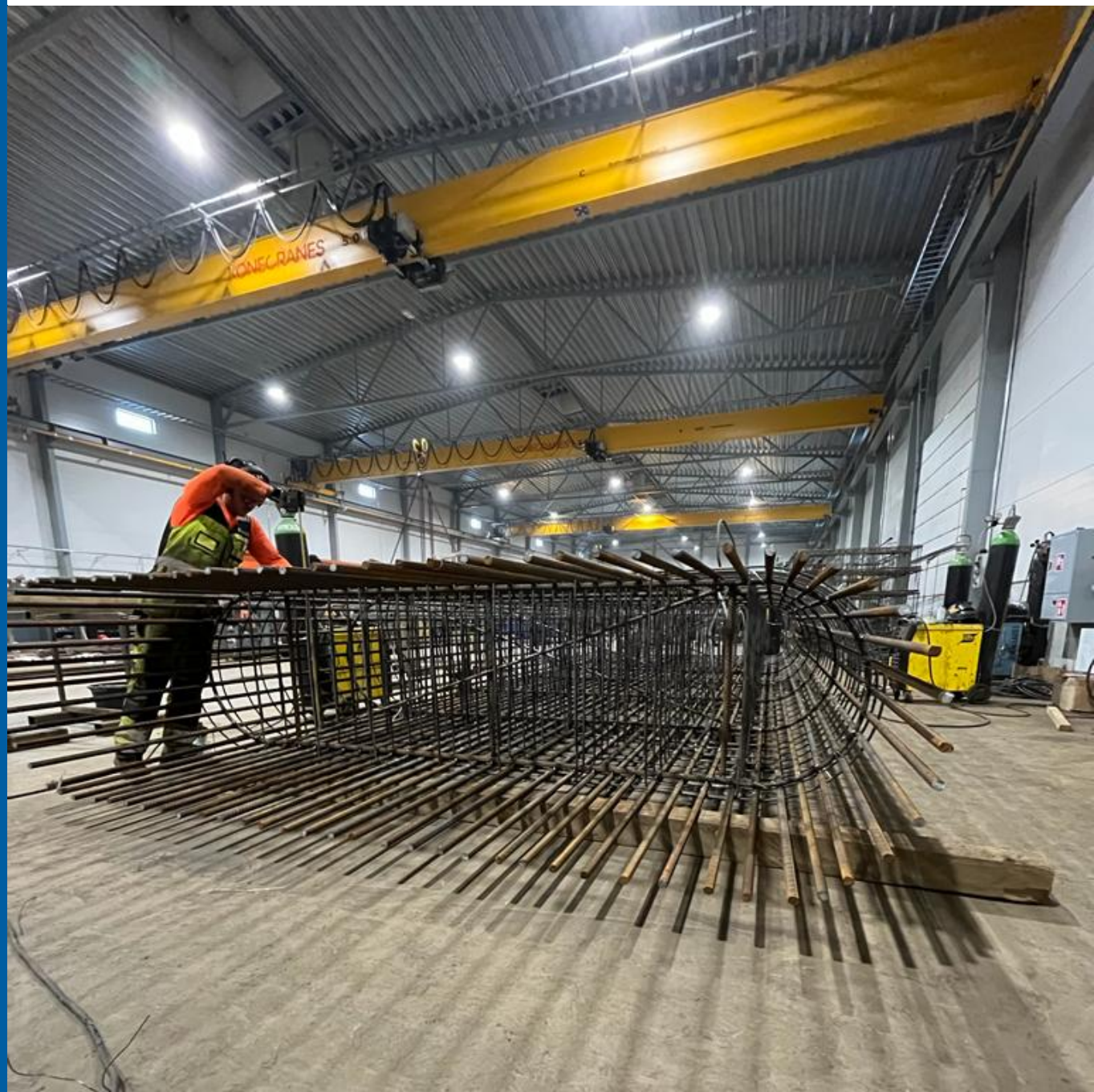
Environmental Product Declaration (EPD)
According to ISO 14025 and EN 15804+A2:2019

