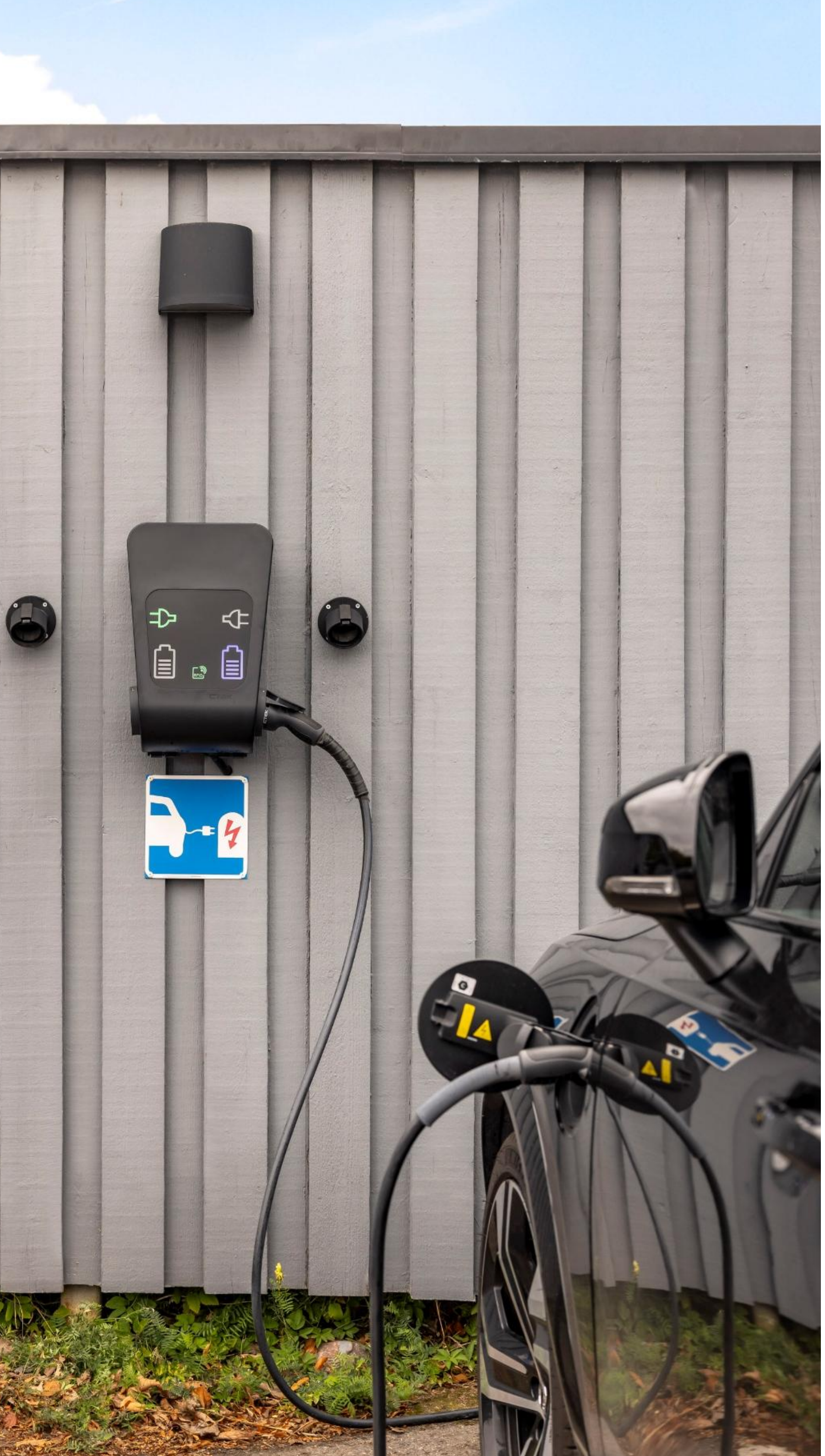


EPD Hub

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Chargestorm Connected 3
CTEK Sweden AB

EPD HUB, HUB-4628
Published on 10.12.2025, last updated on 10.12.2025, valid until 09.12.2030

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.

