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

NIBE S735-7kW CU

Registration number:	EPD-Kiwa-EE-212347-EN
Issue date:	20-08-2025
Valid until:	20-08-2030
Declaration owner:	NIBE Group
Publisher:	Kiwa-Ecobility Experts
Programme operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

NIBE S735-7kW CU

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-212347-EN

1.3 VALIDITY

Issue date: 20-08-2025

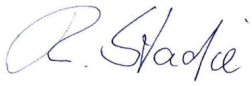
Valid until: 20-08-2030

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: NIBE Group

Address: Hannabadsvägen 5, 28521 Markaryd, Sweden

E-mail: sustainability@nibe.se

Website: https://www.nibe.eu

Production location: NIBE AB (Värmepumpcentrum)

Address production location: Järnvägsgatan 13, 28532 Markaryd, SE

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

Sanny (Kiwa - PRC), 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-EE GPI R.2.0

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

Core PCR

EN 50693 Product category rules for life cycle assessments of electronic and electrical products and systems (28.01.2020)

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

1 General information

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: v3.19 (20250306)

** 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 'NIBE S735-7kW CU' with the calculation identifier ReTHiNK-112347.

2 Product

2.1 PRODUCT DESCRIPTION

The NIBE S735 is an intelligent inverter-controlled exhaust air heat pump with an integrated hot water heater, providing heating, hot water and ventilation efficiently and economically. It provides large savings as it automatically adapts to your home's heating needs.

Operational Principle

This exhaust air heat pump has an integrated fan and a water heater provided with corrosion protection in the form of copper, enamel or stainless steel. There is an integrated immersion heater used as an additional heater when it becomes really cold outside. Energy is recovered from the ventilation air and supplied to the heat pump, which significantly reduces the energy consumption. The device ventilates the house, supplies heat and produces domestic hot water. S735 is intended for low-temperature dimensioned radiator circuits and/or underfloor heating. This product is suitable in houses or equivalent, both in new-builds and as a replacement. unit and it works based on the floating condensing principle.

The principle of how this type of pump operates in buildings is presented in general terms by the drawings in this section.

(A) S735 ventilates the house and supplies it with both hot water A and room heating.

(B) The warm room air is drawn into the air duct system.

(C) The warm room air is fed to S735.

(D) The air is released when it has passed S735. The air temperature has then dropped since S735 has extracted the energy in the air.

(E) Outdoor air is brought in, either directly into the house or via E a supply air module.

(F) Air is diverted from rooms with outdoor air devices to rooms F with exhaust air valves.

(G) Heated air is blown out into rooms with supply air valves.

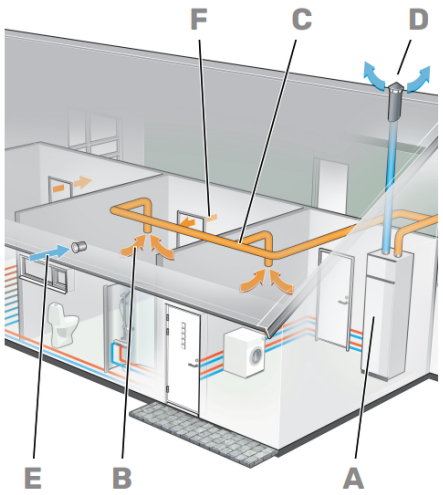
(H) Air is transferred from rooms with supply air valves to rooms H with exhaust air valves.

Detailed information for the product, manuals, ect. are available on NIBE's webpage:

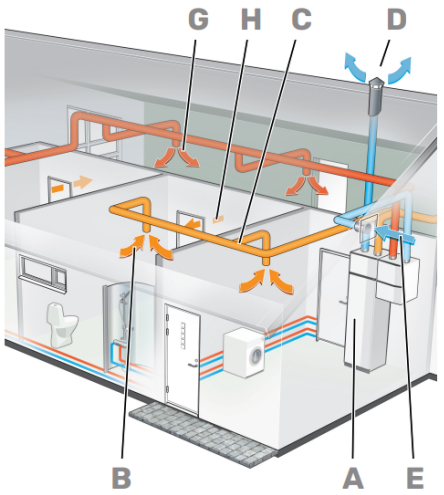
https://www.nibe.eu/

Principle

EXHAUST AIR INSTALLATION



EXHAUST AND SUPPLY AIR INSTALLATION



2 Product

2.2 REFERENCE SERVICE LIFE

RSL PRODUCT

Reference service life (RSL) is assumed to be 17 years.

This is a close assumption to the RSL of category 3 card for heat pump at the NMD (15 years) and well below the NIBE's "Construction Product Declaration" where actually 25 years is the listed value.

Product life expectancy is directly related to correct installation and service conditions.

USED RSL (YR) IN THIS LCA CALCULATION:

17

RSL PARTS

The service manual for the product was used as the basis for the suggested RSL for specific parts of this product.

For example, air filter is suggested to be changed at least each 24th months but recommended once per year. Thus, RSL for this part is assumed to be 1 year.