Reinforcing Bar and Prefabricated Steel Reinforcement Cages



Registration number:	EPD-Kiwa-EE-202799-EN
Issue date:	19-06-2025
Valid until:	19-06-2030
Declaration owner:	Lakeuden Harjateräs Oy
Publisher:	Kiwa-Ecobility Experts
Programme operator:	Kiwa-Ecobility Experts
Status:	verified

1 General information

1.1 PRODUCT

Reinforcing Bar and Prefabricated Steel Reinforcement Cages

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-202799-EN

1.3 VALIDITY

Issue date: 19-06-2025

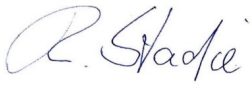
Valid until: 19-06-2030

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

Manufacturer: Lakeuden Harjateräs Oy

Address: Vainionraitti 180, 61550 Orismala, FINLAND

E-mail: info@lakeudenharjateras.fi

Website: info@lakeudenharjateras.fi

Production location: Lakeuden Harjateräs Oy

Address production location: Verstaantie 6, 61410 Ylistaro, 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)

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: R<THINK 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 'Reinforcing Bar and Prefabricated Steel Reinforcement Cages' with the calculation identifier ReTHiNK-102799.

2 Product

2.1 PRODUCT DESCRIPTION

This EPD covers reinforcing steel bar and prefabricated steel reinforcement cages processed by Lakeuden Harjateräs Oy.

Reinforcing bar is often processed (cut, bent, straightened, or threaded) and/or fabricated to suit the specific requirements of reinforcing element.

Processed to the Finnish Standard SFS 1267 steel reinforcing materials. Reinforcing steel product grade is B500B.

The bulk density of rebar, i.e. its weight per unit volume, is approximately 7850 kg/m3.

Product raw material main composition

Raw material catecory	Amount, mass- %	Material Origin
Hot-rolled ribbed steel, B500B (bar)	86	Europe
Hot-rolled ribbed steel, B500B (coil)	14	Europe

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

Steel reinforcement bars are used in reinforced concrete buildings and structures, including bridges, tunnels, and roads. The steel bars provide tensile strength for reinforced concrete beams, columns, and slabs.

Prefabricated steel reinforcement cages are typically used for piles cages, diaphragm walls, columns, beams, precast elements, tunnels, bridges and barriers.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

The reference service life could not be determined in accordance with ISO 15686-1. The concrete composition limits given in EN 206 are specified for an intended service life of at least 50 years under the respective exposure classes/ environmental conditions. Adding to this, the reference service live has not been taken into account in this calculation since the Use stage (modules B1-B7) is not declared.

USED RSL (YR) IN THIS LCA CALCULATION:

50

2.4 TECHNICAL DATA

The company has a product certificate that covers the requirements of TR 392:2018, SFS 1267:2008:
Cutting, bending and re-bundling of type-approved concrete rebar. Manufacturing of reinforcement elements by bonding and/or attachment welding. Straightening of B500B SFS 1300 concrete rebar coils, diameters 8, 10, 12 and 16 mm.