One Click LCA Created with One Click LCA

CTEK

GENERAL INFORMATION

MANUFACTURER

Manufacturer	CTEK Sweden AB
Address	Strandvägen 15, 791 42 Falun, Sweden
Contact details	info@ctek.com
Website	www.ctek.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021, ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
C-PCR	EN 50693:2019
Sector	Electrical product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with modules A4, A5, B3, B4, B6, C1-C4, D
EPD author	Magnus Kemi - Gidås Sustainability Agency
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Sarah Curpen, as authorized verifier acting for EPD HUB Limited

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	Chargestorm Connected 3
Additional labels	-
Product reference	40-647
Place(s) of raw material origin	AT, CN, DE, IT, MY
Place of production	China
Place(s) of installation and use	Europe
Period for data	01.01.2024-31.12.2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	1,43

ENVIRONMENTAL DATA SUMMARY

Declared unit	One CTEK Chargestorm Connected 3 Dual Outlet Charger
Declared unit mass	9,8 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	2,62E+02
GWP-total, A1-A3 ($kgCO_2e$)	2,62E+02
Secondary material, inputs (%)	17
Secondary material, outputs (%)	71,2
Total energy use, A1-A3 (kWh)	1020
Net freshwater use, A1-A3 (m^3)	8,78

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

CTEK is a global market leader in vehicle charging solutions Established in Dalarna Sweden, CTEK is the leading global brand in battery charging solutions, most specifically vehicle charging. CTEK offers products ranging from 12V and 24V battery chargers to charging solutions for electrical vehicles. Products are sold via a carefully selected network of global distributors and retailers, as original equipment, supplied to more than 50 of the world's leading vehicle manufacturers and through charge point operators, property owners as well as other organizations and individuals providing EV charging infrastructure. CTEK takes pride in its unique culture based on a passion for innovation and a deep commitment to supporting the transition to a greener mobility, by adhering to industry-leading ESG standards.

PRODUCT DESCRIPTION

CHARGESTORM® CONNECTED 3 (CC3) is a future-proofed EV charging wallbox supporting 2x22kW AC charging. CC3 can connect to backend via WiFi, Ethernet or optionally 4G. It supports EV authentication based on the auto charge protocol and will soon support Plug n Charge. It is thoroughly cyber-security tested and is tamper-proof. CC3 is compatible with various third-party backend systems by OCPP and is prepared for V2G and V2X technologies. CC3 is tailored for both users and installers. As a standout in our CHARGESTORM® CONNECTED series, it's engineered for effortless installation and user experience. Ideal for diverse installation settings,
including B2B environments and destination charging locations, it features efficient punch-out holes for a seamless setup. Dual Ethernet ports allow for speedy and straightforward cabling. The CC3 is designed in Sweden and assembled in China in facility specialized in manufacturing and assembling high quality electronics.

Further information can be found at: www.ctek.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	53,3	Austria, China, Germany, Italy, Malaysia
Minerals	0,2	Italy
Fossil materials	46,5	Austria, China, Germany, Italy, Malaysia
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	0,338

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	One CTEK Chargestorm Connected 3 Dual Outlet Charger
Mass per declared unit	9,8 kg
Functional unit	One CTEK Chargestorm Connected 3 Dual Outlet Charger used for 20 years
Reference service life	20

SUBSTANCES, REACH - VERY HIGH CONCERN

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

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	x	ND	ND	x	x	ND	x	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

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 in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission. A location-based approach is used in modelling the electricity mix utilized in the factory, where 90% of the electricity is supplied by the regional grid and 10% by the factory's own PV-panels.

The full LCA covers the production processes of one average CTEK Chargestorm Connected 3 (CC3) dual outlet charger assembled, shipped, installed, and used for 20 years. The consumption of production and packaging material is based on the manufacturer's data and measurements. The consumption of electricity during assembly is based on measurements provided by the manufacturer. The environmental impacts considered for the product stage cover the manufacturing of raw materials used in production as well as energy and materials used for assembling the final product. No handling of losses and waste formed in the production processes is included as all material and packaging waste take place at upstream suppliers of components. The packaging material included is two cardboard boxes, plastic film, and a pallet that fits 28 CC3 chargers, which are transported to the manufacturing with a 16-32ton EURO3 lorry.

