epd-global
Powered by EPD-Norway

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Zaptec GO 2

Zaptec

EPD-Global

Owner of the declaration:
Zaptec Charger AS

Product:
Zaptec GO 2

Declared unit:
pcs

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019, EN 50693:2019 and PCR EPD Italy 007 serves as core PCR
PCR EPD Italy 017 - Electronic and electrical products and systems - Charging stations

Program operator:
EPD-Global

Declaration number:

Issue date:

Valid to:

EPD software:
LCAno EPD generator ID: 1242101

General information

Product

Zaptec GO 2

Owner of the declaration:

Zaptec Charger AS
Contact person: Endre Våland Bø
Phone:
e-mail: endre.bo@zaptec.com

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Manufacturer:

Zaptec Charger AS
Vassbotnen 1
Sandnes, Norway

Declaration number:

Place of production:

Westcontrol AS (Zaptec Production Site)
Breivikvegen 7
4120 Tau, Norway

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019, EN 50693:2019 and PCR EPD Italy 007 serves as core PCR
PCR EPD Italy 017 - Electronic and electrical products and systems - Charging stations

Management system:

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD-Global shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Organisation no:

912 494 470

Declared unit:

pcs Zaptec GO 2

Issue date:

Declared unit with option:

A1, A2, A3, A4, A5, B6, C1, C2, C3, C4, D

Valid to:

Year of study:

2024

Functional unit:

1 pc of Zaptec Go 2 without charging cable, installed and used to charge electrical vehicles during a service life of 20 years, including waste treatment at end-of-life.

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global's General Programme Instructions for further information on EPD tools

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD-Global.

Developer of EPD: Rennie Babwah

Reviewer of company-specific input data and EPD: Børge Heggen Johansen, Energiråd AS

Verification of EPD tool:

Approved:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT86.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Product

Product description:

Zaptec Go 2 is an alternating current wall charging station in accordance with IEC 61851-1, EVSE Mode 3.

Installation circuit External circuit breaker and RCD protection is required in accordance with local regulations.

Standards and approvals CE compliant with Radio Equipment Directive 2014/53/EU, RoHS directive 2011/65/EU, EN IEC 61851-1, IEC 61439-7 and IEC 62955.

Degree of protection IP54, indoor and outdoor use IK10 impact protection UL94 5VB flammability rating UV resistant

Electrical protection Protection class I (4 kV AC and 6 kV impulse, insulation) Overvoltage category III (4 kV)

Software interfaces available Zaptec App Third-party integration alternatives (API, Webhooks) OCPP 1.6J cloud-to-cloud or native on-device

Product specification

Materials	kg	%
Chemical	0.0000002	0.00001042
Electronic - Printed wiring board	0.2631	13.71
Electronics	0.3865	20.13
Metal - Aluminium	0.275	14.33
Metal - Stainless steel	0.0322	1.68
Plastic	0.0001227	0.006392
Plastic - Acrylonitrile butadiene styrene (ABS)	0.0036	0.1876
Plastic - Plexiglass (PMMA)	0.002	0.1042
Plastic - Polycarbonate (PC)	0.4895	25.50
Plastic - Polyethylene (HDPE)	0.0012	0.06252
Printed paper	0.2468	12.86
Recycled cardboard	0.181	9.43
Rubber	0.0063	0.3282
Sand	0.0322	1.68
Total	1.92	100.00

Packaging	kg	%
Packaging - Cardboard	0.01	7.37
Packaging - Plastic straps	0.00	2.21
Packaging - Wood	0.15	90.42
Total incl. packaging	2.09	100.00

Technical data:

Dimensions:
H: 239 x W: 178 x D: 73

Installation network, voltages TN, IT and TT 230 VAC ± 10% 400 VAC ± 10%

Max. current and charging output 22 kW at 32 A / 3-phase (TN networks) 7.4 kW at 32 A / 1-phase (IT networks) 7.4 kW at 32 A / 1-phase (TN networks)

