is delivered to the factory already finished by the raw material supplier.

The assembly of the Merika wallboxes is made in two parts. The first stage of assembly is performed by robots. The semi-finished Merika wallboxes are then transported to the next workstation for manual assembly. The final assembly is performed by hand. Once the product is fully assembled, it is packed in plastic bags per product and in boxes of 20 pcs. The boxes are assembled in pallets for transfer. In most cases, wallboxes are sold to customers by the box, so the pallets are mainly for storage purposes.

The production process involves some internal transport inside the factory from one workstation to another and to the warehouse after packing to wait for delivery to customers. This transport is carried out using electrical energy.



2.7 CONSTRUCTION DESCRIPTION

This EPD does not cover the transport phase (A4). This EPD does not cover the entire installation phase (A5).

3 Calculation rules

3.1 DECLARED UNIT

kg

Declared unit: The declared unit is 1 kg of final product.

Reference unit: kilogram (kg)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	kg
Conversion factor to 1 kg	1.000000	kg

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options EPD. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

The modules of the EN 15804 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction - Installation process	Module C2 = Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal
Module B3 = Repair	Module D = Benefits and loads beyond the product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

This EPD is representative for Merika wallbox, a product of Meriser Oy. The geographical reference area is Finland.

3.5 CUT-OFF CRITERIA

Product stage (A1-A3)

All relevant input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. production waste) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass. Specifically, this calculation does not take into account the manufacturing process of the plant, buildings

3 Calculation rules

and other capital goods used in the production of the pastic pipes. The transportation of personnel to the plant, within the plant, research and development activities and long-term emissions were also not taken into account. Furthermore, the disposal of packaging waste was not taken into account.

Excluded input flow:

- Pamphlet.

Excluded processes are:

- Long-term emissions,
- The manufacture of equipment used in production, buildings or any other capital goods,
- The transport of personnel to the plant,
- The transportation of personnel within the plant,
- Research and development activities.

End of life stage (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

Benefits and loads beyond the system boundary (Module D)

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

3.6 ALLOCATION

Allocations were avoided as far as possible. There are no coproducts or by-product in the manufacturing of the examined product.

Based on energy consumption measurements, the energy requirements of the production were allocated to the individual products. The solar power consumed in production is reported for the entire review period. There is some variation in solar power consumption on a monthly basis. The EPD has been calculated using the average solar power consumption. Solar panels are not connected to the grid.

Specific information about allocations within the background data is included in the documentation of the ecoinvent datasets.

3.7 DATA COLLECTION & REFERENCE PERIOD

Primary data was collected and provided by Meriser Oy for the aggregated annual production. The data refers the annual aggregate production of Merika wallboxes with tab angle in Merikarvia, Finland.

Collection and reference period is from 2024-01-01 until 2024-12-31.

3.8 ESTIMATES AND ASSUMPTIONS

The EPD is calculated for the product in the product group with the highest environmental impact. The raw materials of the products in the product group are slightly different, so not all raw materials of the product group are included in the selected product. To be able to still include the other product variants the worst-case approach has been chosen, using only the inputs with the highest environmental impact. The scenarios included are currently in use and are representative for one of the most likely scenario alternatives.

The plastic parts doesn´t generate any waste during the production process. Production waste can be remelted for re-use in the production process.

The majority of the CO2 emissions within the impact category GWP-biogenic originate from the packaging. In order to balance the major CO2 emissions from packaging, module A5 Construction-Installation process has had to be included in the EPD for the waste treatment of packaging materials. The EPD does not cover other module data.

It is assumed that the disassembly for the de-construction is carried out manually by hand, which leads to no processes being added to the module C1.

3.9 DATA QUALITY

The quality level of geographical representativeness can be considered “good”. The quality level of technical representativeness can be considered “good”. The time representativeness can also be regarded as “good”.

The overall data quality for this EPD can, therefore, be described as “good”. All relevant process-specific data were collected during data collection.

