

# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

1000 kg of Beissi concrete furniture  
Rudus Oy



**EPD HUB, HUB-5933**

Published on 06.04.2026, last updated on 06.04.2026, valid until 05.04.2031

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

<b>Manufacturer</b>	Rudus Oy
<b>Address</b>	Karvaamokuja 2 a, 00380 Helsinki, Finland
<b>Contact details</b>	etunimi.sukunimi@rudus.fi
<b>Website</b>	www.rudus.fi

This EPD is intended for business-to-business and/or business-to-consumer 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.

### EPD STANDARDS, SCOPE AND VERIFICATION

<b>Program operator</b>	EPD Hub, hub@epdhub.com
<b>Reference standard</b>	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
<b>PCR</b>	EPD Hub Core PCR Version 1.2, 24 Mar 2025 EN 16757 Product Category Rules for concrete and concrete elements
<b>Sector</b>	Construction product
<b>Category of EPD</b>	Third party verified EPD
<b>Parent EPD number</b>	-
<b>Scope of the EPD</b>	Cradle to gate with modules C1-C4, D
<b>EPD author</b>	Harri Kinnunen, Rudus Oy
<b>EPD verification</b>	Independent verification of this EPD and data, according to ISO 14025:  <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
<b>EPD verifier</b>	Vera Durão, as an authorised verifier acting for EPD Hub Limited

## PRODUCT

<b>Product name</b>	1000 kg of Beissi concrete furniture
<b>Additional labels</b>	-
<b>Product reference</b>	Beissi suora L=995 - 1995 mm, Beissi suora sovite L=1001-1990 mm, Beissi kulma 90° L=995 mm, Beissi kaarre r=1,2 - 6,5 m, Verso r=2,0 L=1565 mm and r=6,5 m L=1695 mm, Kolmikko r=0,5 m L=868 mm
<b>Place(s) of raw material origin</b>	Finland, EU
<b>Place of production</b>	Rudus Lappeenranta, Kaakkoiskaari 2 A, 53500 Lappeenranta, Finland
<b>Place(s) of installation and use</b>	Finland
<b>Period for data</b>	1.1.2025 - 31.12.2025
<b>Averaging in EPD</b>	Multiple products
<b>Variation in GWP-fossil for A1-A3 (%)</b>	-1 %
<b>GTIN (Global Trade Item Number)</b>	-
<b>NOBB (Norwegian Building Product Database)</b>	-
<b>A1-A3 Specific data (%)</b>	91,7

## ENVIRONMENTAL DATA SUMMARY

<b>Declared unit</b>	1000 kg of Beissi concrete furniture
<b>Declared unit mass</b>	1000 kg
<b>Mass of packaging</b>	0 kg
<b>GWP-fossil, A1-A3 (kgCO2e)</b>	111
<b>GWP-total, A1-A3 (kgCO2e)</b>	111
<b>Secondary material, inputs (%)</b>	6,64
<b>Secondary material, outputs (%)</b>	80,2
<b>Total energy use, A1-A3 (kWh)</b>	350
<b>Net freshwater use, A1-A3 (m3)</b>	2,54

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Rudus is Finland's leading manufacturer of concrete products and rock-based building materials. Rudus is present where durable buildings and structures are erected. The core of our operations is concrete, concrete products, various aggregates and recycling. Rudus is part of the international CRH building materials group.

Rudus is committed to addressing the challenges of climate change, safeguarding biodiversity and promoting the circular economy in a targeted and sustainable way. Continuous product development and innovation make it possible to achieve the goals. By offering innovative and value-added products and solutions, we want to ensure a sustainable society for future generations.

Rudus operations are guided by a certified operating system that ensures operational responsibility, management of adverse impacts and continuous development of operations. Rudus operations have certified systems in accordance with the following standards:

- Quality system ISO 9001
- Environmental system ISO 14001
- Energy management system ISO 50001
- Occupational health and safety system ISO 45001

In 2023, Rudus was the first operator in Finland to be awarded CSC (Concrete Sustainability Council) certificates that meet high international criteria, as a testament to responsible operations in the concrete industry.