Charging socket IEC 62196-2 Type 2 Female Electronic lock, can be permanently locked by user
Integrated residual current protection RDC-DD (6 mA DC) according to IEC 62955 Electronic, automatic reset by replugging Type 2 cable

Energy metering Integrated energy meter Certified MID Class B EN 50470-1: 2006, EN 50470-3: 2006

Communications interface and cloud connection/network 4G LTE Cat 1 WiFi 2.4 GHz, 802.11 b/g/n

HMI, identification and configuration Bluetooth Low Energy (BLE 4.2) RFID reader ISO/IEC 14443 Type-A 13.56 MHz (MIFARE Classic, MIFARE DESFire) Backlit IPS LCD screen and RGBW LED circle for device status 2.5 W power usage at standby ISO 15118 Hardware support

Temperature range –30°C to +50°C

Market:

Europe

Reference service life, product

20 years

Reference service life, building or construction works

NA

LCA: Calculation rules

Declared unit:

pcs Zaptec GO 2

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

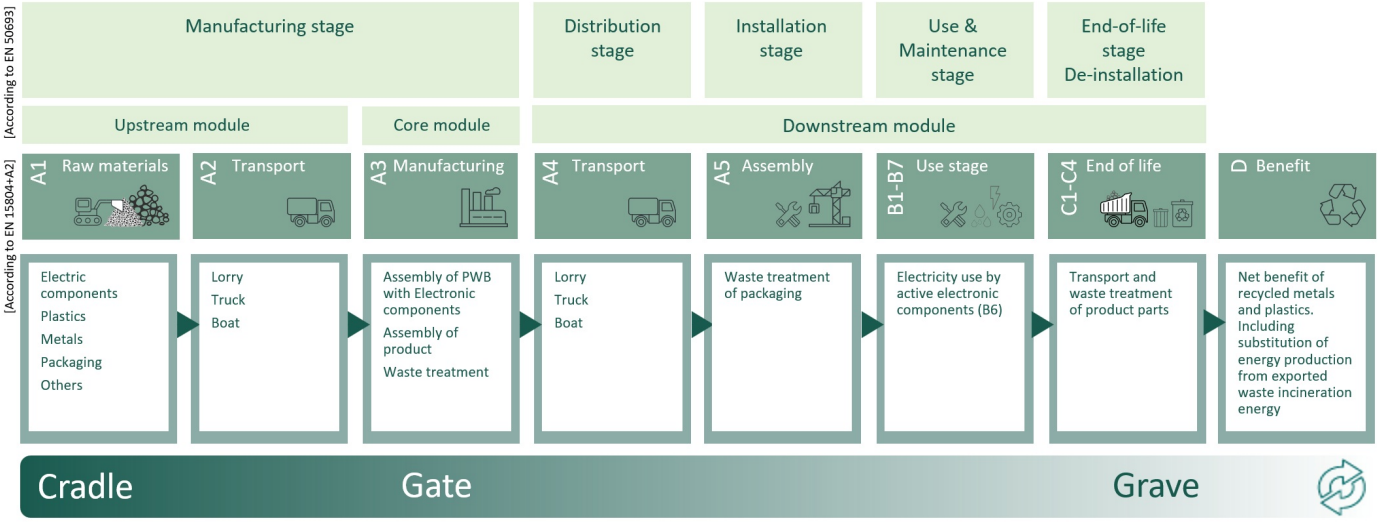
Materials	Source	Data quality	Year
Chemical	ecoinvent 3.10.1	Database	2023
Electronic - Printed wiring board	ecoinvent 3.10.1	Database	2023
Electronics	ecoinvent 3.10.1	Database	2023
Metal - Aluminium	ecoinvent 3.10.1	Database	2023
Metal - Stainless steel	ecoinvent 3.10.1	Database	2023
Packaging - Cardboard	ecoinvent 3.10.1	Database	2023
Packaging - Plastic straps	ecoinvent 3.10.1	Database	2023
Packaging - Wood	ecoinvent 3.10.1	Database	2023
Plastic	ecoinvent 3.10.1	Database	2023
Plastic - Acrylonitrile butadiene styrene (ABS)	ecoinvent 3.10.1	Database	2023
Plastic - Plexiglass (PMMA)	ecoinvent 3.10.1	Database	2023
Plastic - Polycarbonate (PC)	ecoinvent 3.10.1	Database	2023
Plastic - Polyethylene (HDPE)	ecoinvent 3.10.1	Database	2023
Printed paper	ecoinvent 3.10.1	Database	2023
Recycled cardboard	ecoinvent 3.10.1	Database	2024
Rubber	ecoinvent 3.10.1	Database	2023