The CC3 charger is manufactured in a subcontractor plant in China by assembling various components, e.g. plastic covers, steel enclosure, electronic devices composed of various metals and plastics, and PCBA: s. All components are in turn manufactured by different subcontractors situated in Asia and Europe and are delivered as finished products to the assembly plant. The assembly of the CC3 mainly involves manual handling with only some usage of electric tools and thus only consumes some electricity, where the data for consumption is collected through product level measurements. The study considers the material losses occurring during the manufacturing processes. However, no losses are included in the calculations since, according to the manufacturer, there are no or only negligible losses during manufacturing/assembly, and this LCA does not account for production losses that occur in the production of components at upstream sub-suppliers as they should be accounted for in their life cycle. Metals and plastics, both in term of larger construction parts and electrical components, and printed wiring board assemblies (PCBA: s) are modelled with the use of generic datapoints, with the use of regional or national data points when such are available. Transport modes and distances are based on the manufacturer's information, and are modelled to include upstream infrastructure etc. All road transport in Europe is modelled as >32-ton EURO6 lorry, all road transport in China is modelled as 16–32-ton EURO3 lorry, sea transport is modelled as container ship, and air transport as medium haul air freight. Transportation distances from sub-supplier's production to the assembly plant are provided by the manufacturer or approximated by using Google Maps. The modelling of the energy mix follows a location-based approach where the electricity consumption in manufacturing and assembly is a mix between the manufacturing company's own electricity production with solar PV-cells and the average energy mix of the regional Chinese grid, where the own production equals 10 % of the total consumption. The study considers losses during electricity transmission and distribution.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts from final products delivery to installation site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. The CC3 is first shipped with a 16-32t Euro3 and container ship from the manufacturing site in China to Europe and then distributed to European logistics centers with a >32t Euro6 lorry. The scenarios for following shipping to each market is based on sales statistics. Final transport to installation is set to 200 km and done with a electric van based on the manufacturer's information. The electric van is modelled with average global energy mix electricity, which constitute a conservative assumption compared to the energy mix in Sweden where the great majority of chargers are sold. The transported mass to logistics centers includes product, cardboard packaging, and pallet, while transport to the customer only includes the charger and the cardboard packaging. There are no losses during transportation based on the manufacturer's information. Energy consumption and losses during installation are zero as it basically only involves manual attachment of the complete product.

PRODUCT USE AND MAINTENANCE (B1-B7)

Product maintenance includes service errands (B3), replacement of broken components (B4) including waste handling of broken components as well as transport of replacement components and waste, and operational energy use (B6). The product reference lifetime is 20 years.

The input in B3 and B4 is based on the manufacturer's statistics for how many chargers need service at some point during its service lifetime, how many of the service errands that involve replacement of components, and how often specific components are replaced. The total inputs are allocated evenly per charger sold over their service lifetime of 20 years. B3 includes manual service by a technician and includes manual work such as attaching wires and checking functionality. The service includes 50 km transport with return trip done with an electric van where the transported mass is 10 kg to represent tools and equipment needed. The transportation is modelled with global datapoint for electric car transportation to represent electricity in the European market with an uncertain energy mix.

B4 includes replacement of broken components based on the manufacturer's information on the share of specific components that are replaced in each replacement errand. The manufacturing and transportation of components are modelled similarly as in A3 except that it is assumed that they are composed of only virgin materials. The transport of new components from manufacturing in China to service centers in Europe is modelled as in A4, with the addition of 50 km of transport with the electric service van. Transport of broken components is set to 50 km with a 16-32t Euro6 lorry. Waste treatment of the broken components includes shredding and sorting followed by that all plastics parts are incinerated, and all metal parts are fully recycled.

No benefits from energy recovery and recycled materials are considered negligible.

B6 includes operational energy use, i.e. the standby power consumed over the service lifetime, but not the energy used for charging electric vehicles. The electricity energy mix is modelled with market datapoints for Sweden and Europe, where the share is based on market shares of Sweden and other European countries, respectively.

The other use stage modules (B1, B2, B5, and B7) are not included as they are irrelevant and therefore air, soil, and water impacts during the use phase have not been studied.