### PRODUCT DESCRIPTION

Beissi is a modern, well-crafted concrete furniture series designed to bring comfort, safety, and visual quality to urban environments. The Finnish-made elements create lively and inviting spaces for meeting, resting, and

children's play, while also enabling the integration of small green areas into dense city settings. The system supports durable planting zones in both small and larger public or semi-public street and park areas.

The series is built around double-sided modular elements with side dimensions of 500/400 × 500 mm. Available modules include straight, curved, and corner units, allowing flexible combinations for seating, boundaries, and planting structures. The total length of the product may vary depending on the selected module.

The concrete used in Beissi elements is strength class C35/45 with exposure class XF4, ensuring high durability in demanding outdoor conditions. The technical service life of the products is 50 years under normal use. The density of the Beissi products is 2500 kg/m<sup>3</sup>.

The average Environmental Product Declaration has been calculated using a worst-case scenario approach. Within the Beissi product family, the only parameter that varies between products is the amount of reinforcing steel. The highest reinforcement ratio occurs in the product Beissi kaarre r = 1200 mm, L = 1875 mm (2.2%), while the lowest reinforcement ratio occurs in Beissi Kolmikko r = 500 mm, L = 868 mm (1.1%).

The Beissi kaarre r = 1200 mm, L = 1875 mm product is used as the reference product for this EPD. All other products in the Beissi product series fall between these reinforcement levels.

The following Beissi concrete furniture products are included within the scope of this Environmental Product Declaration:

Beissi suora, L = 995–1995 mm

Beissi suora sovite, L = 1001–1990 mm

Beissi kulma 90°, L = 995 mm

Beissi kaarre, r = 1.2–6.5 m

Verso, r = 2.0 m (L = 1565 mm) and r = 6.5 m (L = 1695 mm)

Kolmikko, r = 0.5 m (L = 868 mm)

Further information can be found at:  
[www.rudus.fi](http://www.rudus.fi)

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	2,2	EU
Minerals	97,8	Finland, EU
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

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1000 kg of Beissi concrete furniture
Mass per declared unit	1000 kg
Functional unit	-
Reference service life	-

### SUBSTANCES, REACH - VERY HIGH CONCERN

Substances of very high concern	EC	CAS
-	-	-

# 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	ND	ND	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.

Production begins by oiling the steel casting mould to ensure proper release and surface quality. A pre-assembled steel reinforcement cage is then placed into the mould, followed by the installation of the required steel lifting anchors. Transport emissions from raw material delivery are included based on plant-specific distances. Vehicle type is assumed to be EURO 5 class lorries.

Concrete is produced at the factory’s batching plant using aggregates, cement, water, and admixtures. The fresh concrete is cast into the steel mould, compacted, and the visible surfaces are finished according to product requirements. The concrete element is demoulded the following day. After removal, the product undergoes final finishing and quality checks before being transferred to storage. Finished units are stored on-site until they are delivered to the customer.

No packaging material is used with this product. Material losses during manufacturing are considered. Energy and water consumption and generated waste are taken into account. The manufacturing plant is heated by district heating. Diesel is used in internal logistics within the manufacturing plant. All electricity used during manufacturing is supplied from nuclear power sources supported by a Guarantee of Origin certificate. During the manufacturing process, waste streams include concrete waste, steel scrap and wastewater. Concrete waste and steel scrap are recycled. Transport distances for these waste streams are plant-specific, and transportation is assumed to be carried out using EURO 5 class lorries. All data are modelled using industry-average datasets and site-specific information where available, in accordance with EN 15804+A2 and the relevant Product Category Rules (PCR).

### 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. This EPD does not cover transport and installation. Air, soil, and water impacts during the transport and installation phases have not been studied.

### PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

### PRODUCT END OF LIFE (C1-C4, D)

At the Demolition module (C1), the Beissi concrete furniture is demolished using diesel-powered machinery. The energy consumption for demolition is assumed to be 0.07 kWh/kg of concrete (source: Gervasio & Dimova, 2018, JRC Technical Report). During demolition the product becomes part of the mixed reinforced concrete waste stream, and all emissions from demolition equipment are included.