Description	Material	RSL [yr]
Maintenance (B2)		
Air Filter	(ei3.9.1) Polyester (PES), woven | production (EU)	1

2.3 TECHNICAL DATA

Some general technical specifications for this product are as follow:

Technology	Exhaust air heat pump
Product Dimensions	2025x600x620(HxWXD)
Production of domestic hot water	Yes
Refrigerant used	R290
Refrigerant Load	0,42kg

NIBE S735 is in conformity with the requirements of the following directives:

- Restriction of the use of Hazardous Substances (RoHS 3) 2011/65/EU, including amendment (EU) 2015/863

- Eco-design requirements for energy-related products 2009/125/EC COMMISSION REGULATION (EU) No 813/2013

- Radio Equipment Directive (RED) 2014/53/EU

NOTE (Pressure Equipment Directive (PED) 2014/68/EU shall not apply to this pressurized equipment according to item 2.f.iii in Article 1.)

The conformity was checked in accordance with the following standards:

EN 60335-2-21:2021+A1:2021

EN 60335-2-35:2016+A1:2019+A2:2021

EN 60335-2-40:2003+A1:2006+A2:2009+A11:2004+A12:2005+A13:2012

EN 60335-2-40:2003+A1:2006+A2:2009+A11:2004+A12:2005+A13:2012

EN 61000-6-1:2019

EN 61000-6-3:2021

EN 300 328 V2.2.2

EN 301 489-1 V2.2.3

EN 301 489-17 V3.2.4

Official Journal of the European Union, C 207/02, 3 July 2014; point 4

More detailed technical information is to be found in the manufacturer's documentation.

General material composition information for the product.

Material type	% of weight
Steel	62,42%
Copper	15,01%
Aluminum	4,30%
Brass	2,13%
Electrical components & cables	3,69%

2 Product

Material type	% of weight
Plastics	8,03%
Refrigerant(R290)	0,18%
Other materials	4,23%

General material composition information for the packaging.

Material type	% of weight
Wood	53,99%
Paperboard	42,41%
Plastics	1,58%
Steel	2,02%

* Gross weight is the product is 265,5kg and the weight of packaging is 35,5kg.

This product specific EPD covers the product NIBE S735-7kW (CU) and is generated on the basis of the LCA background report "NIBE S735-7kW CU EM 3x400V". The relevant product article number which should be associated with this EPD is:

Name	Part number	Type designation
NIBE S735-7 CU EM 3X400V	066132	F0002-A-001

2.4 SUBSTANCES OF VERY HIGH CONCERN

The product contains SVHC substances in amounts greater than 0,1 % (1000 ppm). To have the latest information on compliance related status, we strongly recommend checking the current product status in the European Chemical agency's database (SCIP database).

Name	Part number	SCIP number
NIBE S735-7 CU EM 3X400V	066132	ddade7ec-2fcf-4ca3-9906-e1ec1ff43623

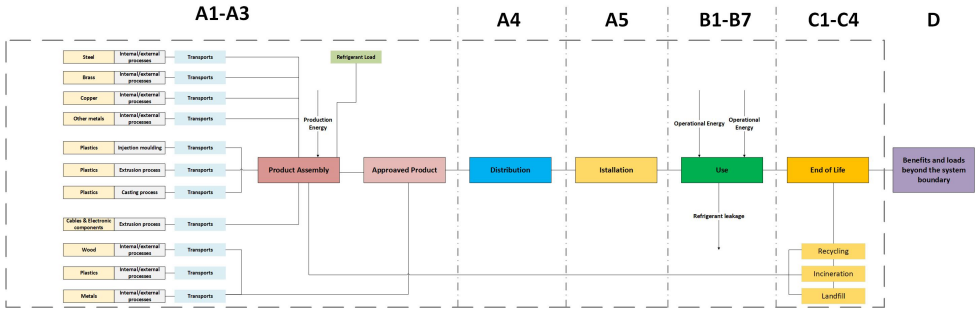
2.5 DESCRIPTION PRODUCTION PROCESS

At NIBE AB in Markaryd, Sweden several different products are manufactured therefore production is divided into different production segments e.g. facility for air to water heat pumps, facility for ground source pumps and facility for exhaust air heat pumps. These facilities focus mainly on product assembly, quality testing and packaging of approved products. The components and assemblies in these facilities might be classified as purchased or internally manufactured. Certain parts used in the products are internally manufactured at NIBE AB's production site. Examples include cabinet sides, different metal plates, pressure vessels, frames, etc.

Heat pump manufacturing is a complex process involving many different steps, but generally described the process could be simplified to a few major steps:

- Production of internally manufactured components from purchased raw materials
- Pre-assembly of specific pre-assembly groups
- Testing of the refrigeration unit (High pressure testing)
- Filling in the Refrigerant
- Final assembly
- Final product testing
- Packaging
- Distribution

The Process flow for NIBE S735-7kW is presented in the flow chart.



2.6 CONSTRUCTION DESCRIPTION

Installation of a heat pump involves unpacking of the product and connecting with the ventilation in- and outlets and the water network. Our products are supplied with an installation kit which is taken into consideration in this LCA. Thus, in this phase it is packaging waste to be considered.