Technical specifications for hot rolled concrete reinforcing steel

Parameter	Value
Steel Grade	B500B
Re	500 MPa
Rm	550 MPa
Agt	5,0%
Rm/Re	1,08

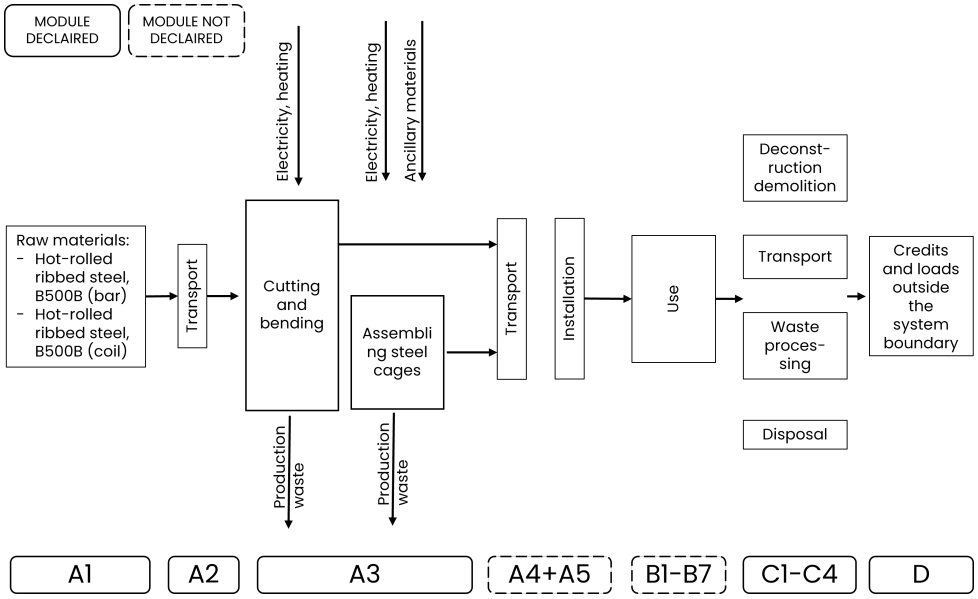
2.5 SUBSTANCES OF VERY HIGH CONCERN

The product contains less than 0.1% of substances included in the “Candidate list of substances of very high concern for authorisation” (SVHC).

2.6 DESCRIPTION PRODUCTION PROCESS

Lakeuden Harjateräs Oy purchase steel from supplier that use the EAF (Electric Arc Furnace) method. This steel is transported from Europe to the Finland via freight ships, and to the factory in Ylistaro by freight lorries. All vehicles meet Euro 6 emissions standards. The steel is then cut and bent to the required shape using cold rolling methods. Steel cages are assembled from the previous pieces, either by tying with steel wire or by spot welding. During the manufacturing stage (A3), any waste rebar from the process is obtained and separated to either be reused for the manufacturing of another product within the factory, or sent to a metal recycling facility within the Finland that will repurpose the use of this steel. 95% of this steel will be recycled, and around 5% is likely to be sent to landfill. There is no packaging for the rebar, and it is delivered on site in the same condition as it leaves the factory. The quantity of strapping that may be involved to secure the rebar whilst in transit is negligible, and therefore is not considered in this study.

2 Product


MODULE DECLAIRED
MODULE NOT DECLAIRED
Electricity, heating
Electricity, heating
Ancillary materials
Deconst-ruction demolition
Raw materials:
- Hot-rolled ribbed steel, B500B (bar)
- Hot-rolled ribbed steel, B500B (coil)
Transport
Cutting and bending
Assembli ng steel cages
Transport
Installation
Use
Transport
Waste proces-sing
Disposal
Credits and loads outside the system boundary
Production waste
Production waste
A1
A2
A3
A4+A5
B1-B7
C1-C4
D

3 Calculation rules

3.1 DECLARED UNIT

1000 kg (1 ton)

The declared unit is one tonne of product.
The density of rebar, i.e. its weight per unit volume, is approximately 7850 kg/m3.

Reference unit: ton (ton)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	ton
Weight per reference unit	1000.000	kg
Conversion factor to 1 kg	0.001000	ton

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with 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	ND	ND	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 Reinforcing bar and prefabricated steel reinforcement cages of Lakeuden Harjateräs Oy at their own production location Ylistaro factory in Finland.

3.5 CUT-OFF CRITERIA

Product stage (A1-A3)
All input flows (e.g. raw materials, transportation, energy use, 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

List of excluded processes:
- 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
- Long-term emissions

End of life stage (C1-C4)
When the end of the life stage of the building is reached, the de-construction/demolition begins. This EPD includes de-construction/demolition (C1), the necessary transport (C2) from the demolition site to the sorting location and distance to final disposal. The end of life stage includes the final disposal to landfill (C4), incineration (C3) and needed recycling processes up to the end-of-waste point (C3). Loads and benefits of recycling, re-use and exported energy are part of module D.

Benefits and loads beyond the system boundary (Module D)
This stage contains the potential loads and benefits of recycling and re-use of raw materials/products. The loads contain the needed recycling processes from end-of-waste point up to the point-of-equivalence of the substituted primary raw material and a load for secondary material that will be lost at the end-of-life stage.