In module C2, the waste is transported to a treatment facility. Transport impacts are modeled based on average transport distances (50km), assuming a diesel lorry as the vehicle type.

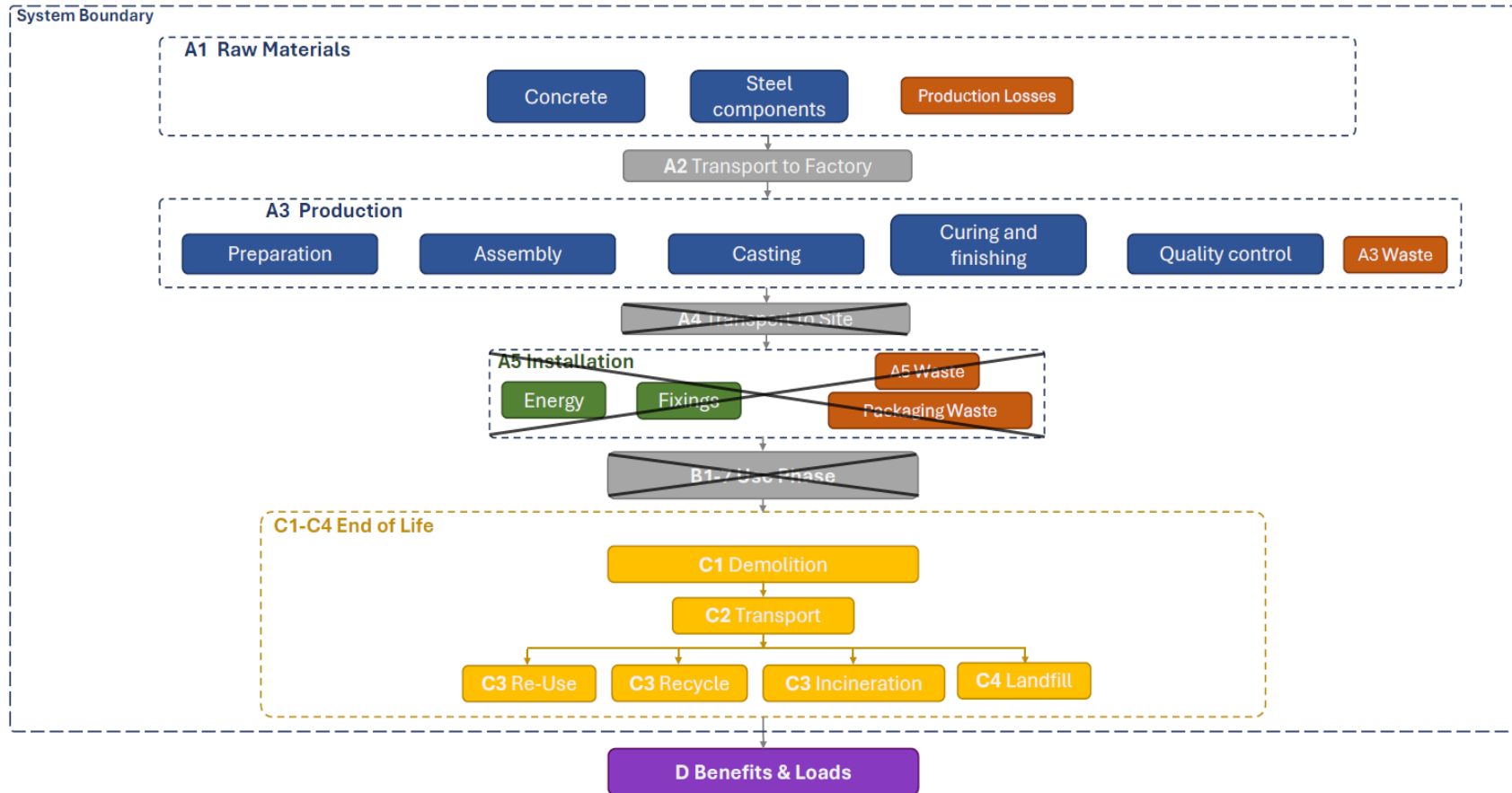
In module C3 - C4, the concrete is crushed and processed. Approximately 80% of the crushed concrete is reused as recycled aggregate, typically replacing virgin aggregate in construction applications (source: <https://betoni.com/betoni-ja-ymparisto/kiertotalous/>). The remaining 20% is sent to landfill.