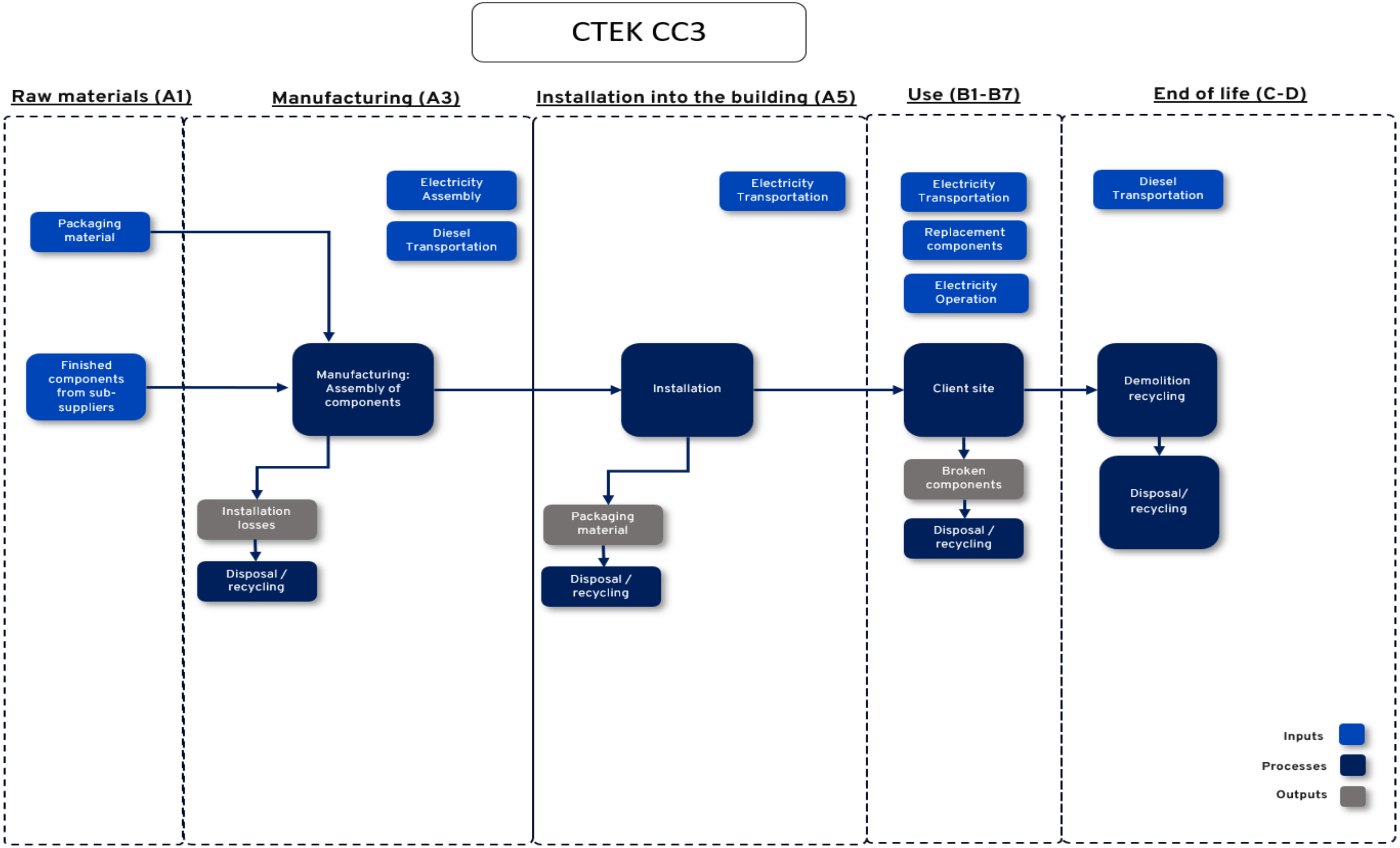
PRODUCT END OF LIFE (C1-C4, D)

The end-of-life stage C1-C4 & D includes:

- Deconstruction/demolition (C1)
- Transport to waste management facility (C2)
- Waste processing for reuse, recovery and/or recycling (C3)
- Waste disposal (C4)
- Net benefits and loads beyond the system boundary (D)

