ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

C30/37 Infrastructure Air D-max 16 VCT<0,45 Gen 1
LKAB Berg och Betong AB

EPD version 2. The EPD update includes new LCA-values for cement

EPD HUB, EPD number HUB-3474
Published on 28.01.2026, last updated on 28.01.2026, valid until 27.01.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	LKAB Berg och Betong AB
Address	Tippvägen 5, SE-981 28, KIRUNA, Sweden
Contact details	bergobetong@lkab.com
Website	https://lkab.com/vilka-vi-ar/lkab-berg-och-betong/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Sister EPD
Parent EPD number	HUB-1477
Scope of the EPD	Cradle to gate with modules A4, C1-C4, D
EPD author	Marcus Eriksson, LKAB Minerals
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Dusan Vukovic as an authorized verifier for EPD Hub

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.

PRODUCT

Product name	C30/37 Infrastructure Air D-max 16 VCT<0,45 Gen 1
Product name (swe)	C30/37 Anläggning Luft D-max 16 VCT<0,45 Gen 1
Product reference	R-L382 Merit
Place of production	Kiruna, Sweden
Period for data	2023
Averaging in EPD	No averaging
A1-A3 Specific data	95,5 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m^3
Declared unit mass	2 305 kg
GWP-fossil, A1-A3 (kgCO2e)	263
GWP-total, A1-A3 (kgCO2e)	264
Secondary material, inputs (%)	75
Secondary material, outputs (%)	80
Total energy use, A1-A3 (kWh)	804
Net freshwater use, A1-A3 (m3)	1,19

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

LKAB Berg & Betong is a concrete manufacturer and part of the LKAB group - an international mining and minerals group that offers sustainable iron ore, minerals and special products. We operate modern concrete factories in Kiruna and Malmberget and have among the highest production capacities in Sweden.

We utilise waste rock, a residual material from mining, for our concrete which is resource efficient and contributes to circular material flows. Shotcrete, a material used for reinforcement in mines, tunnels and rock galleries, is one of our main products and we are one of the world's largest manufacturers. We also produce concrete for local construction projects.

PRODUCT DESCRIPTION

The product declared in this EPD is ready-mix concrete for infrastructure applications, delivered without reinforcement bars. The production site is Kiruna, Sweden.

Technical specifications:
Strength class: C30/37 III Exposure class: XC4, XF3, XD2 III V/C ratio: <0,45

To categorize the carbon footprint (CF) of our products, LKAB Berg & Betong uses the Swedish concrete association (Sv: Svensk Betong) guidelines for ready-mix concrete[1]. For each 10 % reduction in carbon footprint (GWP-GHG) compared to the industry standard (Generation 0), the recipe advances one level, or generation (gen). LKAB has defined the industry standard applicable for the arctic climate in which we operate, which is the Gen 0 that we compare against. **This recipe classifies as Gen 1.** For comparison, where applicable, we also show the national average values according to the Swedish concrete association, where this product classifies as **Gen 2**.

Carbon footprint (GWP-GHG) compared to reference (Gen 0), kgCO2eq/m³						
Product	Gen 0			Gen 1	Gen 2	Gen 3
	Reference		CF	>=10 %	>=20 %	>=30 %
R-L382 Merit	LKAB	R-L382	299	**264**		
	National average[2]		*335*		***264***	

More information can be found at: https://lkab.com/vilka-vi-ar/lkab-berg-och-betong/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Minerals	100	Sweden

BIOGENIC CARBON CONTENT

The concrete does not contain any biogenic carbon. The concrete is delivered without packaging.

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m3
Mass per declared unit	2 305 kg
Reference service life	The service life is determined by the life of the infrastructure application

SUBSTANCES. REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

[1] https://www.svenskbetong.se/hallbarhet/klimatforbattrad-betong

[2] The standard recipe we compare against is "Anläggning utomhus, zon 2"

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
x	x	x	x	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	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND. Modules not relevant = MNR.

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. 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.

Binder, aggregates, water and additives are mixed at the concrete factory in Kiruna. This particular concrete mix is delivered without reinforcement bar, which is added as needed by the customer at the installation site as needed. The aggregates are secondary materials coming from the LKAB iron ore mining operations, which is used for concrete production instead of being landfilled. Being ready-mix concrete, the product is delivered by concrete truck to the installation site, no packing materials are used.