3 Calculation rules

3.1 FUNCTIONAL UNIT

6kW

The declared unit of this life cycle assessments is the rated heat output of the heat pump at average climate as reported in the product energy label, where applied standrads are EN 14825, EN 16147 and EN 12102-1.
This is eque to 1 unit of finish product.

Reference unit: piece (p)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	p
Weight per reference unit	228.467	kg
Conversion factor to 1 kg	0.004377	p

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D 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	X	X	X	X	X	ND	ND	X	X	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 NIBE S735-7kW CU, a product of NIBE Group. The results of this EPD are representative for European Union.

3.5 CUT-OFF CRITERIA

Product stage (A1-A3)

All 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.

3 Calculation rules

In this EPD declaration capital goods for the production site are not taken into account.

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

Allocation is avoided to a high extend, but when this is not possible allocation is made on physical shares. This is applied for the production process, i.e. energy and material flows. These flows were allocated to the studied product based on production volumes (mass in kilograms). Allocations within the background data are part of the documentation of the Ecoinvent datasets used in this calculation.

3.7 DATA COLLECTION & REFERENCE PERIOD

Data collection was conducted according to the ISO 14044:2006, Chapter 4.3.2. According to the goal definition, all significant in- and output flows that are in relation to the examined product are identified and quantified. The in- and output flows are attributed to the processes in which they take place. For the process stages raw material supply (module A1), transporting to manufacturing facility (module A2) and manufacturing (module A3), the in- and output flows could be clearly assigned.

Data on product composition and all process-specific data represent the reference year 2023. Data on raw materials suppliers represent also reference year 2023.

3.8 ESTIMATES AND ASSUMPTIONS

Since the outside of product is painted, the amount of powder coating used for coloring certain parts is assumed based on theoretically calculated surface of the product.

Under the **Usage phase** the following estimations for the calculations were done:

Leakage from the cooling unit(B1)

During the usage stage, there are refrigerant leakage emissions to the air which need to be taken into consideration. These emissions have a worst-case scenario of 3 grams per year for hermetically sealed equipment and 5 gram per year for non-hermetically sealed equipment.

The current product is classified as hermitically sealed pump which means that at worst case scenario the leakage of refrigerant to the atmosphere is 3g x 17 years=51g= 51000mg for the RSL. Note should be made on the fact that during testing the cooling unit, non-permanent joint/sealings are used.

Refill threshold for this product is not reached during the RSL, thus the cooling unit doesn't need to be refilled.

Maintenance(B2)

According to the product manual, the air filter is suggested to be changed at least every 24th month, but recommended once per year. Thus, in the calculation it is assumed that the air filter is changed once per year over the product RSL.

Repair(B3)

When the product is installed and maintained in accordance with the manufacturer's requirements, no repair is expected throughout its reference lifetime.

Replacement(B4)

When the product is installed and maintained in accordance with the manufacturer's requirements, no replacements are required throughout its reference lifetime.

Refurbishment(B5)

When the product is installed and maintained in accordance with the manufacturer's requirements, no refurbishment is expected throughout its reference lifetime.

Operational energy use (B6)

NIBE S735 is a product which is permanently installed in a building and uses energy under the usage stage, thus B6 phase is reported. The most accurate way to evaluate the environmental impact of an installation is to use relevant parameters for the specific calculation, e.g.

-estimated energy need for the building based on facts (e.g. building insulation status)

-radiator system or floor heating

-cold, average or warm climate

-proper energy mix environmental profile

For this EPD report, the values reported in B6 are based on estimations we have made for a pump which has been installed in Sweden. The annual consumption by the heat pump as reported in the energy label for this product is 3622 kWh (cold climate at temperature application 55 degrees Celsius). The total operational energy used over the RSL is assumed

3 Calculation rules

to be 61 574kWh. The environmental profile of the energy mix was selected for the assumed geographical region from Ecoinvent database version 3.9.1 (2022): “Electricity (SE) - low voltage (max 1kV)”.

These numbers might vary depending on specific installation and geography; therefore, we strongly recommend using the results with a high degree of awareness. If more specific information is needed it is recommended to reach out to the owner of the declaration (section 8 Contact information).

Operational water use(B7)

No processes could be expected at this module.

At the end-of-life of this product, there is no need of de-construction/demolition process since the unit is simply disconnected. Therefore no values are reported at module C1. For the transportation to waste treatment plant (module C2), waste processing (module C3) and disposal (module C4) the scenarios used in the assessment are described in chapter 4.9.

Further assumptions are only listed in the background report due to manufacturing protection reasons.

3.9 DATA QUALITY

The quality of the data shall be considered as good.

For the purchased raw materials and components, an effort on collecting specific EPDs has been done. Materials and parts where no specific EPD data was provided, secondary datasets from the Ecoinvent database version 3.9.1 (2022) were used in the modelling.

For the relevant internal manufacturing and assembly processes, where possible specific data was collected. But the general rule has been to use average data based on annual consumption at the NIBE's production location. For processes that NIBE couldn't influence, generic process datasets were used in the modelling.