The loads and benefits of recycling and reuse are included in this module. The benefits are calculated based on the primary content and the primary equivalent.

3.6 ALLOCATION

The production-related energy and waste data is based on the total annual production rate (ton). The flows allocated to the products were divided among production rate according to their masses. The data for raw material flows is per product, therefore no allocation was needed.

3.7 DATA COLLECTION & REFERENCE PERIOD

Primary data was collected and provided by Lakeuden Harjateräs Oy internally. The data refers the annual production of the companys factory in Ylistaro, Finland, during the collection and reference period 1.1.2023-31.12.2023.

3.8 ESTIMATES AND ASSUMPTIONS

For the deconstruction of the product (module C1), a scenario was developed that reflects the average deconstruction process. Weight of the raw material taken into relation of hourly demolition potential. The same approach was used in regard to the debris removal. The value was, thus, taken from an NMD dataset, that has been entered in R<THiNK. Summarizing, two inputs have been made in C1, one for demolishing and one for debris removal by excavators.

The distances from the place of use to the respective waste treatment have been provided by the company on an average based on its internal data.

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.

One product specific EPD information is used for the main raw material component of the product.

The Ecoinvent database was used in the LCA. The database is regularly reviewed and thus complies with the requirements of EN 15804 (background data not older than 10 years). All consistent datasets contained in the Ecoinvent database are documented and can be viewed in the online Ecoinvent documentation.

The scenarios included are currently in use and are representative for one of the most likely scenario alternatives.

According to the criteria of the “UN Environmental Global Guidance on LCA database development” mentioned in EN 15804+A2, the data quality for all three representativeness categories (geographical, technical and time) can be described as good.

3.10 POWER MIX

In this EPD, the location based approach (The GWP-total of the applied electricity mix is 0.406 kg CO2 eqv. per kWh. "Electricity (FI) - low voltage (max 1kV), residual mix" from ecoinvent 3.9.1) was considered for the LCA, therefore no guaranties of origin (GO) are needed.

4 Scenarios and additional technical information

4.1 DE-CONSTRUCTION, DEMOLITION (C1)

The following information describes the scenario for demolition at end of life.

Description	Amount	Unit
(ei3.9.1) Hydraulic excavator (average) [NMD generic]	0.102	hr
(ei3.9.1) Hydraulic excavator (average) [NMD generic]	0.120	hr

4.2 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) Steel, reinforcement (NMD ID 74)	(ei3.9.1) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	0

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

4.3 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) Steel, reinforcement (NMD ID 74)	NL	0	5	0	95	0

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) Steel, reinforcement (NMD ID 74)	0.000	50.000	0.000	950.000	0.000
Total	**0.000**	**50.000**	**0.000**	**950.000**	**0.000**

4.4 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.

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
(ei3.9.1) Steel, reinforcement (NMD ID 74)	140.000	0.000
Total	**140.000**	**0.000**