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	X	MND	X	X	X	X	X

System boundary:

The analysis is a cradle-to-grave study made for one charger manufactured , installed and used under ordinary conditions over its lifetime. Modules A1-A5 are included in the analysis. It includes the extraction and production of raw materials, transportation to the factory, the production process itself, transportation to market and installation of the product. B6 is the operational energy usage based on a normal use. C1-C4, D are mandatory modules which include end of life treatment of materials and the benefits from recycling.



Additional technical information:

Compliant with the following directives:
Radio Equipment Directive (RED)
2014/53/EU ROHS Directive 2011/65/EU
Measuring Instruments Directive 2014/32/EU

The following standards have been applied:
EN IEC 61851-1:2019
EN 61439-1:2011
EN IEC 61439-7:2020 I
EC 62955:2018 EN 62311:2008
EN IEC 61851-21-2:2021 residential environments
EN 300 328 V2.2.2
EN 300 330 V2.1.1
EN 301 511 V12.5.1
EN 301 893 V2.1.1
EN 301 908-1 V15.2.1
EN 301 908-13 V13.2.1
EN 18031-1:2024 EN 18031-2:2024
EN IEC 63000:2018
EN 50470-1:2006 EN 50470-3:2006

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

Module A4 = An economic allocation analysis was performed on the year of study (2024) and the average distance to market was calculated.

Modules A5 = installation is done by manual labor. The use of portable electrical devices such as drills usually have low energy requirements falling under the cut-off criterion of 1% and are therefore neglected. No product scraps are generated during installation, but the end-of-life treatment of packaging is accounted for in this module.

Use Phase
Modules B1,B2,B3,B4,B5 and B7 are not declared.

Maintenance (Module B2)
The product was designed to be as maintenance free as possible and assumed that the entire product will last 20 years. Therefore, extraordinary maintenance activities are not considered in the creation of the EPD. Ordinary maintenance activities such as inspection and cleaning of the product are considered negligible, manual activities and are therefore not considered.

Module B6 = The operational energy use of the charging station is calculated based on the methodology provided in EPD Italy PCR 017 for charging stations (details are provided in section 4.2.3.5). Calculations focus on the energy consumed by the charging station during its entire service life. It is important to note that impacts related to electricity delivered to the charging vehicle are outside of the system boundaries of this EPD. Use phase considers only the energy absorbed by the charging station to keep operating and ready (e.g., display, LEDs) to transfer electric power to the connected vehicle. The energy absorbed is calculated as follows:

- Power consumed by the charging station (Puse) = 0.0019977 per hour
- Reference service life of the charging station (RSL) = 20 years (standard value)
- Hours per year = 8760 hours (standard value)
- Total Power consumed by the charging station, Euse [kWh] = 350

Module C1 = De-installation is done by manual labor. The use of portable electrical devices such as drills usually have low energy requirements falling under the cut-off criterion of 1% and are therefore neglected.

Module C2 = An average distance between the market and the waste treatment facility is considered. It is assumed that transport of charging stations after the use phase is done by the end user.

Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals, plastics, and electronic components allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastic insulation and other parts is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km) - Europe	38.8 %	1348.00	0.045	l/tkm	60.66

Assembly (A5)	Unit	Value			
Waste, mixed plastic, to average treatment - including transport (kg)	kg	0.00375			
Waste, wood, to average treatment - A3 including transport (kg)	kg	0.1535			
Waste, cardboard and paper, to average treatment - including transport (kg)	kg	0.0125			

Operational energy (B6)	Unit	Value			
Electricity, European average (kWh)	kWh	350.00			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km) - Europe	38.8 %	100.00	0.045	l/tkm	4.50

Waste processing (C3)	Unit	Value			
Waste treatment per kg used PWB, shredding and separation - C3 (kg)	kg	0.7146			
Waste treatment per kg electronics scrap from PWB, with components, recycling of metals C3 (kg)	kg	0.3573			
Steel to recycling (kg)	kg	0.02576			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0.3422			

Disposal (C4)	Unit	Value			
Landfilling of hazardous waste (kg)	kg	0.3573			
Landfilling of steel (kg)	kg	0.00644			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0.01197			
Landfilling of plastic mixture (kg)	kg	0.3422			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary metals with net scrap from PWB, with components (kg)	kg	0.1051			
Substitution of primary steel with net scrap (kg)	kg	0.02576			
Substitution of electricity, in Norway (MJ)	MJ	0.5258			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	7.96			
Substitution of Polypropylene, PP granulate (kg)	kg	0.3422			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact							
Indicator		**Unit**	A1	A2	A3	A4	A5
	GWP-total	kg CO_2 -eq	1.61E+02	3.56E-01	1.48E-01	5.37E-01	2.75E-01
	GWP-fossil	kg CO_2 -eq	1.61E+02	3.56E-01	1.43E-01	5.36E-01	5.31E-03
	GWP-biogenic	kg CO_2 -eq	-8.20E-02	1.98E-04	4.66E-03	4.09E-04	2.70E-01
	GWP-luluc	kg CO_2 -eq	2.95E-01	1.21E-04	7.90E-04	1.89E-04	1.05E-06
	ODP	kg CFC11 -eq	8.72E-06	5.92E-09	4.04E-09	1.11E-08	6.65E-10
	AP	mol H+ -eq	1.12E+00	2.60E-03	6.42E-04	1.68E-03	2.60E-05
	EP-FreshWater	kg P -eq	2.36E-01	1.89E-05	4.74E-05	3.56E-05	4.03E-08
	EP-Marine	kg N -eq	2.32E-01	7.50E-04	1.13E-04	5.65E-04	1.09E-05
	EP-Terrestial	mol N -eq	2.51E+00	8.25E-03	1.24E-03	6.15E-03	1.14E-04
	POCP	kg NMVOC -eq	7.19E-01	2.73E-03	3.96E-04	2.63E-03	3.00E-05
	ADP-minerals&metals[1]	kg Sb-eq	6.81E-02	8.80E-07	3.98E-06	1.76E-06	7.08E-08
	ADP-fossil[1]	MJ	2.07E+03	4.85E+00	1.73E+00	7.53E+00	4.71E-02
	WDP[1]	m^3	5.88E+01	2.00E-02	9.52E+00	3.70E-02	7.02E-02

Indicator		**Unit**	B6	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	1.50E+02	0.00E+00	3.98E-02	1.65E+00	1.16E-01	-6.70E+00
	GWP-fossil	kg CO_2 -eq	1.48E+02	0.00E+00	3.98E-02	1.01E+00	1.15E-01	-6.67E+00
	GWP-biogenic	kg CO_2 -eq	1.04E+00	0.00E+00	3.04E-05	6.36E-01	7.03E-05	-1.98E-02
	GWP-luluc	kg CO_2 -eq	3.45E-01	0.00E+00	1.41E-05	4.55E-04	6.74E-04	-1.04E-02
	ODP	kg CFC11 -eq	1.26E-05	0.00E+00	8.23E-10	1.75E-08	4.95E-09	-3.36E-03
	AP	mol H+ -eq	8.67E-01	0.00E+00	1.24E-04	7.59E-04	3.83E-04	-3.79E-01
	EP-FreshWater	kg P -eq	1.58E-02	0.00E+00	2.64E-06	2.12E-06	3.43E-06	-2.07E-03
	EP-Marine	kg N -eq	1.10E-01	0.00E+00	4.19E-05	2.01E-04	1.22E-04	-1.96E-02
	EP-Terrestial	mol N -eq	1.36E+00	0.00E+00	4.56E-04	2.18E-03	8.77E-04	-2.69E-01
	POCP	kg NMVOC -eq	3.44E-01	0.00E+00	1.95E-04	6.12E-04	4.17E-04	-7.75E-02
	ADP-minerals&metals[1]	kg Sb-eq	1.09E-03	0.00E+00	1.30E-07	2.36E-06	4.66E-07	-8.97E-03
	ADP-fossil[1]	MJ	3.06E+03	0.00E+00	5.59E-01	1.49E+00	9.18E-01	-1.03E+02
	WDP[1]	m^3	4.60E+04	0.00E+00	2.74E-03	2.85E+01	1.32E+00	-2.07E+02