The generic datasets selection was driven by understanding the material composition and applied processes and later on to the best of our knowledge choosing datasets that maps best the actual product.

Ecoinvent is regularly checked, thus shall comply with the requirements of DIN EN ISO 14044 (background data not older than 10 years). The background data meets the requirements of EN 15804.

3.10 POWER MIX

With regard to the energy consumption during manufacturing, a "market-based approach" was used.

Within the NIBE Group Guarantees of Origin (GoO) are purchased for all operations worldwide to guarantee the origin of renewable electricity. Certificate proof for NIBE AB(2023) reports on 100% hydropower therefore dataset "Electricity, low voltage (SE) - 100% hydro power" was used in the calculation.

4 Scenarios and additional technical information

4.1 TRANSPORT TO CONSTRUCTION SITE (A4)

For the transport from production place to assembly/user, the following scenario is assumed for module A4 of this EPD.

	Value and unit
Vehicle type used for transport	(ei3.6) Lorry (Truck), unspecified (default) | market group for (GLO)
Fuel type and consumption of vehicle	not available
Distance	2500 km
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.2 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	0	%
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	15.499	kg

4.3 USE STAGE (B1)

Emissions to air/soil/water are applicable, the scenario accounted in module B1 is as follows in the table below:

Description	Cycle (yr)	Number of cycles	Amount per cycle	Total Amount	Unit
Refrigerant Leakage	17	1	51000	51000	mg

4 Scenarios and additional technical information

4.4 MAINTENANCE (B2)

Technical maintenance is needed during Use Stage. For maintenance the scenario(s) as mentioned below are included in this EPD.

Description	Service cycle (yr)	Number of cycles (n)	Amount per cycle	Total Amount	Unit
Air Filter	1	16	0.078	1.248	kg

4.5 REPAIR (B3)

Repairs are not applicable within the functional unit and to achieve the reference service life.

4.6 OPERATIONAL ENERGY USE (B6)

Description	Service cycle (yr)	Number of cycles (n)	Amount per cycle	Total Amount	Unit
Operational energy	1	17.00	3622	61,574.00	kWh

4.7 OPERATIONAL WATER USE (B7)

Description	Service cycle (yr)	Number of cycles (n)	Amount per cycle	Total Amount	Unit
Operational water	1	17.00	0	0.00	kg

4.8 DE-CONSTRUCTION, DEMOLITION (C1)

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

4.9 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]
		0	100	150	50	50

4 Scenarios and additional technical information

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
(ei3.9.1) Metals, others (i.a. fasteners, fittings) (NMD ID 50) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)					
(ei3.9.1) bitumen (i.a. roofing material) (NMD ID 16) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Steel, light (NMD ID 73) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) finishes (adhered to wood, plastic, metal) (NMD ID 2) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Metals, mixed (via residue (NMD ID 49) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Galvanised steel (i.a. profiles, sheets) (NMD ID 75) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) aluminium, wrought alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 5) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) plastics, via residue (NMD ID 43) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) elastomeres (i.a. epdm) (i.a. roofing, foils) (NMD ID 20) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Steel, construction profiles (NMD ID 70) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) copper, mixed (electricity cables) (NMD ID 42) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50

4 Scenarios and additional technical information

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
(ei3.9.1) aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Refrigerant R290 (NMD cat3 generic data) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Corrugated board / Core board (PEF scenario) | (u=10%, glue=2%) corr. acc. EN16449 | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) Zinc / zinc coating galvanised steel (i.a. profiles, sheets, zinc coating) (NMD ID 75) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50
(ei3.9.1) PVC, pipes (NMD ID 64) | Exported Energy EU	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	50

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

4.10 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) Metals, others (i.a. fasteners, fittings) (NMD ID 50) | Exported Energy EU	EU	0	5	5	90	0

4 Scenarios and additional technical information

Waste Scenario	Region	Not removed (stays in work) [%]	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
(ei3.9.1) bitumen (i.a. roofing material) (NMD ID 16) | Exported Energy EU	EU	0	5	90	5	0
(ei3.9.1) Steel, light (NMD ID 73) | Exported Energy EU	EU	0	1	0	87	12
(ei3.9.1) finishes (adhered to wood, plastic, metal) (NMD ID 2) | Exported Energy EU	EU	0	0	100	0	0
(ei3.9.1) Metals, mixed (via residue (NMD ID 49) | Exported Energy EU	EU	0	5	5	90	0
(ei3.9.1) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45) | Exported Energy EU	EU	0	0	90	10	0
(ei3.9.1) Galvanised steel (i.a. profiles, sheets) (NMD ID 75) | Exported Energy EU	EU	0	5	0	95	0
(ei3.9.1) aluminium, wrought alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 5) | Exported Energy EU	EU	0	3	3	94	0
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57) | Exported Energy EU	EU	0	10	85	5	0
(ei3.9.1) plastics, via residue (NMD ID 43) | Exported Energy EU	EU	0	20	80	0	0
(ei3.9.1) elastomeres (i.a. epdm) (i.a. roofing, foils) (NMD ID 20) | Exported Energy EU	EU	0	10	85	5	0
(ei3.9.1) Steel, construction profiles (NMD ID 70) | Exported Energy EU	EU	0	1	0	94	5
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41) | Exported Energy EU	EU	0	5	0	95	0
(ei3.9.1) copper, mixed (electricity cables) (NMD ID 42) | Exported Energy EU	EU	0	10	5	85	0
(ei3.9.1) aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | Exported Energy EU	EU	0	3	3	94	0
(ei3.9.1) Refrigerant R290 (NMD cat3 generic data) | Exported Energy EU	EU	1	0	39.4	59.1	0
(ei3.9.1) Corrugated board / Core board (PEF scenario) | (u=10%, glue=2%) corr. acc. EN16449 | Exported Energy EU	EU	0	0	25	75	0
(ei3.9.1) Zinc / zinc coating galvanised steel (i.a. profiles, sheets, zinc coating) (NMD ID 75) | Exported Energy EU	EU	0	5	0	95	0
(ei3.9.1) PVC, pipes (NMD ID 64) | Exported Energy EU	EU	0	10	20	70	0

