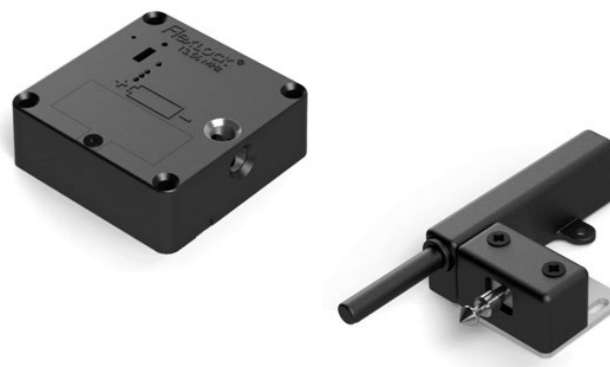


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Flexlock Invisible (13.56 Mhz & 125 kHz)

Swedstyle AB



EPD HUB, HUB-2142

Published on 31.10.2024, last updated on 31.10.2024, valid until 31.10.2029

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Swedstyle AB
Address	Karlavägen 38, 567 24 Vaggeryd
Contact details	info@swedstyle.se
Website	http://www.swedstyle.se

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 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Susanne Flisander
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Imane Uald Iamkaddam, as an authorized verifier acting for EPD Hub Limited

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	Flexlock Invisible (13.56 Mhz & 125 kHz)
Additional labels	
Product reference	372020-B/37200-B & 32771521
Place of production	Vaggeryd, Sweden
Period for data	2023-01-01 - 2023-12-31
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit of lock
Declared unit mass	0.148 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	2,15E+00
GWP-total, A1-A3 (kgCO ₂ e)	2,15E+00
Secondary material, inputs (%)	13.9
Secondary material, outputs (%)	58.5
Total energy use, A1-A3 (kWh)	8.21
Net freshwater use, A1-A3 (m ³)	0.02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Swedstyle was founded in Vaggeryd, Sweden. We have been developing and manufacturing electronic locks in Småland since 2014. We design easy-to-understand and easy-to-use solutions. We are always working to improve our products and develop new solutions. Quality is our number one priority. To achieve our desired level of quality, we have chosen to manage all production on site in Sweden. With "Made in Sweden as our guiding principle, we create competitive, sustainable products. The environment and sustainability have always been important issues for us. We are constantly working to develop our processes and our production to meet current demands. We create sustainable solutions that improve our carbon footprint and reduce our CO2 emissions. With full control over the entire production process, from development to the final product, we can guarantee sustainable manufacturing. We can ensure that our choice of materials and energy sources meet the strict legal requirements that having production in Sweden entails. The company is certified under ISO 14001, ISO 9001, ISO 28000.

PRODUCT DESCRIPTION

The lock for smarter and more flexible storage. Flexlock Invisible is fitted on the inside of the furniture so that it is never visible from the outside, giving the furniture an elegant and neat appearance. The lock is managed using a key card and can be easily re-programmed to add or remove users – or to configure it with a different type of locking function. Flexlock Invisible can be installed in both new and existing storage units. The lock comes with a lock plate that fits various types of furniture. The lock is battery-powered and does not require an external power supply.

Further information can be found at <http://www.swedstyle.se>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	35	SE, CN
Minerals		
Fossil materials	65	SE, CN
Bio-based materials		

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	0.0017

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit of lock
Mass per declared unit	0.148 kg
Functional unit	Regular use of the lock includes standby and 2000 openings per year.
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	x	x	x	x	x	x	x	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	Recycling	
																Recovery	
																Reuse	

Modules not declared = MND. 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.

The manufacturing process includes assembling and packaging. The components are delivered to manufacturer's site and are assembled to a complete lock. The locks are packed in 50 in a cardboard box.

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.