Steel reinforcement embedded in the concrete is separated during processing; 90% of the recovered steel is recycled, while 10% is sent to landfill due to contamination or recovery limitations (source: <https://worldsteel.org/wp-content/uploads/Rebar-Europe-Other.pdf>) Emissions from sorting, crushing, and material separation are included.

For the end-of-life stage, transport distances have been assumed as follows: concrete waste, concrete for recycling, mineral wool waste, and steel waste are transported 50 km for processing or disposal. Steel destined for recycling is assumed to be transported 250 km to a recycling facility.

Module D accounts for the potential benefits of material recovery beyond the system boundary. These include the substitution of virgin aggregate with recycled concrete and the recycling of steel, which reduces the need for primary steel production. In Module D, only the benefits related to the recycling of primary steel are considered. These benefits are reported separately and do not affect the declared modules A–C.

# MANUFACTURING PROCESS



# LIFE-CYCLE ASSESSMENT

## CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

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.

No processes are excluded from the LCA.

## 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	No allocation
Packaging material	Not applicable
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

-

### PRODUCT & MANUFACTURING SITES GROUPING

<b>Type of grouping</b>	Multiple products
<b>Grouping method</b>	Based on worst-case results
<b>Variation in GWP-fossil for A1-A3, %</b>	-1 %

The average Environmental Product Declaration has been calculated using a worst-case scenario approach. Within the Beissi product family, the only parameter that varies between products is the amount of reinforcing steel. Declared products are manufactured in Rudus Lappeenranta plant. The following Beissi concrete furniture products are included within the scope of this Environmental Product Declaration: Beissi suora, L = 995–1995 mm Beissi suora sovite, L = 1001–1990 mm Beissi kulma 90°, L = 995 mm. Beissi kaarre, r = 1.2–6.5 m Verso, r = 2.0 m (L = 1565 mm) and r = 6.5 m (L = 1695 mm) Kolmikko, r = 0.5 m (L = 868 mm).

### LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

Gervasio & Dimova, 2018, JRC Technical Report

<https://betoni.com/betoni-ja-ymparisto/kiertotalous/>

<https://worldsteel.org/wp-content/uploads/Rebar-Europe-Other.pdf>

EPDs used are third-party verified and compliant with EN15804+A2 requirements.

# 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 <sup>1)</sup>	kg CO <sub>2</sub> e	1,02E+02	3,92E+00	5,50E+00	1,11E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,01E+00	5,58E+00	3,88E+00	1,24E+00	-1,77E+01
GWP – fossil	kg CO <sub>2</sub> e	1,01E+02	3,92E+00	5,48E+00	1,11E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,01E+00	5,58E+00	3,89E+00	1,24E+00	-1,77E+01
GWP – biogenic	kg CO <sub>2</sub> e	6,22E-01	8,20E-04	2,47E-02	6,47E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,15E-04	1,22E-03	-5,75E-03	5,44E-04	0,00E+00
GWP – LULUC	kg CO <sub>2</sub> e	2,43E-02	1,46E-03	7,78E-04	2,66E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,18E-04	2,17E-03	9,02E-04	7,09E-04	-8,55E-03
Ozone depletion pot.	kg CFC-11e	2,01E-06	7,89E-08	1,26E-07	2,21E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,07E-07	1,16E-07	5,70E-08	3,45E-08	-9,37E-08
Acidification potential	mol H <sup>+</sup> e	2,69E-01	1,25E-02	4,05E-02	3,22E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,33E-02	1,32E-02	3,61E-02	8,67E-03	-8,81E-02
EP-freshwater <sup>2)</sup>	kg Pe	6,53E-03	2,64E-04	4,12E-04	7,20E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,02E-04	3,90E-04	4,07E-04	1,08E-04	-9,64E-03
EP-marine	kg Ne	3,75E-02	4,23E-03	1,56E-02	5,73E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,93E-02	3,45E-03	1,55E-02	3,33E-03	-2,03E-02
EP-terrestrial	mol Ne	1,10E+00	4,60E-02	1,54E-01	1,30E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,21E-01	3,74E-02	1,70E-01	3,63E-02	-2,35E-01
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	2,61E-01	2,03E-02	4,85E-02	3,30E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,58E-02	2,29E-02	5,08E-02	1,31E-02	-7,10E-02
ADP-minerals & metals <sup>4)</sup>	kg Sbe	6,78E-05	1,11E-05	4,70E-06	8,36E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,51E-06	1,60E-05	3,27E-05	1,85E-06	-1,50E-04
ADP-fossil resources	MJ	5,36E+02	5,66E+01	3,09E+02	9,02E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,17E+01	8,38E+01	5,08E+01	3,03E+01	-1,86E+02
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	9,52E+00	2,88E-01	1,10E+02	1,20E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	2,29E-01	4,29E-01	2,33E-01	1,32E+00	-1,40E+01