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
(ei3.9.1) Metals, others (i.a. fasteners, fittings) (NMD ID 50) | Exported Energy EU	0.000	0.341	0.341	6.144	0.000
Total	**0.004**	**8.992**	**24.993**	**187.068**	**7.408**

4 Scenarios and additional technical information

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
(ei3.9.1) bitumen (i.a. roofing material) (NMD ID 16) | Exported Energy EU	0.000	0.309	5.556	0.309	0.000
(ei3.9.1) Steel, light (NMD ID 73) | Exported Energy EU	0.000	0.381	0.000	33.142	4.571
(ei3.9.1) finishes (adhered to wood, plastic, metal) (NMD ID 2) | Exported Energy EU	0.000	0.000	1.382	0.000	0.000
(ei3.9.1) Metals, mixed (via residue (NMD ID 49) | Exported Energy EU	0.000	0.364	0.364	6.547	0.000
(ei3.9.1) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45) | Exported Energy EU	0.000	0.000	3.421	0.380	0.000
(ei3.9.1) Galvanised steel (i.a. profiles, sheets) (NMD ID 75) | Exported Energy EU	0.000	2.054	0.000	39.017	0.000
(ei3.9.1) aluminium, wrought alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 5) | Exported Energy EU	0.000	0.282	0.282	8.838	0.000
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57) | Exported Energy EU	0.000	0.595	5.055	0.297	0.000
(ei3.9.1) plastics, via residue (NMD ID 43) | Exported Energy EU	0.000	1.807	7.228	0.000	0.000
(ei3.9.1) elastomeres (i.a. epdm) (i.a. roofing, foils) (NMD ID 20) | Exported Energy EU	0.000	0.120	1.019	0.060	0.000
(ei3.9.1) Steel, construction profiles (NMD ID 70) | Exported Energy EU	0.000	0.567	0.000	53.328	2.837
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41) | Exported Energy EU	0.000	1.908	0.000	36.257	0.000
(ei3.9.1) copper, mixed (electricity cables) (NMD ID 42) | Exported Energy EU	0.000	0.255	0.128	2.171	0.000
(ei3.9.1) aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | Exported Energy EU	0.000	0.001	0.001	0.030	0.000
(ei3.9.1) Refrigerant R290 (NMD cat3 generic data) | Exported Energy EU	0.004	0.000	0.165	0.248	0.000
(ei3.9.1) Corrugated board / Core board (PEF scenario) | (u=10%, glue=2%) corr. acc. EN16449 | Exported Energy EU	0.000	0.000	0.051	0.153	0.000
(ei3.9.1) Zinc / zinc coating galvanised steel (i.a. profiles, sheets, zinc coating) (NMD ID 75) | Exported Energy EU	0.000	0.008	0.000	0.146	0.000
(ei3.9.1) PVC, pipes (NMD ID 64) | Exported Energy EU	0.000	0.000	0.000	0.001	0.000
Total	**0.004**	**8.992**	**24.993**	**187.068**	**7.408**