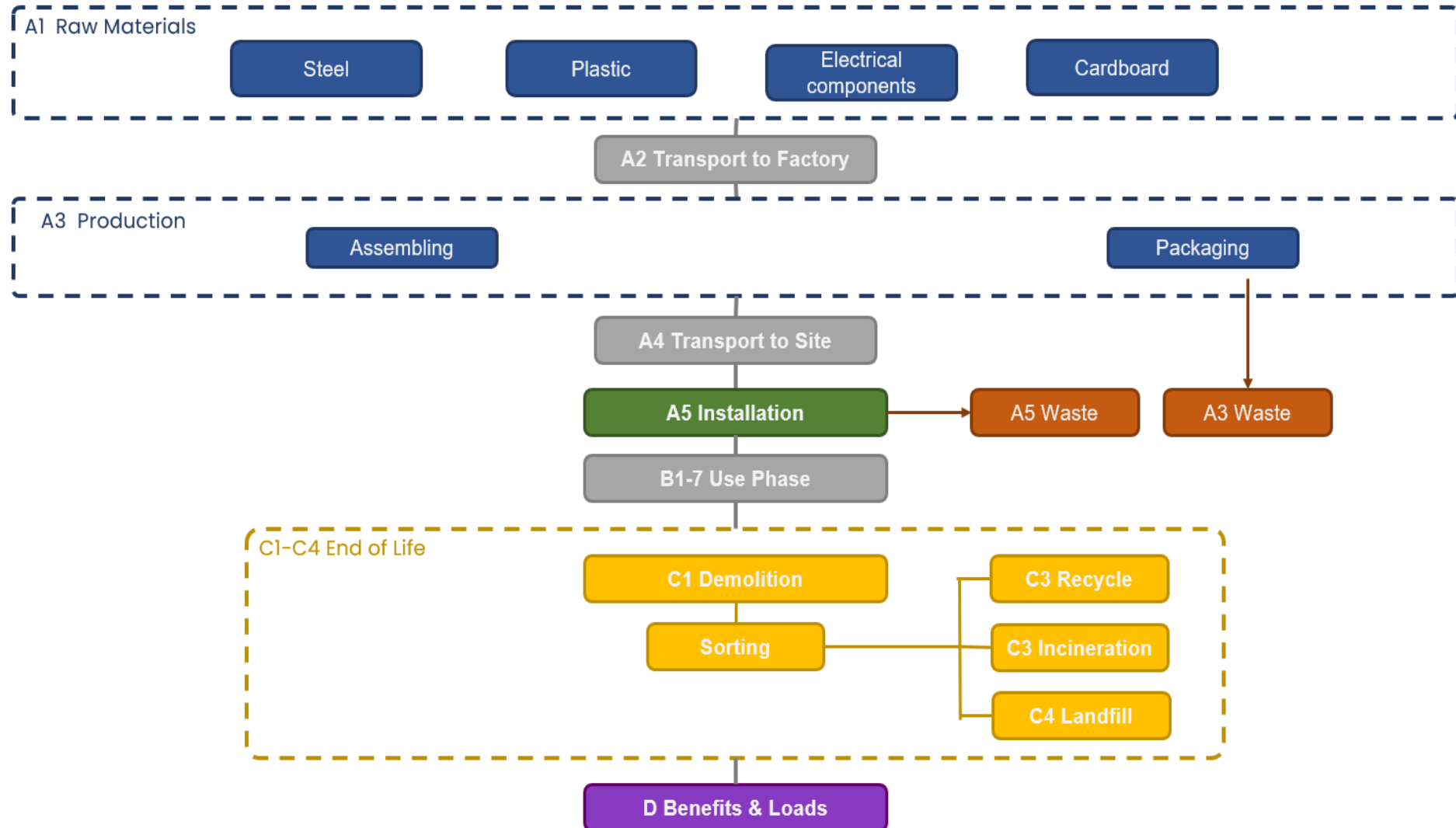
PRODUCT USE AND MAINTENANCE (B1-B7)