At the end of life, 100 % of the waste is assumed to be collected as electronic waste. The end-of-life is assumed to take place in Europe and therefore all assumptions and scenarios are made based on European waste treatment statistics for packaging, plastics, metals, and electronic devices. No demolition processes are considered as it is assumed that the CC3 is manually detached and transported to further waste handling. The transport of waste material to waste treatment is set to 50 km with a 16–32-ton EURO6 lorry. It is assumed that there are no or only negligible mass losses during detachment, transport, and handling of the waste. The consumed CC3 is first shredded and sorted in the waste treatment plant and the different components are then handled separately depending on their material fractions. The share of each recycled, incinerated, or landfilled is in general modelled based on EU statistics of waste treatment for the specific type of materials.
Module D includes reuse, recovery and/or recycling potentials conveyed as benefits and net impacts and includes both packaging and product materials. It is assumed that the recycled materials replace the production of their virgin counterparts, but no benefits are considered for the input of recycled materials. Benefits from the incineration of waste include heat and electricity based on the energy content of the incinerated materials. Loads and impacts from the recycling processes are also considered.

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 that is 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 made according to the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

All estimates and assumptions are described in detail in the LCA Background report which is available on request.

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	No allocation, quantity provided through measurements

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	Not applicable

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. 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'.

The full list of literature used in waste handling scenarios is included in the LCA Background report which is available on request.

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[1)]	kg CO_2e	2,59E+02	7,64E-01	1,25E-01	2,60E+02	2,72E+00	1,28E+00	ND	ND	4,72E-03	4,01E-01	ND	2,69E+02	ND	0,00E+00	5,33E-02	8,19E-01	2,51E+00	-3,76E+01
GWP – fossil	kg CO_2e	2,58E+02	7,64E-01	1,36E+00	2,61E+02	2,72E+00	3,41E-02	ND	ND	4,71E-03	4,00E-01	ND	2,61E+02	ND	0,00E+00	5,33E-02	8,11E-01	2,75E+00	-3,76E+01
GWP – biogenic	kg CO_2e	2,36E-01	0,00E+00	-1,24E+00	-1,00E+00	0,00E+00	1,24E+00	ND	ND	0,00E+00	5,43E-04	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,62E-03	-2,43E-01	2,62E-02
GWP – LULUC	kg CO_2e	4,10E-01	3,20E-04	5,86E-03	4,16E-01	1,22E-03	3,47E-05	ND	ND	8,38E-06	6,49E-04	ND	7,45E+00	ND	0,00E+00	2,34E-05	1,38E-03	2,91E-05	-3,92E-02
Ozone depletion pot.	kg CFC-11e	1,51E-05	1,13E-08	8,41E-09	1,51E-05	4,84E-08	3,98E-10	ND	ND	5,77E-11	1,88E-08	ND	5,52E-06	ND	0,00E+00	8,18E-10	5,41E-09	-8,93E-10	-2,25E-07
Acidification potential	mol H^+e	1,95E+00	6,01E-03	3,32E-03	1,96E+00	3,41E-02	1,38E-04	ND	ND	2,77E-05	3,00E-03	ND	1,92E+00	ND	0,00E+00	1,81E-04	4,24E-03	2,07E-04	-2,33E-01
EP-freshwater[2)]	kg Pe	5,66E+00	5,13E-05	1,71E-03	5,67E+00	1,53E-04	6,72E-06	ND	ND	2,25E-06	2,71E-02	ND	2,41E-01	ND	0,00E+00	4,09E-06	3,25E-04	-3,83E-01	-6,87E+00
EP-marine	kg Ne	3,44E-01	2,04E-03	1,11E-03	3,47E-01	8,73E-03	1,58E-04	ND	ND	5,19E-06	5,57E-04	ND	2,95E-01	ND	0,00E+00	5,95E-05	1,38E-03	1,11E-03	-3,44E-02
EP-terrestrial	mol Ne	3,74E+00	2,24E-02	1,02E-02	3,77E+00	9,66E-02	5,42E-04	ND	ND	5,08E-05	6,05E-03	ND	2,78E+00	ND	0,00E+00	6,48E-04	9,57E-03	6,29E-03	-3,62E-01
POCP (“smog”)[3])	kg NMVOCe	1,09E+00	6,91E-03	3,09E-03	1,10E+00	2,98E-02	1,81E-04	ND	ND	2,57E-05	1,72E-03	ND	8,45E-01	ND	0,00E+00	2,69E-04	2,87E-03	1,11E-03	-1,25E-01
ADP-minerals & metals[4])	kg Sbe	8,84E-02	2,11E-06	2,66E-06	8,84E-02	6,08E-06	9,11E-08	ND	ND	1,34E-07	1,58E-04	ND	1,00E-02	ND	0,00E+00	1,49E-07	9,45E-06	1,45E-07	-2,23E-03
ADP-fossil resources	MJ	3,36E+03	1,06E+01	1,52E+01	3,39E+03	3,76E+01	3,46E-01	ND	ND	6,20E-02	4,97E+00	ND	1,28E+04	ND	0,00E+00	7,73E-01	8,65E+00	-2,66E+01	-4,97E+02
Water use[5)]	m^3e depr.	8,55E+01	4,51E-02	4,01E-01	8,59E+01	1,62E-01	9,43E-03	ND	ND	1,32E-03	1,30E-01	ND	5,76E+02	ND	0,00E+00	3,83E-03	1,84E-01	2,05E-01	-9,55E+00