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 TON

CORE ENVIRONMENTAL IMPACT INDICATORS EN 15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	3.24E+2	7.79E+1	8.49E+0	4.10E+2	1.26E+1	7.82E+0	0.00E+0	3.04E-1	-1.18E+2
GWP-f	kg CO_2 eq.	3.20E+2	7.79E+1	8.36E+0	4.06E+2	1.26E+1	7.79E+0	0.00E+0	3.04E-1	-1.18E+2
GWP-b	kg CO_2 eq.	3.29E+0	2.14E-2	1.04E-1	3.42E+0	1.75E-3	2.54E-3	0.00E+0	1.33E-4	2.84E-1
GWP-luluc	kg CO_2 eq.	7.41E-1	4.77E-2	2.51E-2	8.14E-1	1.42E-3	2.78E-2	0.00E+0	1.83E-4	4.77E-2
ODP	kg CFC 11 eq.	1.09E-5	1.51E-6	2.34E-7	1.26E-5	2.00E-7	1.39E-7	0.00E+0	8.79E-9	-4.50E-6
AP	mol H+ eq.	9.31E-1	1.12E+0	5.12E-2	2.11E+0	1.17E-1	3.73E-2	0.00E+0	2.29E-3	-3.32E-1
EP-fw	kg P eq.	5.12E-3	5.02E-4	4.64E-4	6.09E-3	4.55E-5	7.75E-5	0.00E+0	2.96E-6	1.03E-2
EP-m	kg N eq.	2.33E-1	2.82E-1	1.37E-2	5.29E-1	5.41E-2	1.42E-2	0.00E+0	8.74E-4	-5.87E-2
EP-T	mol N eq.	1.60E-1	3.11E+0	6.68E-2	3.34E+0	5.89E-1	1.51E-1	0.00E+0	9.42E-3	-1.13E+0
POCP	kg NMVOC eq.	1.08E+0	9.35E-1	3.60E-2	2.05E+0	1.74E-1	5.16E-2	0.00E+0	3.28E-3	-8.30E-1
ADP-mm	kg Sb-eq.	5.84E-5	1.55E-4	1.72E-5	2.31E-4	4.40E-6	2.44E-5	0.00E+0	4.22E-7	3.50E-4
ADP-f	MJ	4.61E+3	1.08E+3	1.40E+2	5.83E+3	1.65E+2	1.12E+2	0.00E+0	7.57E+0	-1.00E+3
WDP	m3 world eq.	1.82E+2	4.11E+0	5.77E-1	1.87E+2	3.56E-1	6.09E-1	0.00E+0	3.34E-1	-1.67E+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	C1	C2	C3	C4	D
PM	disease incidence	1.72E-5	5.32E-6	3.48E-7	2.29E-5	3.26E-6	7.69E-7	0.00E+0	5.01E-8	-1.13E-5
IR	kBq U235 eq.	3.50E+1	4.06E-1	1.10E+0	3.65E+1	3.37E-2	4.35E-2	0.00E+0	2.00E-3	2.11E+0
ETP-fw	CTUe	9.17E+2	5.26E+2	7.88E+1	1.52E+3	7.89E+1	8.24E+1	0.00E+0	3.55E+0	1.19E+3
HTP-c	CTUh	1.94E-6	3.42E-8	9.80E-8	2.07E-6	3.86E-9	4.13E-9	0.00E+0	1.29E-10	1.40E-6
HTP-nc	CTUh	6.22E-6	5.95E-7	5.40E-7	7.36E-6	2.68E-8	8.97E-8	0.00E+0	1.62E-9	1.17E-5
SQP	Pt	1.85E+3	7.05E+2	7.24E+1	2.63E+3	1.11E+1	8.81E+1	0.00E+0	1.50E+1	-1.62E+2

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	C1	C2	C3	C4	D
PERE	MJ	7.44E+2	1.27E+1	2.35E+1	7.80E+2	9.39E-1	1.58E+0	0.00E+0	6.41E-2	5.19E+1
PERM	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
PERT	MJ	7.44E+2	1.27E+1	2.35E+1	7.80E+2	9.39E-1	1.58E+0	0.00E+0	6.41E-2	5.19E+1
PENRE	MJ	6.05E+3	1.08E+3	1.82E+2	7.31E+3	1.65E+2	1.12E+2	0.00E+0	7.57E+0	-1.00E+3
PENRM	MJ	5.11E+1	0.00E+0	1.48E+0	5.26E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ	6.10E+3	1.08E+3	1.83E+2	7.36E+3	1.65E+2	1.12E+2	0.00E+0	7.57E+0	-1.00E+3
SM	Kg	1.14E+3	0.00E+0	3.31E+1	1.17E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
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
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
FW	m^3	4.12E+0	1.38E-1	2.84E-2	4.29E+0	1.30E-2	2.70E-2	0.00E+0	8.04E-3	-3.32E+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	C1	C2	C3	C4	D
HWD	Kg	1.89E-2	6.20E-3	1.14E-4	2.52E-2	1.11E-3	7.12E-4	0.00E+0	4.01E-5	-2.19E-2
NHWD	Kg	3.40E+1	5.93E+1	5.17E+0	9.84E+1	2.36E-1	7.38E+0	0.00E+0	5.00E+1	2.76E+1
RWD	Kg	2.10E-2	2.48E-4	6.61E-4	2.19E-2	1.81E-5	2.55E-5	0.00E+0	1.12E-6	1.41E-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	C1	C2	C3	C4	D
CRU	Kg	1.33E+2	0.00E+0	3.86E+0	1.37E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	4.03E+1	0.00E+0	2.87E+1	6.90E+1	0.00E+0	0.00E+0	9.50E+2	0.00E+0	0.00E+0
MER	Kg	1.99E-1	0.00E+0	5.77E-3	2.05E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	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
EEE	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