The lock is easy to use and does not require specific maintenance other than change of battery every second or third year. The use of opening the lock requires certain amount of electricity which is calculated based on a specified scenario. This regime is assumed for 5 days a week, 46 weeks per year, for a period of 20 years. The total electricity use for the whole declared period is 0,0008 kWh based on power consumption 300 mAh/year and 3V battery. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The lock is easy to disassemble manually, so no energy is considered for module C1. It is assumed that the waste is collected separately and transported to a dedicated waste treatment plant. The distance to treatment site is assumed to be 50 km and the transportation mode is assumed to be truck (C2). Module C3 accounts for energy and resource inputs for sorting and treating these waste streams for recycling and incineration with energy recovery with efficiency greater than 60%. Landfilled waste is included in module C4. Due to the material and energy recovery potential of parts in the end of life product and packaging, recycled raw materials lead to avoided virgin material production (steel, aluminium, electronics), while the energy recovered from incineration replaces electricity and heat production (D). The benefits and loads of incineration and recycling are included in module D.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

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

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	%

This EPD is product and factory specific and does not contain average calculations.

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 v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

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 ₂ e	2,14E+00	1,42E-02	-6,41E-04	2,15E+00	MND	6,85E-03	MND	MND	MND	MND	MND	3,96E-05	MND	MNR	1,09E-02	1,34E-01	9,73E-02	-1,09E-01
GWP – fossil	kg CO ₂ e	2,13E+00	1,42E-02	5,52E-03	2,15E+00	MND	5,15E-04	MND	MND	MND	MND	MND	3,70E-05	MND	MNR	1,09E-02	1,35E-01	9,92E-02	-1,08E-01
GWP – biogenic	kg CO ₂ e	3,27E-03	0,00E+00	-6,34E-03	-3,07E-03	MND	6,34E-03	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	1,34E-07	-1,30E-03	-1,96E-03	-4,10E-04
GWP – LULUC	kg CO ₂ e	3,11E-03	9,11E-06	1,78E-04	3,30E-03	MND	3,64E-07	MND	MND	MND	MND	MND	2,60E-06	MND	MNR	7,28E-06	2,12E-05	1,61E-05	-1,58E-04
Ozone depletion pot.	kg CFC-11e	1,27E-07	2,88E-09	5,02E-10	1,31E-07	MND	8,45E-11	MND	MND	MND	MND	MND	1,80E-12	MND	MNR	2,12E-09	3,02E-09	2,83E-10	-5,43E-09
Acidification potential	mol H ⁺ e	1,67E-02	3,44E-04	2,92E-05	1,71E-02	MND	2,76E-06	MND	MND	MND	MND	MND	2,58E-07	MND	MNR	6,03E-05	1,03E-04	3,21E-05	-1,57E-03
EP-freshwater ²⁾	kg Pe	2,16E-04	6,97E-08	3,99E-07	2,16E-04	MND	8,86E-09	MND	MND	MND	MND	MND	2,01E-09	MND	MNR	1,52E-07	6,69E-07	9,23E-08	-6,91E-06
EP-marine	kg Ne	6,20E-03	8,41E-05	1,28E-05	6,30E-03	MND	8,03E-07	MND	MND	MND	MND	MND	4,41E-08	MND	MNR	1,79E-05	2,93E-05	1,75E-05	-1,06E-04
EP-terrestrial	mol Ne	2,70E-02	9,35E-04	8,84E-05	2,81E-02	MND	8,73E-06	MND	MND	MND	MND	MND	5,55E-07	MND	MNR	1,99E-04	3,12E-04	1,47E-04	-1,71E-03
POCP (“smog”) ³⁾	kg NMVOCe	9,51E-03	2,45E-04	1,86E-05	9,77E-03	MND	2,83E-06	MND	MND	MND	MND	MND	1,31E-07	MND	MNR	6,44E-05	7,88E-05	3,94E-05	-5,63E-04
ADP-minerals & metals ⁴⁾	kg Sbe	4,15E-04	2,80E-08	3,42E-08	4,15E-04	MND	7,60E-09	MND	MND	MND	MND	MND	2,54E-09	MND	MNR	1,59E-07	2,33E-07	9,68E-09	-2,68E-05
ADP-fossil resources	MJ	2,83E+01	1,85E-01	3,56E-01	2,88E+01	MND	6,60E-03	MND	MND	MND	MND	MND	5,02E-03	MND	MNR	1,53E-01	1,78E-01	3,84E-02	-1,49E+00
Water use ⁵⁾	m ³ e depr.	9,10E-01	6,32E-04	1,44E-02	9,25E-01	MND	6,08E-05	MND	MND	MND	MND	MND	1,92E-04	MND	MNR	1,09E-03	9,36E-03	2,91E-03	-1,58E-02