4.11 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) Metals, others (i.a. fasteners, fittings) (NMD ID 50) | Exported Energy EU	3.021	0.000
(ei3.9.1) bitumen (i.a. roofing material) (NMD ID 16) | Exported Energy EU	0.309	167.004
(ei3.9.1) Steel, light (NMD ID 73) | Exported Energy EU	25.088	0.000
(ei3.9.1) finishes (adhered to wood, plastic, metal) (NMD ID 2) | Exported Energy EU	0.000	28.740
(ei3.9.1) Metals, mixed (via residue (NMD ID 49) | Exported Energy EU	6.065	12.901
(ei3.9.1) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45) | Exported Energy EU	0.380	120.409
(ei3.9.1) Galvanised steel (i.a. profiles, sheets) (NMD ID 75) | Exported Energy EU	28.110	0.000
(ei3.9.1) aluminium, wrought alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 5) | Exported Energy EU	5.979	0.000
(ei3.9.1) polyolefines (i.a. pe,pp) (i.a. pipes, foils) (NMD ID 57) | Exported Energy EU	0.297	125.767
(ei3.9.1) plastics, via residue (NMD ID 43) | Exported Energy EU	0.000	213.274
(ei3.9.1) elastomeres (i.a. epdm) (i.a. roofing, foils) (NMD ID 20) | Exported Energy EU	0.060	27.696
(ei3.9.1) Steel, construction profiles (NMD ID 70) | Exported Energy EU	42.460	0.000
(ei3.9.1) copper (i.a. sheets, pipes) (NMD ID 41) | Exported Energy EU	11.943	0.000
(ei3.9.1) copper, mixed (electricity cables) (NMD ID 42) | Exported Energy EU	2.171	0.000
(ei3.9.1) aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | Exported Energy EU	0.006	0.000
(ei3.9.1) Refrigerant R290 (NMD cat3 generic data) | Exported Energy EU	0.248	7.678
(ei3.9.1) Corrugated board / Core board (PEF scenario) | (u=10%, glue=2%) corr. acc. EN16449 | Exported Energy EU	0.153	0.720
(ei3.9.1) Zinc / zinc coating galvanised steel (i.a. profiles, sheets, zinc coating) (NMD ID 75) | Exported Energy EU	0.146	0.000
(ei3.9.1) PVC, pipes (NMD ID 64) | Exported Energy EU	0.001	0.009
Total	**126.437**	**704.199**

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 PIECE

CORE ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	8.72E+2	2.48E+1	1.43E+2	1.04E+3	8.24E+1	2.64E+1	0.00E+0	1.18E+1	0.00E+0	2.73E+3	0.00E+0	0.00E+0	2.14E+0	6.60E+1	4.00E-1	-3.51E+2
GWP-f	kg CO_2 eq.	8.70E+2	2.48E+1	1.66E+2	1.06E+3	8.23E+1	1.15E+0	0.00E+0	1.18E+1	0.00E+0	2.48E+3	0.00E+0	0.00E+0	2.13E+0	6.56E+1	4.00E-1	-3.50E+2
GWP-b	kg CO_2 eq.	-9.01E-1	9.82E-3	-2.45E+1	-2.54E+1	3.32E-2	2.52E+1	0.00E+0	1.41E-2	0.00E+0	4.34E+1	0.00E+0	0.00E+0	6.95E-4	3.54E-1	2.77E-4	-2.01E-1
GWP-luluc	kg CO_2 eq.	2.05E+0	1.04E-2	8.81E-1	2.94E+0	3.02E-2	1.09E-3	0.00E+0	7.83E-3	0.00E+0	2.11E+2	0.00E+0	0.00E+0	7.60E-3	8.28E-3	5.40E-5	-1.57E-1
ODP	kg CFC 11 eq.	6.17E-5	5.40E-6	8.35E-6	7.54E-5	1.82E-5	3.73E-8	0.00E+0	8.75E-7	0.00E+0	8.49E-5	0.00E+0	0.00E+0	3.80E-8	1.26E-6	2.60E-9	-6.90E-6
AP	mol H+ eq.	1.59E+1	2.39E-1	1.12E+0	1.73E+1	4.78E-1	5.89E-3	0.00E+0	4.21E-2	0.00E+0	2.82E+1	0.00E+0	0.00E+0	1.02E-2	4.49E-2	7.22E-4	-1.19E+1
EP-fw	kg P eq.	1.05E-1	2.34E-4	1.43E-2	1.20E-1	8.29E-4	1.17E-5	0.00E+0	2.64E-4	0.00E+0	1.78E-1	0.00E+0	0.00E+0	2.12E-5	2.36E-4	1.38E-6	-2.57E-2
EP-m	kg N eq.	1.36E+0	7.19E-2	1.65E-1	1.60E+0	1.68E-1	2.46E-3	0.00E+0	7.84E-3	0.00E+0	3.70E+0	0.00E+0	0.00E+0	3.88E-3	1.12E-2	3.96E-4	-5.57E-1
EP-T	mol N eq.	1.50E+1	7.95E-1	1.72E+0	1.75E+1	1.85E+0	2.67E-2	0.00E+0	8.70E-2	0.00E+0	4.81E+1	0.00E+0	0.00E+0	4.14E-2	1.26E-1	2.89E-3	-7.89E+0
POCP	kg NMVOC eq.	4.91E+0	2.19E-1	5.88E-1	5.72E+0	5.29E-1	8.31E-3	1.51E-2	3.45E-2	0.00E+0	1.23E+1	0.00E+0	0.00E+0	1.41E-2	3.74E-2	2.36E-3	-2.85E+0
ADP-mm	kg Sb-eq.	2.80E-1	5.63E-4	1.55E-2	2.96E-1	2.09E-3	2.96E-6	0.00E+0	7.51E-5	0.00E+0	2.42E-1	0.00E+0	0.00E+0	6.68E-6	1.42E-4	2.30E-7	-1.52E-1
ADP-f	MJ	1.15E+4	3.66E+2	2.80E+3	1.47E+4	1.24E+3	9.19E+0	0.00E+0	1.64E+2	0.00E+0	3.72E+5	0.00E+0	0.00E+0	3.06E+1	7.02E+1	2.23E+0	-3.75E+3
WDP	m3 world eq.	3.78E+2	1.23E+0	4.16E+1	4.20E+2	4.44E+0	1.11E-1	0.00E+0	6.20E+0	0.00E+0	4.75E+3	0.00E+0	0.00E+0	1.67E-1	2.45E+0	4.65E-2	-3.09E+2