At the factory, renewable electricity (with guarantee of origin) and HVO100 are used as energy inputs. Excess concrete is used for creating supportive concrete elements used in the mine and the share of generated concrete waste is thus small (<0,5 %). The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The concrete mix is transported by truck (16-32 t) to the construction site. The relevant construction sites are generally located in or close to Kiruna city, and an average transportation distance of 20 km is assumed.

Module A5 is not declared.

PRODUCT USE AND MAINTENANCE (B1-B7)

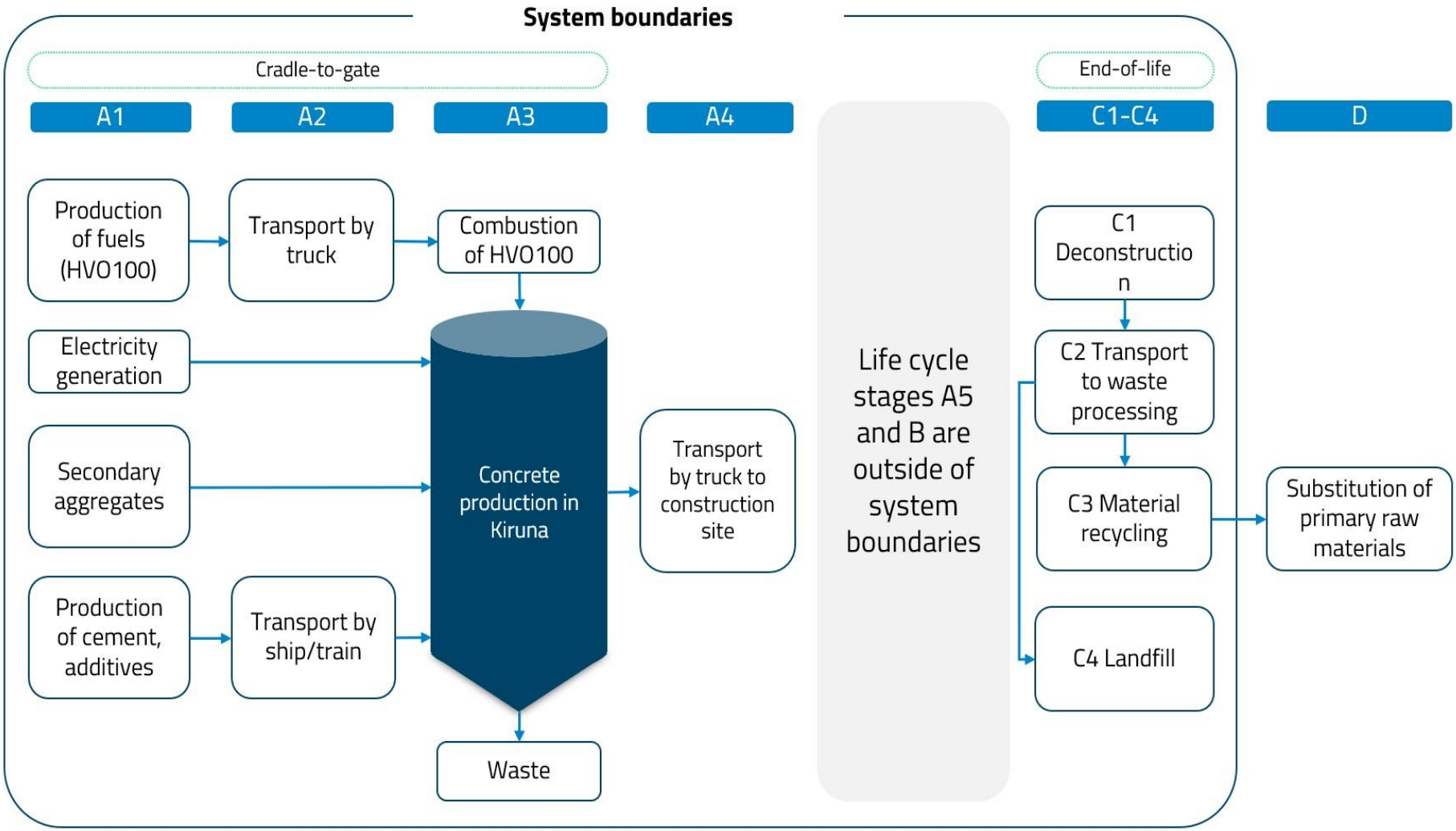
This EPD does not cover the use phase.

PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life, 100% of the demolition waste is assumed to be collected as separate construction waste. The demolition process consumes energy in the form of diesel fuel used by building machines (C1).

Crushed concrete is assumed to be transported (C2) to a waste treatment plant, where waste that can be reused, recycled or recovered for energy is assumed to be separated and diverted for further use (C3). Unusable materials are disposed of in a landfill (C4). 80% of the concrete is assumed to be recycled, which avoids the production of virgin raw materials (D).

SYSTEM DIAGRAM



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.

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 materials	Not applicable
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

This EPD only covers one product from one site, and no averaging has been conducted.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 v3.2.3. 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 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2,39E+02	2,33E+01	2,06E+00	2,64E+02	4,97E+00	ND	ND	ND	ND	ND	ND	ND	ND	8,49E+00	2,23E+01	8,07E+00	2,88E+00	-1,85E+01
GWP – fossil	kg CO_2e	2,38E+02	2,32E+01	1,94E+00	2,63E+02	4,96E+00	ND	ND	ND	ND	ND	ND	ND	ND	8,49E+00	2,23E+01	8,07E+00	2,88E+00	-1,85E+01
GWP – biogenic	kg CO_2e	3,02E-01	9,59E-03	5,17E-02	3,63E-01	1,12E-03	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,42E-03	-8,23E-04	-9,16E-04	-1,76E-02
GWP – LULUC	kg CO_2e	1,39E-01	2,48E-02	7,56E-02	2,40E-01	2,22E-03	ND	ND	ND	ND	ND	ND	ND	ND	8,70E-04	7,88E-03	8,27E-04	1,65E-03	-1,67E-02
Ozone depletion pot.	kg CFC_{-11}e	8,54E-07	3,75E-07	1,61E-08	1,25E-06	7,33E-08	ND	ND	ND	ND	ND	ND	ND	ND	1,30E-07	4,43E-07	1,24E-07	8,34E-08	-1,44E-07
Acidification potential	mol H^+e	4,30E-01	1,94E-01	1,31E-02	6,38E-01	1,69E-02	ND	ND	ND	ND	ND	ND	ND	ND	7,66E-02	6,97E-02	7,28E-02	2,04E-02	-1,13E-01
EP-freshwater[2)]	kg Pe	1,02E-02	2,42E-03	5,29E-01	5,41E-01	3,86E-04	ND	ND	ND	ND	ND	ND	ND	ND	2,45E-04	1,48E-03	2,33E-04	2,37E-04	-5,63E-03
EP-marine	kg Ne	1,51E-01	8,60E-02	1,84E-02	2,55E-01	5,56E-03	ND	ND	ND	ND	ND	ND	ND	ND	3,56E-02	2,35E-02	3,38E-02	7,78E-03	-2,67E-02
EP-terrestrial	mol Ne	1,70E+00	9,40E-01	4,98E-02	2,69E+00	6,05E-02	ND	ND	ND	ND	ND	ND	ND	ND	3,89E-01	2,56E-01	3,70E-01	8,49E-02	-3,23E-01
POCP ("smog")[3)]	kg NMVOCe	4,47E-01	2,68E-01	5,44E-03	7,20E-01	2,49E-02	ND	ND	ND	ND	ND	ND	ND	ND	1,16E-01	1,09E-01	1,10E-01	3,04E-02	-8,95E-02
ADP-minerals & metals[4)]	kg Sbe	6,90E-02	4,84E-05	8,00E-06	6,90E-02	1,38E-05	ND	ND	ND	ND	ND	ND	ND	ND	3,04E-06	7,29E-05	2,89E-06	4,57E-06	-9,88E-05
ADP-fossil resources	MJ	1,89E+03	3,05E+02	3,76E+02	2,57E+03	7,20E+01	ND	ND	ND	ND	ND	ND	ND	ND	1,11E+02	3,13E+02	1,06E+02	7,06E+01	-2,21E+02
Water use[5)]	m^3e depr.	4,06E+01	1,02E+01	7,60E+00	5,84E+01	3,56E-01	ND	ND	ND	ND	ND	ND	ND	ND	2,77E-01	1,54E+00	2,64E-01	2,04E-01	-2,77E+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