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

5 Results

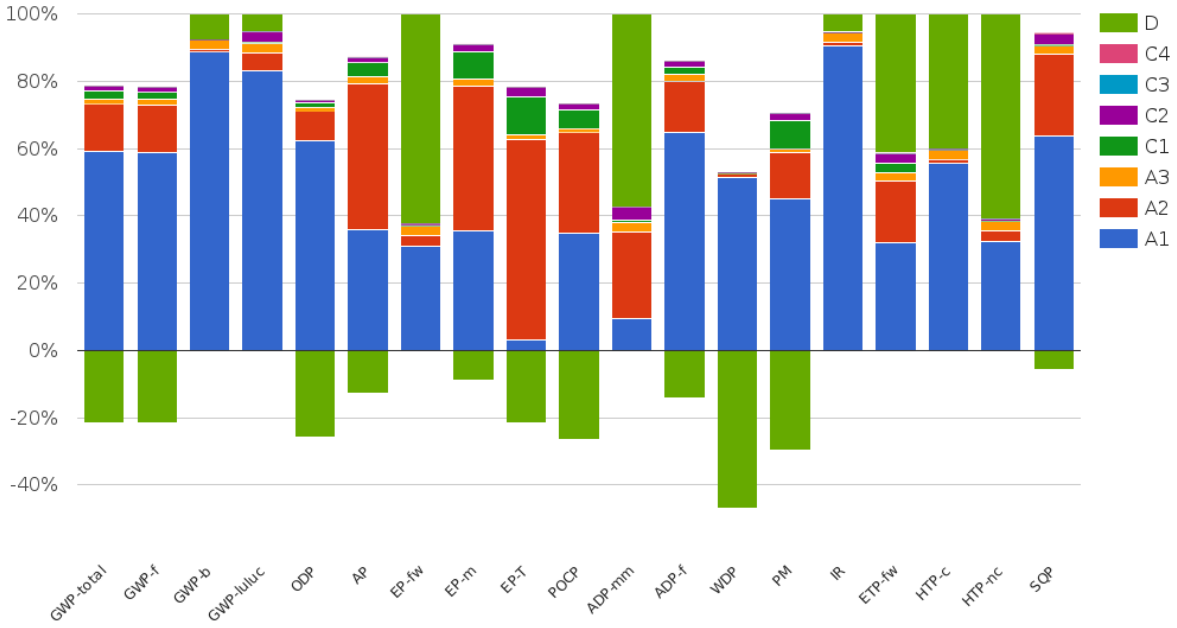
5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER TON

BIOGENIC CARBON CONTENT

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

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

6 Interpretation of results



As shown in the figure below, the raw material supply (A1) dominates in most environmental core indicators. The highest influence on the Global Warming Potential (GWP-total) have raw material supply (A1) and then transport to the factory (A2). Transport (C2) and waste processing (C3) have rather a minor impact within all core indicators.

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

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

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

EN 206:2103+A2:2021
Concrete. Specification, performance, production and conformity

SFS 1267:2008
Betoniraudoitteet. Teräsbetonirakenteissa käytettävät raudoitteet

TR 392:2018
Betoniraudoitteet.

SFS 1300:2020
Betoniraudoitteet. Hitsattavien betoniterästen ja betoniteräsverkkojen vähimmäisvaatimukset

Ecoinvent
ecoinvent Version 3.9.1, December 2022

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

Scenario for C1 LCA
Rapportage categorie 3 data Nationale Milieudatabase Hoofdstuk 42 Betonconstructies, p. 11

7 References

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