In all possible cases of the modules A1-A3, primary data from supliers was used, which has very good data quality because it comes directly from the source. In addition, secondary data from the ecoinvent database (2019, version 3.9.1) was used when no primary data could be supplied. The database is checked regularly and, therefore, meets the requirements of EN ISO 14040/44 (background data not older than 10 years). The

3 Calculation rules

background data meets the requirements of EN 15804+A2. The quantities of raw materials, consumables and supplies.

3.10 POWER MIX

At least 3,6% of the electricity used is from the company`s own solar power. The used dataset is (ei3.9.1) [E0001-8850] self-produced electricity is modelled for this EPD and it is not publicly available. The dataset is based on ecoinvent dataset “Electricity, low voltage (FI) | electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted | Cut-off, U”. The GWP-total of the solar power in applied electricity mix is 0.118 kg CO2 eqv. per kWh.

The remaining electricity used has been modelled as residual mix for Finland, the market-based approach. The used dataset (ei3.9.1) Electricity (FI) - low voltage (max 1kV), residual mix". The GWP-total of the applied electricity mix is 0.406 kg CO2 eqv. per kWh.

4 Scenarios and additional technical information

4.1 ASSEMBLY (A5)

The following information describes the scenarios for flows entering the system and flows leaving the system at module A5.

FLOWS ENTERING THE SYSTEM

There are no significant environment impacts as a result of materials or energy used in the construction stage (A5).

FLOWS LEAVING THE SYSTEM

The following output flows leaving the system at module A5 are assumed.

Description	Value	Unit
Output materials as result of loss during construction	3	%
Output materials as result of waste processing of materials used for installation/assembly at the building site	0.000	kg
Output materials as result of waste processing of used packaging	0.141	kg

4.2 DE-CONSTRUCTION, DEMOLITION (C1)

No inputs are needed for the product at the de-construction / demolition phase

4.3 TRANSPORT END-OF-LIFE (C2)

The following distances and transport conveyance are assumed for transportation during end of life for the different types of waste processing.

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41)	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
plastics, civil constructions (small water piping and sewage) (based on NMD ID 44)	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	0
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57)	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Metals, others (i.a. fasteners, fittings) (NMD ID 50)	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50

4 Scenarios and additional technical information

The transport conveyance(s) used in the scenario(s) for transport during end of life has the following characteristics.

	Value and unit
Vehicle type used for transport	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)
Fuel type and consumption of vehicle	not available
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.4 END OF LIFE (C3, C4)

The scenario(s) assumed for end of life of the product are given in the following tables. First the assumed percentages per type of waste processing are displayed, followed by the assumed amounts.

Waste Scenario	Region	Not removed (stays in work) [%]	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41)	NL	0	5	0	95	0
plastics, civil constructions (small water piping and sewage) (based on NMD ID 44)	NL	0	0	20	80	0
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57)	NL	0	10	85	5	0
(ei3.9.1) Metals, others (i.a. fasteners, fittings) (NMD ID 50)	NL	0	5	5	90	0

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41)	0.000	0.016	0.000	0.306	0.000
plastics, civil constructions (small water piping and sewage) (based on NMD ID 44)	0.000	0.000	0.133	0.531	0.000
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57)	0.000	0.001	0.010	0.001	0.000
(ei3.9.1) Metals, others (i.a. fasteners, fittings) (NMD ID 50)	0.000	0.000	0.000	0.002	0.000
Total	**0.000**	**0.017**	**0.143**	**0.840**	**0.000**

4.5 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

The presented Benefits and loads beyond the system boundary in this EPD are based on the following calculated Net output flows in kilograms and Energy recovery displayed in MJ Lower Heating Value.