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	1,55E-05	6,89E-08	4,68E-08	1,56E-05	1,95E-07	2,36E-09	ND	ND	3,34E-10	2,28E-08	ND	1,04E-05	ND	0,00E+00	5,31E-09	1,14E-07	-1,08E-08	-2,31E-06
Ionizing radiation[6)]	kBq U235e	2,49E+01	8,22E-03	3,10E-02	2,50E+01	3,50E-02	1,08E-03	ND	ND	5,22E-04	4,01E-02	ND	7,13E+02	ND	0,00E+00	7,02E-04	7,53E-02	-9,84E-03	-1,22E+00
Ecotoxicity (freshwater)	CTUe	8,30E+03	1,47E+00	6,37E+00	8,30E+03	4,07E+00	2,69E-01	ND	ND	2,51E-02	1,08E+01	ND	1,73E+03	ND	0,00E+00	1,08E-01	6,09E+00	2,13E+01	-1,07E+03
Human toxicity, cancer	CTUh	9,45E-06	2,44E-10	1,15E-09	9,45E-06	5,49E-10	1,45E-11	ND	ND	2,60E-12	5,74E-10	ND	1,88E-07	ND	0,00E+00	8,80E-12	1,07E-09	-6,26E-10	-8,82E-08
Human tox. non-cancer	CTUh	1,26E-05	7,72E-09	5,49E-09	1,26E-05	1,99E-08	7,69E-10	ND	ND	7,62E-11	1,57E-08	ND	9,79E-06	ND	0,00E+00	5,00E-10	2,49E-08	4,74E-09	-1,21E-06
SQP[7)]	-	1,16E+03	5,71E+00	9,10E+01	1,26E+03	2,41E+01	3,14E-01	ND	ND	2,67E-02	1,80E+00	ND	2,96E+03	ND	0,00E+00	7,71E-01	8,39E+00	5,58E-01	-1,08E+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	3,65E+02	1,34E-01	7,73E+00	3,72E+02	5,01E-01	-1,10E+01	ND	ND	7,85E-03	5,75E-01	ND	6,86E+03	ND	0,00E+00	1,08E-02	1,20E+00	-1,22E-01	-4,10E+01
Renew. PER as material	MJ	1,80E-02	0,00E+00	1,28E+01	1,28E+01	0,00E+00	-1,28E+01	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	-9,11E-03	-8,93E-03	4,62E-01
Total use of renew. PER	MJ	3,65E+02	1,34E-01	2,05E+01	3,85E+02	5,01E-01	-2,38E+01	ND	ND	7,85E-03	5,75E-01	ND	6,86E+03	ND	0,00E+00	1,08E-02	1,19E+00	-1,31E-01	-4,05E+01
Non-re. PER as energy	MJ	3,25E+03	1,06E+01	1,42E+01	3,28E+03	3,76E+01	5,43E-02	ND	ND	6,20E-02	4,88E+00	ND	1,28E+04	ND	0,00E+00	7,73E-01	-9,65E+01	-4,14E+01	-3,45E+02
Non-re. PER as material	MJ	1,14E+02	0,00E+00	9,26E-01	1,15E+02	0,00E+00	-9,26E-01	ND	ND	0,00E+00	7,71E-02	ND	0,00E+00	ND	0,00E+00	0,00E+00	-6,65E+01	-4,73E+01	1,10E-01
Total use of non-re. PER	MJ	3,37E+03	1,06E+01	1,52E+01	3,39E+03	3,76E+01	-8,72E-01	ND	ND	6,20E-02	4,96E+00	ND	1,28E+04	ND	0,00E+00	7,73E-01	-1,63E+02	-8,87E+01	-3,45E+02
Secondary materials	kg	1,66E+00	4,48E-03	2,05E-01	1,87E+00	1,69E-02	2,84E-04	ND	ND	5,54E-05	1,99E-03	ND	2,36E+00	ND	0,00E+00	3,30E-04	1,10E-02	5,91E-04	-7,12E+00
Renew. secondary fuels	MJ	6,43E-02	5,14E-05	3,20E-01	3,84E-01	1,53E-04	2,51E-06	ND	ND	7,32E-07	7,43E-05	ND	1,34E-02	ND	0,00E+00	4,19E-06	4,56E-04	3,87E-05	-2,62E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	8,76E+00	1,28E-03	8,83E-03	8,77E+00	4,50E-03	-8,00E-04	ND	ND	3,51E-05	8,28E-03	ND	1,47E+01	ND	0,00E+00	1,14E-04	4,77E-03	3,71E-03	-2,88E-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	2,29E+01	1,67E-02	1,51E-01	2,30E+01	5,39E-02	2,75E-03	ND	ND	4,94E-04	3,49E-02	ND	2,01E+01	ND	0,00E+00	1,29E-03	8,16E-02	3,12E-01	-5,97E+00
Non-hazardous waste	kg	7,49E+02	3,09E-01	8,34E-01	7,50E+02	9,71E-01	1,45E+00	ND	ND	1,10E-02	1,11E+00	ND	1,19E+03	ND	0,00E+00	2,41E-02	2,08E+00	1,85E+00	-1,08E+02
Radioactive waste	kg	6,50E-03	2,02E-06	2,33E-05	6,53E-03	8,64E-06	2,71E-07	ND	ND	1,34E-07	1,10E-05	ND	1,58E-01	ND	0,00E+00	1,72E-07	1,85E-05	3,15E-07	-1,17E-03