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	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
PM	disease incidence	6.27E-5	2.01E-6	5.60E-6	7.03E-5	7.38E-6	8.71E-8	0.00E+0	4.80E-7	0.00E+0	1.91E-4	0.00E+0	0.00E+0	2.11E-7	5.34E-7	1.55E-8	-4.03E-5
IR	kBq U235 eq.	3.11E+1	1.54E+0	1.49E+1	4.75E+1	5.20E+0	1.08E-2	0.00E+0	3.06E-1	0.00E+0	1.30E+4	0.00E+0	0.00E+0	1.19E-2	2.01E-1	2.44E-3	-5.36E+0
ETP-fw	CTUe	4.50E+4	3.16E+2	4.05E+3	4.93E+4	1.11E+3	1.49E+1	1.67E-4	2.01E+2	0.00E+0	3.75E+4	0.00E+0	0.00E+0	2.25E+1	5.23E+2	4.63E+1	-7.52E+3
HTP-c	CTUh	4.16E-6	1.14E-8	3.94E-7	4.57E-6	3.59E-8	2.89E-9	0.00E+0	5.81E-9	0.00E+0	6.30E-6	0.00E+0	0.00E+0	1.13E-9	1.73E-8	8.73E-11	-8.53E-7
HTP-nc	CTUh	1.93E-4	3.38E-7	8.18E-6	2.02E-4	1.21E-6	1.34E-8	5.10E-11	1.03E-7	0.00E+0	2.70E-4	0.00E+0	0.00E+0	2.45E-8	2.42E-7	5.00E-9	-1.60E-4
SQP	Pt	6.20E+3	2.84E+2	2.80E+3	9.29E+3	1.08E+3	4.61E+0	0.00E+0	3.75E+1	0.00E+0	9.63E+4	0.00E+0	0.00E+0	2.41E+1	5.46E+1	4.97E+0	-4.18E+3

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

5 Results

ILCD classification	Indicator	Disclaimer
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	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	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
PERE	MJ	1.15E+3	4.49E+0	7.81E+2	1.93E+3	1.55E+1	3.24E-1	0.00E+0	9.98E+0	0.00E+0	1.67E+5	0.00E+0	0.00E+0	4.32E-1	8.14E+0	1.06E-1	-4.55E+2
PERM	MJ	3.17E+0	0.00E+0	2.26E+2	2.29E+2	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	0.00E+0	0.00E+0
PERT	MJ	1.46E+3	4.49E+0	1.03E+3	2.50E+3	1.55E+1	3.24E-1	0.00E+0	9.98E+0	0.00E+0	1.67E+5	0.00E+0	0.00E+0	4.32E-1	8.14E+0	1.06E-1	-4.55E+2
PENRE	MJ	8.01E+3	3.89E+2	2.51E+3	1.09E+4	1.32E+3	9.19E+0	0.00E+0	1.23E+2	0.00E+0	3.72E+5	0.00E+0	0.00E+0	3.06E+1	7.03E+1	2.23E+0	-3.72E+3
PENRM	MJ	8.33E+2	0.00E+0	7.66E+1	9.10E+2	0.00E+0	0.00E+0	0.00E+0	4.17E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-4.28E+1
PENRT	MJ	1.18E+4	3.89E+2	2.83E+3	1.50E+4	1.32E+3	9.19E+0	0.00E+0	1.64E+2	0.00E+0	3.72E+5	0.00E+0	0.00E+0	3.06E+1	7.03E+1	2.23E+0	-3.76E+3
SM	Kg	5.11E+1	0.00E+0	4.34E+0	5.54E+1	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	0.00E+0	1.03E-1
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	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	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	1.17E+1	4.22E-2	2.32E+0	1.40E+1	1.51E-1	6.91E-3	0.00E+0	1.62E-1	0.00E+0	3.21E+2	0.00E+0	0.00E+0	7.38E-3	8.55E-2	2.52E-3	-6.78E+0

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	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
HWD	Kg	1.45E+0	8.54E-4	3.45E-1	1.80E+0	3.15E-3	5.43E-5	0.00E+0	2.32E-4	0.00E+0	1.42E-1	0.00E+0	0.00E+0	1.95E-4	5.88E-2	1.04E-5	5.27E-2
NHWD	Kg	1.90E+2	2.04E+1	2.90E+1	2.39E+2	7.87E+1	9.03E+0	0.00E+0	2.67E+0	0.00E+0	1.44E+3	0.00E+0	0.00E+0	2.02E+0	2.75E+1	9.01E+0	-4.98E+1
RWD	Kg	4.83E-2	2.43E-3	1.37E-2	6.45E-2	8.17E-3	8.34E-6	0.00E+0	2.62E-4	0.00E+0	5.70E+0	0.00E+0	0.00E+0	6.99E-6	1.47E-4	1.39E-6	-3.51E-3