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	2,59E-06	3,79E-07	1,41E-06	4,37E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,80E-06	5,44E-07	6,77E-06	1,99E-07	-1,46E-06
Ionizing radiation <sup>6)</sup>	kBq 11235e	4,90E+03	6,88E-02	1,29E+01	4,92E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	4,06E-02	1,01E-01	7,07E-02	1,82E-02	-3,01E-01
Ecotoxicity (freshwater)	CTUe	1,71E+02	6,78E+00	7,04E+00	1,85E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,05E+00	9,87E+00	5,50E+01	2,00E+01	-5,58E+02
Human toxicity, cancer	CTUh	1,79E-07	6,49E-10	1,76E-09	1,81E-07	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,21E-10	9,29E-10	7,45E-10	2,25E-10	-3,58E-09
Human tox. non-cancer	CTUh	3,70E-06	3,66E-08	8,68E-08	3,83E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,14E-08	5,42E-08	3,25E-08	5,05E-09	-1,27E-07
SQP <sup>7)</sup>	-	5,81E+02	5,39E+01	6,32E+00	6,41E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,43E+00	8,44E+01	1,45E+01	5,96E+01	-1,19E+02

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 <sup>8)</sup>	MJ	1,60E+02	9,30E-01	6,68E+01	2,28E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,81E-01	1,36E+00	1,38E+00	2,83E-01	-1,62E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,60E+02	9,30E-01	6,68E+01	2,28E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,81E-01	1,36E+00	1,38E+00	2,83E-01	-1,62E+01
Non-re. PER as energy	MJ	5,30E+02	5,66E+01	2,98E+02	8,85E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,17E+01	8,38E+01	5,08E+01	3,03E+01	-1,86E+02
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	5,30E+02	5,66E+01	2,98E+02	8,85E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,17E+01	8,38E+01	5,08E+01	3,03E+01	-1,86E+02
Secondary materials	kg	6,64E+01	2,47E-02	1,69E-02	6,64E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	3,81E-02	3,62E-02	2,58E-02	7,54E-03	5,49E+00
Renew. secondary fuels	MJ	6,10E+01	3,11E-04	1,12E-04	6,10E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,95E-05	4,57E-04	3,90E-04	1,57E-04	-1,62E-03
Non-ren. secondary fuels	MJ	8,59E+01	0,00E+00	0,00E+00	8,59E+01	ND	ND	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 <sup>3</sup>	2,44E+00	8,26E-03	9,72E-02	2,54E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,06E-03	1,24E-02	5,56E-03	3,13E-02	-3,08E-01

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	1,50E+00	8,19E-02	2,18E-01	1,80E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,02E-01	1,21E-01	8,99E-02	3,45E-02	-4,09E+00
Non-hazardous waste	kg	3,54E+01	1,65E+00	5,21E+01	8,91E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1,39E+00	2,43E+00	2,29E+00	7,97E-01	-5,32E+01
Radioactive waste	kg	4,41E-03	1,70E-05	3,05E-03	7,47E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	9,97E-06	2,50E-05	1,79E-05	4,42E-06	-6,68E-05