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	0,00E+00	0,00E+00	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	2,85E-03	0,00E+00	0,00E+00	2,85E-03	0,00E+00	3,15E-01	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	6,98E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	4,32E-09	0,00E+00	0,00E+00	4,32E-09	0,00E+00	2,50E-03	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	ND	0,00E+00	0,00E+00	0,00E+00	1,82E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,03E+00	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	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	4,36E-01	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	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	5,96E-01	ND	ND	0,00E+00	0,00E+00	ND	0,00E+00	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[9)]	kg CO_2e	2,59E+02	7,64E-01	1,37E+00	2,61E+02	2,72E+00	3,41E-02	ND	ND	4,72E-03	4,01E-01	ND	2,69E+02	ND	0,00E+00	5,33E-02	8,12E-01	2,75E+00	-3,76E+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	Value
Electricity data source and quality	Electricity China IDEMAT 2023 and Electricity PV panel (irradiation 1100 kWh per m2) in MJ IDEMAT 2023
Electricity CO2e / kWh	0,05282 and 0,00695
District heating data source and quality	N/A
District heating CO2e / kWh	N/A

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Diesel powered truck and Container ship
Average transport distance, km	10598
Capacity utilization (including empty return) %	50
Bulk density of transported products	467
Volume capacity utilization factor	1

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m³	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	**Cardboard** 0.1429kg **PE film** 0.0715kg **Wood pallet** 0.6071kg
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	**Cardboard:** Incineration 0.0114 kg, Landfill 0.0129 kg, Recycling 0.1186 kg **PE film:** Incineration 0.0025 kg, Landfill 0.0018 kg, Recycling 0.0029 kg **Wood pallet:** Incineration 0.1821 kg, Landfill 0.2307 kg, Recycling 0.1943 kg
Direct emissions to ambient air, soil and water / kg	0