4 Scenarios and additional technical information

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41)	0.306	0.000
plastics, civil constructions (small water piping and sewage) (based on NMD ID 44)	0.531	4.335
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57)	0.001	0.255
(ei3.9.1) Metals, others (i.a. fasteners, fittings) (NMD ID 50)	0.001	0.000
Total	**0.839**	**4.590**

5 Results

For the impact assessment long-term emissions (>100 years) are not considered. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER KILOGRAM

CORE ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	3.38E+0	2.39E-1	3.46E-2	3.66E+0	3.93E-1	0.00E+0	9.71E-3	7.16E-1	3.23E-4	-3.20E+0
GWP-f	kg CO_2 eq.	3.37E+0	2.39E-1	3.54E-1	3.96E+0	1.91E-1	0.00E+0	9.67E-3	7.02E-1	3.22E-4	-3.19E+0
GWP-b	kg CO_2 eq.	9.13E-3	8.00E-5	-3.20E-1	-3.11E-1	2.02E-1	0.00E+0	3.15E-6	1.40E-2	3.37E-7	-7.71E-3
GWP-luluc	kg CO_2 eq.	4.52E-3	1.23E-4	1.27E-3	5.91E-3	2.10E-4	0.00E+0	3.45E-5	4.08E-4	5.22E-8	-4.37E-3
ODP	kg CFC 11 eq.	3.10E-8	5.39E-9	6.66E-9	4.30E-8	3.12E-9	0.00E+0	1.72E-10	1.48E-8	5.34E-12	-4.45E-8
AP	mol H+ eq.	1.35E-1	6.36E-4	-2.60E-3	1.33E-1	4.39E-3	0.00E+0	4.63E-5	1.35E-3	1.22E-6	-2.43E-1
EP-fw	kg P eq.	5.98E-4	2.00E-6	1.49E-5	6.15E-4	1.98E-5	0.00E+0	9.62E-8	1.44E-5	1.67E-9	-6.64E-4
EP-m	kg N eq.	7.65E-3	1.74E-4	3.25E-4	8.15E-3	2.90E-4	0.00E+0	1.76E-5	3.16E-4	5.37E-7	-8.60E-3
EP-T	mol N eq.	1.04E-1	1.83E-3	2.60E-3	1.08E-1	3.77E-3	0.00E+0	1.88E-4	3.31E-3	5.51E-6	-1.25E-1
POCP	kg NMVOC eq.	3.12E-2	1.01E-3	8.46E-4	3.30E-2	1.16E-3	0.00E+0	6.41E-5	1.14E-3	2.08E-6	-4.09E-2
ADP-mm	kg Sb-eq.	1.79E-3	6.62E-7	-5.85E-5	1.73E-3	5.61E-5	0.00E+0	3.03E-8	2.68E-6	4.49E-10	-3.43E-3
ADP-f	MJ	7.43E+1	3.61E+0	9.24E+0	8.72E+1	2.89E+0	0.00E+0	1.39E-1	4.54E+0	4.25E-3	-6.54E+1
WDP	m3 world eq.	3.26E+0	1.73E-2	7.32E-2	3.35E+0	1.09E-1	0.00E+0	7.56E-4	6.83E-2	3.07E-5	-4.40E+0

GWP-total=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use and land use change (GWP-luluc) | **ODP**=Depletion potential of the stratosperic ozon layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP-mm**=Abiotic depletion potential for non fossil resources (ADP mm) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) deprication potential, deprivation-weighted water consumption (WDP)

5 Results

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A5	C1	C2	C3	C4	D
PM	disease incidence	3.63E-7	2.33E-8	6.94E-9	3.94E-7	1.38E-8	0.00E+0	9.55E-10	1.90E-8	2.95E-11	-4.63E-7
IR	kBq U235 eq.	1.27E-1	1.74E-3	1.34E-1	2.63E-1	8.84E-3	0.00E+0	5.40E-5	2.17E-2	5.82E-6	-1.13E-1
ETP-fw	CTUe	1.89E+2	1.74E+0	1.37E+0	1.92E+2	6.73E+0	0.00E+0	1.02E-1	5.82E+0	1.39E-1	-1.95E+2
HTP-c	CTUh	2.10E-8	1.07E-10	-4.65E-10	2.06E-8	7.11E-10	0.00E+0	5.12E-12	3.49E-10	1.87E-13	-4.09E-8
HTP-nc	CTUh	1.74E-6	2.56E-9	-6.85E-8	1.67E-6	5.48E-8	0.00E+0	1.11E-10	5.13E-9	1.38E-11	-3.68E-6
SQP	Pt	4.38E+1	3.65E+0	1.25E+1	6.00E+1	2.02E+0	0.00E+0	1.09E-1	2.56E+0	1.00E-2	-8.18E+1

PM=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality idex (SQP)

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2

5 Results

ILCD classification	Indicator	Disclaimer
	Potential Soil quality index (SQP)	2

Disclaimer 1 – 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.

Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbr.	Unit	A1	A2	A3	A1-A3	A5	C1	C2	C3	C4	D
PERE	MJ	6.96E+0	5.30E-2	1.12E+0	8.14E+0	2.77E-1	0.00E+0	1.96E-3	5.95E-1	2.68E-4	-8.95E+0
PERM	MJ	0.00E+0	0.00E+0	1.67E+0	1.67E+0	5.00E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	6.96E+0	5.30E-2	2.79E+0	9.80E+0	3.27E-1	0.00E+0	1.96E-3	5.95E-1	2.68E-4	-8.95E+0
PENRE	MJ	5.24E+1	3.61E+0	8.47E+0	6.45E+1	2.21E+0	0.00E+0	1.39E-1	4.54E+0	4.25E-3	-4.21E+1
PENRM	MJ	2.20E+1	0.00E+0	7.62E-1	2.27E+1	6.82E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-2.33E+1
PENRT	MJ	7.43E+1	3.61E+0	9.24E+0	8.72E+1	2.89E+0	0.00E+0	1.39E-1	4.54E+0	4.25E-3	-6.54E+1
SM	Kg	8.58E-4	0.00E+0	-2.39E-3	-1.53E-3	2.65E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-6.23E-2
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	7.25E-2	5.68E-4	5.69E-3	7.87E-2	2.67E-3	0.00E+0	3.35E-5	2.97E-3	5.25E-6	-9.39E-2

PERE=Use of renewable primary energy excluding renewable primary energy resources used as raw materials | **PERM**=Use of renewable primary energy resources used as raw materials | **PERT**=Total use of renewable primary energy resources | **PENRE**=Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | **PENRM**=Use of non-renewable primary energy resources used as raw materials | **PENRT**=Total use of non-renewable primary energy resources | **SM**=Use of secondary material | **RSF**=Use of renewable secondary fuels | **NRSF**=Use of non-renewable secondary fuels | **FW**=Net use of fresh water

5 Results

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbr.	Unit	A1	A2	A3	A1-A3	A5	C1	C2	C3	C4	D
HWD	Kg	9.65E-4	2.24E-5	4.97E-5	1.04E-3	3.22E-5	0.00E+0	8.83E-7	1.31E-5	1.98E-8	-9.93E-5
NHWD	Kg	7.99E-1	3.13E-1	3.31E-2	1.14E+0	1.50E-1	0.00E+0	9.15E-3	2.74E-1	1.74E-2	-1.17E+0
RWD	Kg	8.25E-5	1.10E-6	6.47E-5	1.48E-4	5.18E-6	0.00E+0	3.17E-8	1.71E-5	3.20E-9	-7.15E-5

HWD=Hazardous waste disposed | **NHWD**=Non-hazardous waste disposed | **RWD**=Radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbr.	Unit	A1	A2	A3	A1-A3	A5	C1	C2	C3	C4	D
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	1.23E-2	1.23E-2	6.99E-2	0.00E+0	0.00E+0	8.40E-1	0.00E+0	0.00E+0
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ	0.00E+0	0.00E+0	9.82E-4	9.82E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.00E+0
EEE	MJ	0.00E+0	0.00E+0	5.70E-4	5.70E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.16E+0

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EET**=Exported Energy, Thermic | **EEE**=Exported Energy, Electric

5 Results

5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER KILOGRAM

BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per kilogram:

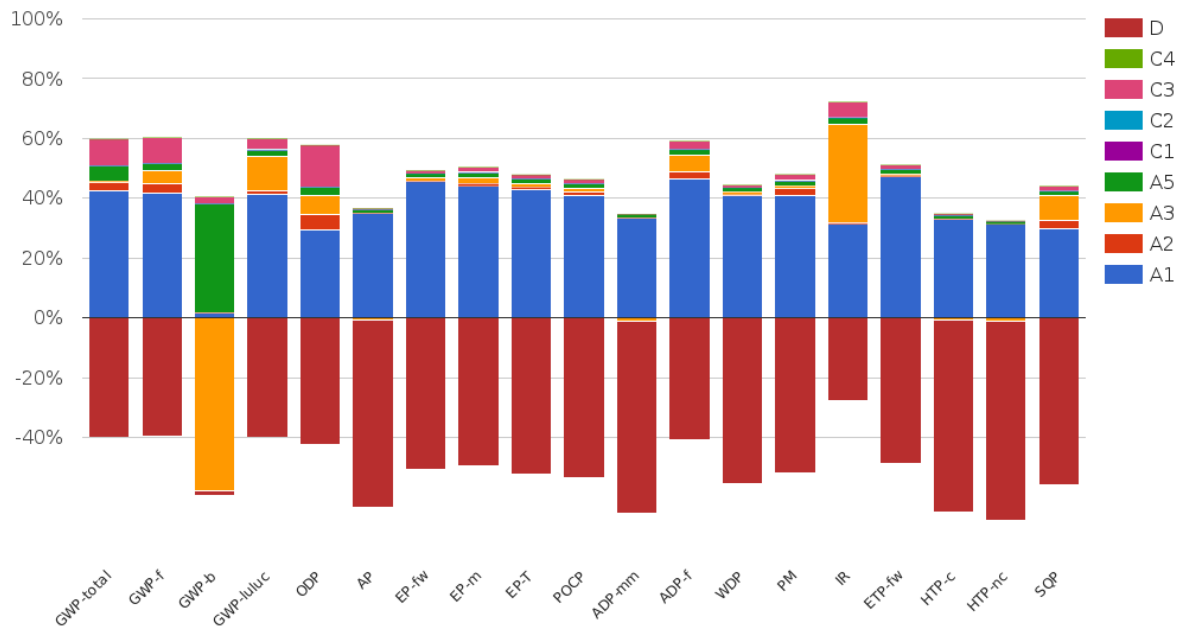
Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0	kg C
Biogenic carbon content in accompanying packaging	0.05604	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

Uptake Biogenic Carbon dioxide	Amount	Unit
Packaging	0.2055	kg CO2 (biogenic)

6 Interpretation of results



As shown in the figure, the raw-material supply (A1) dominates in most environmental core indicators. Packing materials and energy consumption required for production (A3) are also significant causes of environmental impacts. Environmental impacts of the packing materials are positive. The product´s recycling potential as a secondary material is seen as positive environmental impacts in module D. The majority of the CO2 emissions within the impact category GWP-biogenic originate from the packaging.

7 References

ISO 14040
ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

ISO 14044
ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14044:2006

ISO 14025
ISO 14025:2011-10, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804+A2
EN 15804:2012+A2:2019/AC:2021, Sustainability of Buildings - Environmental Product Declarations - Framework Development Rules by Product Category

Kiwa-EE GPI R.2.0
Kiwa-Ecobility Experts, General Programme Instructions “Product Level”, SOP EE 1203_R. 2.0 (27.02.2025)

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Kiwa-Ecobility Experts, General Programme Instructions “Product Level” – Annex B1 Environmental Information Programme according to EN 15804 / ISO 21930, SOP EE 1203_R. 2.0 (27.02.2025)

Ecoinvent
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R<THINK characterization method
ecoinvent 3.9.1: EN 15804+A1 indicators (CML-IA Baseline v3.09), EN 15804+A2 indicators (EF 3.1)

General PCR Ecobility Experts
Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

Specific PCR
Institute Construction and Environment e.V. - Part B: Requirements on the EPD for Fittings and connections for water supply (2024-08-01 v11)

Finnish Ministry of the Environment Decree 499/2019
Finnish National Decree of the Ministry of the Environment on the essential technical requirements for PEX pipe fittings intended for use in building water systems (499/2019)

8 Contact information

Publisher	Operator	Owner of declaration

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