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	2,68E-06	7,60E-07	1,98E-07	3,64E-06	4,97E-07	ND	ND	ND	ND	ND	ND	ND	ND	2,18E-06	1,75E-06	1,58E-05	4,64E-07	-1,71E-06
Ionizing radiation[6)]	kBq U235e	3,50E+01	2,02E+00	2,13E+01	5,83E+01	6,27E-02	ND	ND	ND	ND	ND	ND	ND	ND	4,92E-02	3,99E-01	4,68E-02	4,44E-02	-1,56E+00
Ecotoxicity (freshwater)	CTUe	7,50E+02	3,52E+01	3,22E+00	7,88E+02	1,02E+01	ND	ND	ND	ND	ND	ND	ND	ND	6,12E+00	4,11E+01	5,81E+00	5,92E+00	-5,29E+01
Human toxicity, cancer	CTUh	4,11E-08	4,53E-09	2,29E-09	4,79E-08	8,19E-10	ND	ND	ND	ND	ND	ND	ND	ND	8,73E-10	3,80E-09	8,30E-10	5,31E-10	-4,93E-09
Human tox. non-cancer	CTUh	4,94E-07	1,06E-07	1,83E-08	6,19E-07	4,66E-08	ND	ND	ND	ND	ND	ND	ND	ND	1,38E-08	1,97E-07	1,31E-08	1,22E-08	-1,44E-07
SQP[7)]	-	3,03E+02	2,33E+02	2,29E+01	5,59E+02	7,25E+01	ND	ND	ND	ND	ND	ND	ND	ND	7,78E+00	1,86E+02	7,40E+00	1,39E+02	-2,07E+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[8)]	MJ	1,29E+02	6,08E+01	6,01E+01	2,50E+02	9,87E-01	ND	ND	ND	ND	ND	ND	ND	ND	7,03E-01	5,41E+00	6,69E-01	6,82E-01	-2,02E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	1,29E+02	6,08E+01	6,01E+01	2,50E+02	9,87E-01	ND	ND	ND	ND	ND	ND	ND	ND	7,03E-01	5,41E+00	6,69E-01	6,82E-01	-2,02E+01
Non-re. PER as energy	MJ	1,29E+03	3,05E+02	3,74E+02	1,97E+03	7,20E+01	ND	ND	ND	ND	ND	ND	ND	ND	1,11E+02	3,13E+02	1,06E+02	7,06E+01	-2,21E+02
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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	1,29E+03	3,05E+02	3,74E+02	1,97E+03	7,20E+01	ND	ND	ND	ND	ND	ND	ND	ND	1,11E+02	3,13E+02	1,06E+02	7,06E+01	-2,21E+02
Secondary materials	kg	6,72E+01	3,30E-01	1,74E-02	6,76E+01	3,07E-02	ND	ND	ND	ND	ND	ND	ND	ND	4,61E-02	1,43E-01	4,38E-02	1,78E-02	-2,47E-01
Renew. secondary fuels	MJ	2,86E+02	7,84E-04	9,12E-05	2,86E+02	3,89E-04	ND	ND	ND	ND	ND	ND	ND	ND	1,21E-04	1,81E-03	1,15E-04	3,68E-04	-1,70E-03
Non-ren. secondary fuels	MJ	3,91E+02	0,00E+00	0,00E+00	3,91E+02	0,00E+00	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^3	7,55E-01	2,51E-01	1,80E-01	1,19E+00	1,06E-02	ND	ND	ND	ND	ND	ND	ND	ND	7,34E-03	4,21E-02	6,98E-03	7,34E-02	-6,57E-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	9,92E+00	8,94E-01	3,84E-01	1,12E+01	1,22E-01	ND	ND	ND	ND	ND	ND	ND	ND	1,24E-01	4,49E-01	1,18E-01	7,80E-02	-1,73E+00
Non-hazardous waste	kg	6,09E+01	1,58E+01	2,08E+00	7,88E+01	2,26E+00	ND	ND	ND	ND	ND	ND	ND	ND	1,69E+00	9,48E+00	1,60E+00	1,78E+00	-3,09E+01
Radioactive waste	kg	1,67E-02	5,23E-04	4,93E-03	2,21E-02	1,54E-05	ND	ND	ND	ND	ND	ND	ND	ND	1,21E-05	9,92E-05	1,15E-05	1,08E-05	-3,75E-04