### END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	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	4,09E+00	0,00E+00	2,53E+01	2,93E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,02E+02	0,00E+00	0,00E+00
Materials for energy rec	kg	2,71E-02	0,00E+00	0,00E+00	2,71E-02	ND	ND	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	5,22E+00	0,00E+00	0,00E+00	5,22E+00	ND	ND	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	ND	ND	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	ND	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

### 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 <sup>9)</sup>	kg CO <sub>2</sub> e	1,01E+02	3,92E+00	5,48E+00	1,11E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	7,01E+00	5,58E+00	3,89E+00	1,24E+00	-1,77E+01

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 – CH<sub>4</sub> fossil, CH<sub>4</sub> 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 CO<sub>2</sub> is set to zero.

## SCENARIO DOCUMENTATION

### DATA SOURCES

#### Manufacturing energy scenario documentation

Scenario parameter	Value
Market for diesel, burned in building machine, World, Ecoinvent (kgCO <sub>2</sub> e/MJ)	0.10
Electricity production, nuclear, pressure water reactor, Finland, Ecoinvent (kgCO <sub>2</sub> e/kWh)	0.0071
District Heat, Finland, 2023, Finland, One Click LCA (kgCO <sub>2</sub> e/kWh)	0.14

#### Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	100
Bulk density of transported products	2,00E+03
Volume capacity utilization factor	1

#### End of life (C1-C4) - Scenario documentation

Scenario information	Value
Diesel, burned in building machine, Ecoinvent (MJ)	70,0
Collection process: collected separately (kg)	1000
Collection process: Mixed waste (kg)	0
Recovery: re-use (kg)	0
Recovery: recycling (kg)	802
Recovery: energy recovery (kg)	0
Disposal (kg)	198
Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling (kg)	19,79
Treatment of scrap steel, inert material landfill, Ecoinvent (kg)	2,2
Treatment of waste concrete, not reinforced, recycling, Ecoinvent, Materials for recycling (kg)	782,41
Treatment of waste concrete, inert material landfill, Ecoinvent (kg)	195,602
Scenario assumptions e.g. transportation (mode, km) & other	C1: demolition is assumed to be 0.07 kWh/kg of concrete (source: Gervasio & Dimova, 2018, JRC Technical Report). Transport impacts are modeled based on average transport distances (50km), assuming a diesel lorry as the vehicle type.

## 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

Vera Durão, as an authorised verifier acting for EPD Hub Limited

06.04.2026

*Vera Durão*



## ANNEX I: SCALING TABLE

Product name	Mass (kg)	A1-A3		
		EN15804+A2		
		GWP <sub>total</sub>	GWP <sub>fossil</sub>	GWP <sub>biogenic</sub>
Declared unit	1000	111	111	0,65
Beissi suora L=995 mm	533	59,16	59,16	0,34
Beissi suora L=1495 mm	800	88,80	88,80	0,52
Beissi suora L=1995 mm	1065	118,22	118,22	0,69
Beissi kulma 90° L=995 mm	840	93,24	93,24	0,54
Beissi kaarre r=1,2 m L=1875 mm, 90°, menekki/360 astetta 4 kpl	825	91,58	91,58	0,53
Beissi kaarre r=2,0 m L=1565 mm, 45°, menekki/360 astetta 8 kpl	765	84,92	84,92	0,49
Beissi kaarre r=3,0 m L=1565 mm, 30°, menekki/360 astetta 12 kpl	800	88,80	88,80	0,52
Beissi kaarre r=4,5 m L=1765 mm, 22,5°, menekki/360 astetta 16 kpl	889	98,68	98,68	0,58
Beissi kaarre r=6,5 m L=1695 mm, 15°, menekki/360 astetta 24 kpl	1005	111,56	111,56	0,65
Verso r=2,0 L=1565 mm ja r=6,5 m L=1695 mm	1195	132,65	132,65	0,77
Kolmikko r=0,5 m L=868 mm	636	70,60	70,60	0,41