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, PEF

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	1,27E-07	6,31E-10	4,30E-10	1,28E-07	MND	7,36E-11	MND	MND	MND	MND	MND	3,08E-12	MND	MNR	1,14E-09	1,69E-09	2,51E-10	-7,60E-09
Ionizing radiation ⁶⁾	kBq 11235e	2,82E-01	8,57E-04	2,23E-02	3,05E-01	MND	3,81E-05	MND	MND	MND	MND	MND	3,59E-04	MND	MNR	8,33E-04	1,67E-03	1,00E-04	-2,19E-02
Ecotoxicity (freshwater)	CTUe	1,82E+02	1,33E-01	1,95E-01	1,82E+02	MND	2,29E-02	MND	MND	MND	MND	MND	2,48E-03	MND	MNR	1,78E-01	1,17E+00	6,32E-01	-1,19E+01
Human toxicity, cancer	CTUh	3,47E-09	7,61E-12	4,72E-12	3,48E-09	MND	1,01E-12	MND	MND	MND	MND	MND	8,32E-14	MND	MNR	1,71E-11	2,24E-10	2,21E-11	2,00E-10
Human tox. non-cancer	CTUh	1,29E-07	9,93E-11	9,34E-11	1,30E-07	MND	1,10E-11	MND	MND	MND	MND	MND	1,95E-12	MND	MNR	2,07E-10	3,51E-09	2,60E-09	-1,17E-08
SQP ⁷⁾	-	1,27E+01	5,76E-02	2,37E-01	1,30E+01	MND	3,31E-03	MND	MND	MND	MND	MND	1,17E-03	MND	MNR	7,28E-02	6,42E-02	5,27E-02	-1,00E+00

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	2,49E+00	1,56E-03	3,51E-01	2,85E+00	MND	2,23E-04	MND	MND	MND	MND	MND	2,08E-03	MND	MNR	3,75E-03	1,79E-02	6,52E-03	-2,94E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	5,60E-02	5,60E-02	MND	-5,60E-02	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	4,66E-03
Total use of renew. PER	MJ	2,49E+00	1,56E-03	4,07E-01	2,90E+00	MND	-5,58E-02	MND	MND	MND	MND	MND	2,08E-03	MND	MNR	3,75E-03	1,79E-02	6,52E-03	-2,89E-01
Non-re. PER as energy	MJ	2,62E+01	1,85E-01	3,54E-01	2,67E+01	MND	6,60E-03	MND	MND	MND	MND	MND	5,00E-03	MND	MNR	1,53E-01	1,78E-01	3,84E-02	-1,33E+00
Non-re. PER as material	MJ	2,05E+00	0,00E+00	3,36E-04	2,05E+00	MND	-3,36E-04	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	-1,09E+00	-9,60E-01	-8,64E-04
Total use of non-re. PER	MJ	2,82E+01	1,85E-01	3,55E-01	2,88E+01	MND	6,27E-03	MND	MND	MND	MND	MND	5,00E-03	MND	MNR	1,53E-01	-9,14E-01	-9,22E-01	-1,33E+00
Secondary materials	kg	2,06E-02	7,77E-05	3,22E-03	2,39E-02	MND	5,37E-06	MND	MND	MND	MND	MND	4,53E-07	MND	MNR	8,19E-05	6,14E-05	1,92E-04	2,43E-02
Renew. secondary fuels	MJ	1,11E-03	4,03E-07	2,29E-04	1,34E-03	MND	3,92E-08	MND	MND	MND	MND	MND	1,88E-09	MND	MNR	7,78E-07	1,58E-06	1,40E-06	-3,16E-04
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	2,34E-02	1,50E-05	3,48E-04	2,38E-02	MND	1,55E-06	MND	MND	MND	MND	MND	4,84E-06	MND	MNR	2,76E-05	2,36E-04	7,49E-05	-2,15E-03