Use stages scenario documentation - B2 Maintenance

Scenario information	Value
Maintenance process / Description or source where description can be found	N/A
Maintenance cycle / Number per RSL or year *(Not applicable if only B2 is declared)*	N/A
Ancillary materials for maintenance, e.g. cleaning agent, specify materials / kg / cycle	N/A
Waste material resulting from maintenance (specify materials) / kg	N/A
Net fresh water consumption during maintenance / m^3	N/A
Energy input during maintenance, e.g. vacuum cleaning, energy carrier type, e.g. electricity, and amount, if applicable and relevant / kWh	N/A

Use stages scenario documentation - B3 Repair

Scenario information	Value
Repair process / Description or source where description can be found	The repair process involves a technician travelling to the malfunctioning charger to perform inspection an potentially repair.
Inspection Process / Description or source where description can be found	Typically checking and attaching loses wires and contacts, and inspection that all components are functioning.
Repair cycle / Number per RSL or year	Only when needed
Ancillary materials, e.g., lubricant (specify materials) / kg or kg/cycle	0
Waste material resulting from repair (specify materials) / kg	0
Net fresh water consumption during repair / m^3	0
Energy input during repair, e.g., crane activity, energy carrier type, e.g., electricity, and amount / kWh/RSL, kWh/cycle	Approximately 20 kWh from travelling with electric van, in average 50 km one way.

Use stages scenario documentation - B4 Replacement

Scenario information	Value
Replacement cycle / Number per RSL or year	Replacement of non-functioning components, only when needed
Energy input during replacement, e.g., crane activity, energy carrier type, e.g., electricity and amount (if applicable and relevant) / kWh	N/A
Exchange of worn parts during the product's life cycle, e.g., zinc galvanized steel sheet (specify materials) / kg	(kg) Brass 0.000413; Bronze 0.000024; Copper 0.001212; Glass fiber 0.000018; Steel 0.002958; Nickel 0.000001; PCBA 0.001155; PBT 0.000103; Polyamide 0.002306; Silver 0.000011; Teflon (PTFE) 0.000160

Use stages scenario documentation - B5 Refurbishment

Scenario information	Value
Refurbishment process / Description or source where description can be found	N/A
Refurbishment cycle / Number per RSL or year	N/A
Energy input during refurbishment, e.g., crane activity, energy carrier type, e.g., electricity, and amount (if applicable and relevant) / kWh	N/A
Material input for refurbishment, e.g., bricks, including ancillary materials for the refurbishment process, e.g., lubricant (specify materials) / kg or kg/cycle	N/A
Waste material resulting from refurbishment (specify materials) / kg	N/A
Further assumptions for scenario development, e.g., frequency and time period of use, number of occupants / Units as appropriate	N/A

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Ancillary materials specified by material / kg or units as appropriate	N/A
Net fresh water consumption / m³	N/A
Type of energy carrier, e.g., electricity, natural gas, district heating / kWh	Electricity: 2453
Power output of equipment / kW	0,014
Characteristic performance, e.g., energy efficiency, emissions, variation of performance with capacity utilization, etc.	N/A
Further assumptions for scenario development, e.g., frequency and period of use, number of occupants	Standby power is 14 W modelled for 20 years of service. Energy use for charging vehicles is not considered.

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	9,8089
Collection process – kg collected with mixed construction waste	0
Recovery process – kg for re-use	0
Recovery process – kg for recycling	6,9758
Recovery process – kg for energy recovery	1,8200
Disposal (total) – kg for final deposition	1,0131
Scenario assumptions e.g. transportation	Waste handling are extrapolated values of EU statistics where larger parts are considered as plastic and metal waste and smaller electronic items are considered as electronic waste. Assumed 50 km transport with 16-32t Euro6 lorry.

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 is filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub cannot 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

Sarah Curpen, as authorized verifier acting for EPD HUB Limited
10.12.2025

EPD Hub
VERIFIED ISO 14025