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	A4	A5	B1	B2	B3	B6	B7	C1	C2	C3	C4	D
CRU	Kg	0.00E+0	0.00E+0	6.23E-1	6.23E-1	0.00E+0	2.16E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.41E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	1.65E+1	1.65E+1	0.00E+0	6.87E+0	0.00E+0	6.76E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.87E+2	0.00E+0	9.09E+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	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	1.82E+1	1.82E+1	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	0.00E+0	2.64E+2
EEE	MJ	2.25E-5	0.00E+0	1.05E+1	1.05E+1	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	0.00E+0	1.53E+2

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 PIECE

BIOGENIC CARBON CONTENT

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

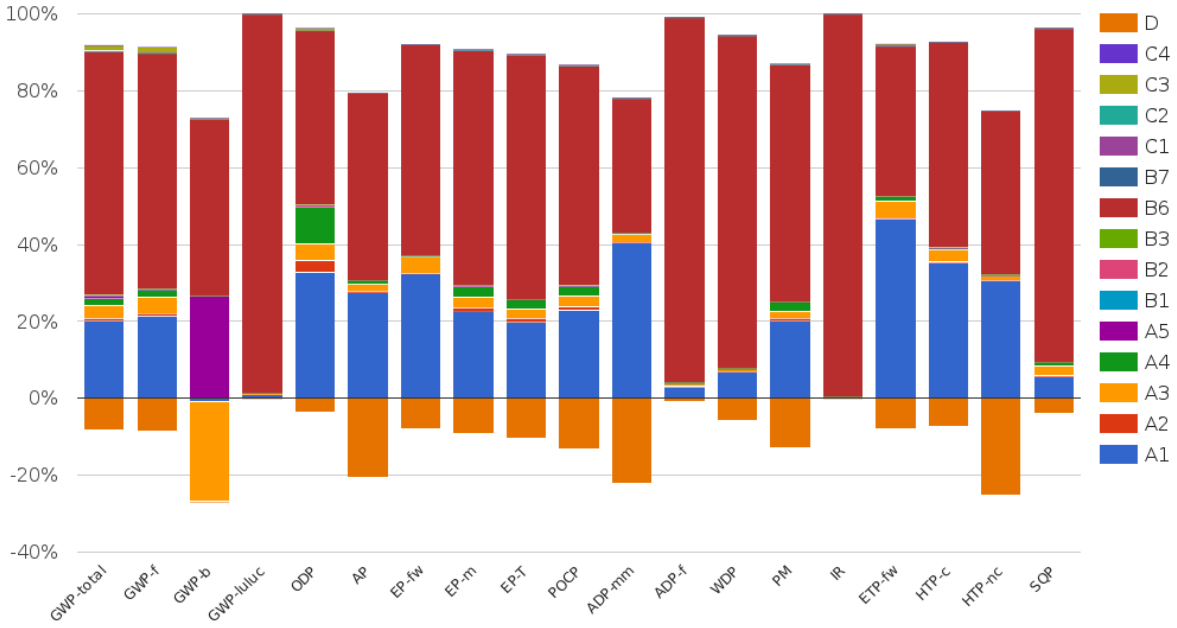
Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0.09087	kg C
Biogenic carbon content in accompanying packaging	6.854	kg C

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
product	0.3332	kg CO2 (biogenic)
Packaging	25.13	kg CO2 (biogenic)

6 Interpretation of results



In order to easily recognize relationships and connections between the results of this life cycle assessment and the modules as defined in EN 15804, graphical reperesentation of the results is used.

The operational energy usage (module B6) stays for the lion share in almost all enviromental impact categories, followed by the raw materials and components used for the product manufacturing(module A1).

The manufacturing processes (module A3) and transports of raw materials and components(module A2) have quite low effect in the enviromental profile.

For almost all impact cetegorie there are benefits outside the system bouldaries.

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+A2: 2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

Kiwa-EE GPI R.2.0

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

EN 50693

EN 50693:2019, Product category rules for life cycle assessments of electronic and electrical products and systems (28.01.2020)

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

Ecoinvent
ecoinvent Version 3.9.1, December 2022

EN 14825

Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling, commercial and process cooling - Testing and rating at part load conditions and calculation of seasonal performance

EN 12102-1

Air conditioners, liquid chilling packages, heat pumps, process chillers and dehumidifiers with electrically driven compressors - Determination of the sound power level - Part 1: Air conditioners, liquid chilling packages, heat pumps for space heating and cooling, dehumidifiers and process chillers

EN 16147

7 References

Heat pumps with electrically driven compressors - Testing, performance rating and requirements for marking of domestic hot water units

EN 60335-2

Household and similar electrical appliances - Safety - Part 2: Particular requirements for storage water heaters

EN 61000-6

Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity for residential, commercial and light-industrial environments

E**N 300 328**

Wideband transmission systems - Data transmission equipment operating in the 2,4 GHz band - Harmonised Standard for access to radio spectrum

EN 301 489-1

ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility

EN 301 489-17

ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility

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