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	2,47E-01	2,58E-04	4,32E-04	2,47E-01	MND	2,54E-05	MND	MND	MND	MND	MND	4,18E-06	MND	MNR	3,86E-04	1,92E-03	7,68E-03	-2,70E-02
Non-hazardous waste	kg	5,66E+00	2,74E-03	1,04E-02	5,67E+00	MND	4,23E-04	MND	MND	MND	MND	MND	1,13E-04	MND	MNR	6,86E-03	4,87E-02	5,22E-02	-5,35E-01
Radioactive waste	kg	1,95E-04	1,29E-06	4,86E-06	2,01E-04	MND	3,97E-08	MND	MND	MND	MND	MND	7,70E-08	MND	MNR	9,77E-07	2,12E-07	0,00E+00	-6,26E-06

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	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	4,28E-03	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	4,79E-02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	3,87E-02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	MND	MND	MND	MND	MND	0,00E+00	MND	MNR	0,00E+00	8,86E-01	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

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 ₂ e	2,07E+00	1,40E-02	5,81E-03	2,09E+00	MND	5,86E-04	MND	MND	MND	MND	MND	3,91E-05	MND	MNR	1,07E-02	1,35E-01	9,87E-02	-1,05E-01
Ozone depletion Pot.	kg CFC ₁₁ e	1,21E-07	2,28E-09	4,34E-10	1,24E-07	MND	6,73E-11	MND	MND	MND	MND	MND	1,62E-12	MND	MNR	1,68E-09	2,90E-09	2,53E-10	-4,99E-09
Acidification	kg SO ₂ e	1,40E-02	2,76E-04	2,11E-05	1,43E-02	MND	2,15E-06	MND	MND	MND	MND	MND	2,07E-07	MND	MNR	4,67E-05	8,06E-05	2,31E-05	-1,35E-03
Eutrophication	kg PO ₄ ³ e	8,68E-03	3,17E-05	1,67E-05	8,73E-03	MND	1,38E-06	MND	MND	MND	MND	MND	1,04E-07	MND	MNR	1,21E-05	6,46E-05	3,11E-04	-4,05E-04
POCP ("smog")	kg C ₂ H ₄ e	1,37E-03	7,31E-06	1,21E-06	1,38E-03	MND	2,19E-07	MND	MND	MND	MND	MND	1,00E-08	MND	MNR	3,96E-06	2,97E-06	1,29E-06	-7,41E-05
ADP-elements	kg Sbe	4,14E-04	2,74E-08	3,13E-08	4,14E-04	MND	7,56E-09	MND	MND	MND	MND	MND	2,54E-09	MND	MNR	1,58E-07	1,92E-07	8,24E-09	-2,68E-05
ADP-fossil	MJ	2,82E+01	1,85E-01	3,54E-01	2,87E+01	MND	6,60E-03	MND	MND	MND	MND	MND	5,00E-03	MND	MNR	1,53E-01	1,78E-01	3,84E-02	-1,48E+00

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited 31.10.2024.