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment: EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. 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

Remarks to environmental impacts

The LCA results in the EPD are calculated using a specific methodological approach for accounting energy resources, see the additional requirements section for more information. In this EPD the following approach was used: Location-based approach.

Additional environmental impact indicators							
Indicator		**Unit**	A1	A2	A3	A4	A5
	PM	Disease incidence	9.04E-06	1.98E-08	8.31E-09	4.16E-08	3.34E-10
	IRP[2]	kgBq U235 -eq	1.84E+01	4.95E-03	6.65E-02	9.60E-03	1.83E-04
	ETP-fw[1]	CTUe	5.01E+03	5.40E-01	1.48E+00	9.89E-01	5.35E-02
	HTP-c[1]	CTUh	9.66E-08	0.00E+00	1.37E-10	0.00E+00	5.00E-12
	HTP-nc[1]	CTUh	5.79E-06	3.08E-09	3.84E-09	5.55E-09	2.06E-10
	SQP[1]	dimensionless	8.30E+02	2.18E+00	4.21E-01	4.48E+00	3.01E-02

Indicator		**Unit**	B6	C1	C2	C3	C4	D
	PM	Disease incidence	2.27E-06	0.00E+00	3.09E-09	4.49E-09	7.04E-09	-7.87E-07
	IRP[2]	kgBq U235 -eq	2.68E+01	0.00E+00	7.13E-04	8.74E-03	1.63E-03	-3.04E-01
	ETP-fw[1]	CTUe	2.15E+03	0.00E+00	7.34E-02	5.11E+00	6.24E+00	-2.67E+03
	HTP-c[1]	CTUh	5.99E-08	0.00E+00	0.00E+00	6.05E-09	3.40E-10	-1.25E-08
	HTP-nc[1]	CTUh	2.07E-06	0.00E+00	4.11E-10	3.56E-07	2.44E-09	-8.51E-07
	SQP[1]	dimensionless	7.40E+02	0.00E+00	3.33E-01	5.79E-01	2.43E+00	-6.16E+01

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

1. 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
2. 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.

Resource use							
Indicator		**Unit**	A1	A2	A3	A4	A5
	PERE	MJ	2.48E+02	6.80E-02	3.13E+01	1.30E-01	9.01E-04
	PERM	MJ	6.18E+00	0.00E+00	0.00E+00	0.00E+00	-5.43E-01
	PERT	MJ	2.54E+02	6.80E-02	3.13E+01	1.30E-01	-5.42E-01
	PENRE	MJ	2.07E+03	4.85E+00	1.73E+00	7.53E+00	4.71E-02
	PENRM	MJ	1.96E+00	0.00E+00	0.00E+00	0.00E+00	-8.66E-02
	PENRT	MJ	2.07E+03	4.85E+00	1.73E+00	7.53E+00	-3.94E-02
	SM	kg	7.47E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	2.49E-02	2.12E-05	1.86E-05	4.36E-05	2.73E-05
	NRSF	MJ	2.32E-03	0.00E+00	1.04E-04	0.00E+00	2.40E-04
	FW	m^3	1.47E+00	5.47E-04	2.22E-01	1.01E-03	2.83E-05