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	2,56E-03	0,00E+00	0,00E+00	2,56E-03	0,00E+00	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	3,01E-01	0,00E+00	0,00E+00	3,01E-01	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,84E+03	0,00E+00	0,00E+00
Materials for energy rec	kg	8,89E-04	0,00E+00	0,00E+00	8,89E-04	0,00E+00	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	1,70E-02	0,00E+00	0,00E+00	1,70E-02	0,00E+00	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	0,00E+00	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	0,00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	2,40E+02	2,31E+01	2,09E+00	2,65E+02	4,94E+00	ND	ND	ND	ND	ND	ND	ND	ND	8,45E+00	2,21E+01	8,03E+00	2,85E+00	-1,84E+01
Ozone depletion Pot.	kg CFC_{-11}e	7,48E-06	3,00E-07	1,54E-08	7,80E-06	5,85E-08	ND	ND	ND	ND	ND	ND	ND	ND	1,03E-07	3,53E-07	9,79E-08	6,62E-08	-1,21E-07
Acidification	kg SO_2e	5,92E-01	1,38E-01	8,43E-03	7,39E-01	1,29E-02	ND	ND	ND	ND	ND	ND	ND	ND	5,39E-02	5,30E-02	5,12E-02	1,51E-02	-8,75E-02
Eutrophication	kg PO_4^3e	1,87E-01	3,57E-02	9,40E-03	2,32E-01	3,15E-03	ND	ND	ND	ND	ND	ND	ND	ND	1,26E-02	1,35E-02	1,20E-02	4,80E-03	-1,70E-02
POCP (“smog”)	kg C_2H_4e	2,31E-02	9,64E-03	3,90E-04	3,31E-02	1,15E-03	ND	ND	ND	ND	ND	ND	ND	ND	4,04E-03	5,05E-03	3,84E-03	1,43E-03	-7,71E-03
ADP-elements	kg Sbe	2,05E-02	4,44E-05	8,72E-06	2,06E-02	1,35E-05	ND	ND	ND	ND	ND	ND	ND	ND	2,96E-06	7,12E-05	2,81E-06	4,48E-06	-9,72E-05
ADP-fossil	MJ	1,43E+03	2,69E+02	1,98E+01	1,72E+03	7,10E+01	ND	ND	ND	ND	ND	ND	ND	ND	1,10E+02	3,06E+02	1,05E+02	6,99E+01	-1,97E+02

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	2,38E+02	2,33E+01	2,01E+00	2,64E+02	4,96E+00	ND	ND	ND	ND	ND	ND	ND	ND	8,49E+00	2,23E+01	8,07E+00	2,88E+00	-1,85E+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 – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Resource	Value (gCO2e/kWh)
Electricity data source and quality	Generic data. Source: Ecoinvent 3.10.	
Ecoinvent activity	*Electricity production, nuclear, pressure water reactor*	0,0071
Ecoinvent activity	*Electricity voltage transformation from high to medium voltage*	0,0215

Transport scenario documentation A4

Scenario parameter	Value
Specific transport CO2e emissions (kgCO2e/tkm)	0,19
Average transport distance (km)	20
Capacity utilization (including empty return) %	Ecoinvent average assumption, 80 %
Bulk density of transported products (kg/m3)	2 305

End of life scenario documentation, C

Scenario information	Value
Scenario assumptions, e.g. transportation	See end-of-life description

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.

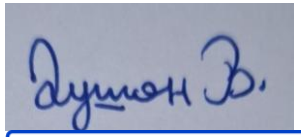
The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

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

Dusan Vukovic as an authorized verifier for EPD Hub Limited 28.01.2026



VERIFIED ISO 14025