Indicator		**Unit**	B6	C1	C2	C3	C4	D
	PERE	MJ	5.93E+02	0.00E+00	9.66E-03	2.50E-01	2.98E-01	-1.16E+01
	PERM	MJ	0.00E+00	0.00E+00	0.00E+00	-5.64E+00	0.00E+00	0.00E+00
	PERT	MJ	5.93E+02	0.00E+00	9.66E-03	-5.39E+00	2.98E-01	-1.16E+01
	PENRE	MJ	3.07E+03	0.00E+00	5.59E-01	1.49E+00	9.19E-01	-9.29E+01
	PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	-1.87E+00	0.00E+00	-1.12E+01
	PENRT	MJ	3.07E+03	0.00E+00	5.59E-01	-3.83E-01	9.19E-01	-1.04E+02
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.72E-03	0.00E+00
	RSF	MJ	4.33E+01	0.00E+00	3.23E-06	2.03E-03	7.05E-04	-1.89E-02
	NRSF	MJ	1.03E+01	0.00E+00	0.00E+00	-3.61E-04	6.69E-02	-2.14E-01
	FW	m^3	2.60E+00	0.00E+00	7.52E-05	2.13E-03	5.50E-04	-6.75E-02

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5
	HWD	kg	1.42E+01	6.17E-03	1.42E-02	1.08E-02	1.03E-03
	NHWD	kg	5.03E+02	1.23E-01	3.32E-01	2.28E-01	4.75E-03
	RWD	kg	4.52E-03	4.62E-05	1.45E-05	2.39E-06	2.78E-07

Indicator		Unit	B6	C1	C2	C3	C4	D
	HWD	kg	4.61E-01	0.00E+00	8.01E-04	1.78E-04	3.58E-01	-2.16E-02
	NHWD	kg	1.04E+01	0.00E+00	1.69E-02	2.41E-01	3.49E-01	-1.03E+00
	RWD	kg	2.19E-02	0.00E+00	1.77E-07	8.85E-06	5.35E-07	-2.62E-04

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4	A5
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	3.77E-03	0.00E+00	6.94E-02
	MER	kg	0.00E+00	0.00E+00	2.05E-03	0.00E+00	9.80E-02
	EEE	MJ	0.00E+00	0.00E+00	1.30E-03	0.00E+00	6.89E-02
	EET	MJ	0.00E+00	0.00E+00	1.96E-02	0.00E+00	1.04E+00

Indicator		Unit	B6	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0.00E+00	0.00E+00	0.00E+00	2.61E-02	3.07E-05	-1.91E-04
	MER	kg	0.00E+00	0.00E+00	0.00E+00	3.42E-01	7.51E-07	-8.25E-04
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	5.26E-01	4.87E-05	-1.44E-03
	EET	MJ	0.00E+00	0.00E+00	0.00E+00	7.96E+00	7.37E-04	-2.18E-02

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	1.73E-01
Biogenic carbon content in accompanying packaging	kg C	7.35E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

The table below presents the calculation of GWP values for energy resources used during the manufacturing stage (A3), based on both the location-based and market-based approaches. This information is provided for transparency, allowing EPD users to understand the impact of these methodological choices. The main environmental impact results in the EPD are reported using the: Location-based approach.

Energy source	Data source	Amount	Unit	GWP-total [kg CO_2-eq/unit]	SUM [kg CO_2-eq]
Location based approach					
Electricity, Norway, medium voltage (kWh) - ecoinvent 3.10.1	ecoinvent 3.10.1	8.00	kWh	0.02	0.16
Market based approach					
Electricity, Norway, medium voltage, residual mix (kWh)	ecoinvent 3.10.1	8.00	kWh	0.62	4.96

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products							
Indicator	**Unit**	A1	A2	A3	A4	A5	
GWPIOBC	kg CO_2 -eq	1.61E+02	3.56E-01	1.47E-01	5.37E-01	5.75E-03	

Indicator	**Unit**	B6	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	1.50E+02	0.00E+00	3.98E-02	1.01E+00	1.16E-01	-6.65E+00

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

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