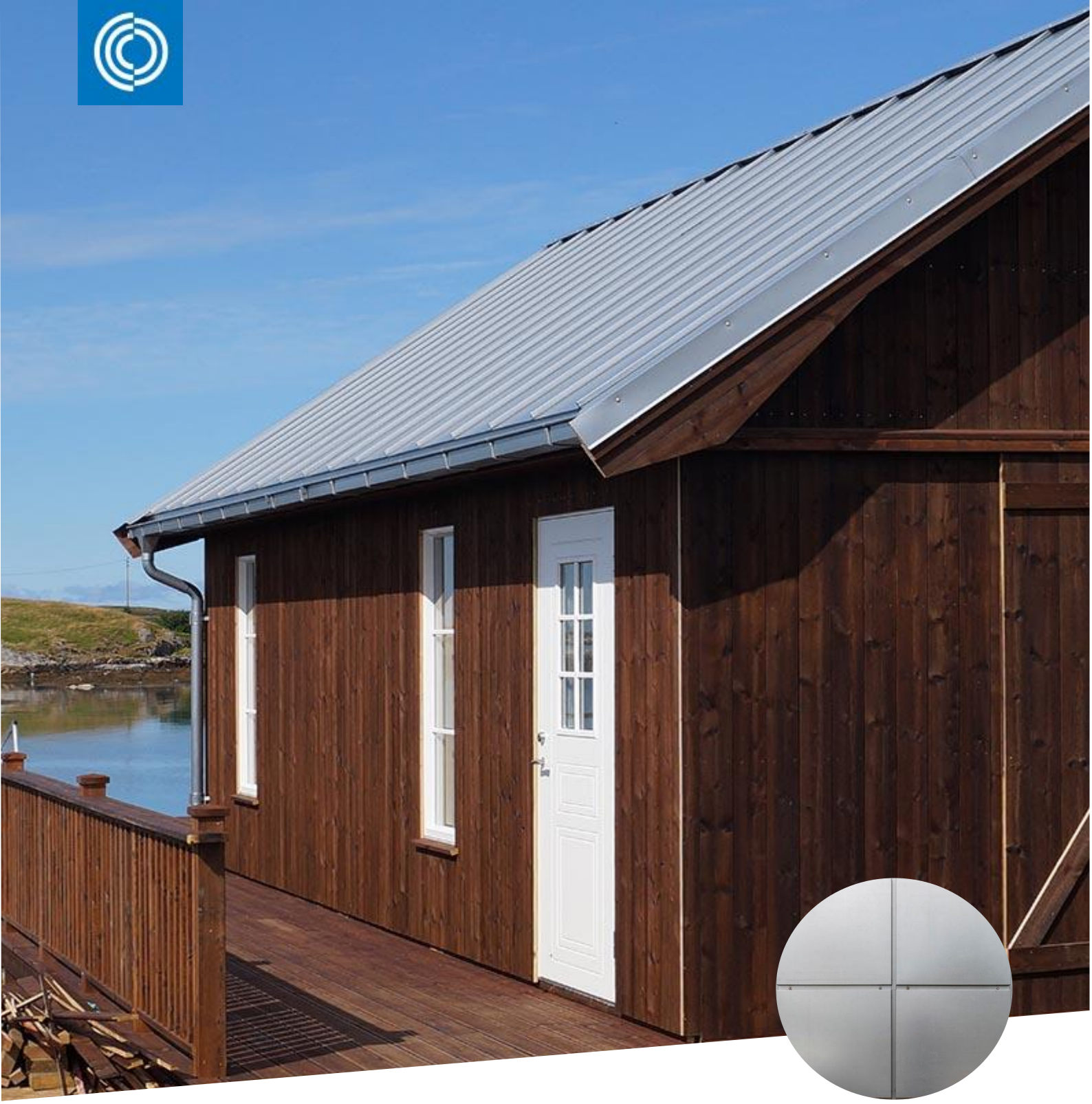


ENVIRONMENTAL PRODUCT DECLARATION

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

Lindab metal coated steel Magestic
Lindab Steel AB

EPD HUB, HUB-0462
Publishing date 12 May 2023, last updated date 12 May 2023, valid until 12 May 2028

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Lindab Steel AB
Address	Stålhögavägen 117, 269 82 Båstad, Sweden
Contact details	order.steel@lindab.com
Website	https://www.lindab.com

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 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Cecilia Cederek
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	S.V 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	Lindab metal coated steel Magestic
Additional labels	
Product reference	FAZM, FAZM-C, FAZM-D, PXZM, PXZM-D
Place of production	Grevie, Sweden
Period for data	Calendar year 2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

More information on page 7.

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of metal coated steel Magestic
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	2,77
GWP-total, A1-A3 (kgCO2e)	2,76
Secondary material, inputs (%)	8,55
Secondary material, outputs (%)	95,0
Total energy use, A1-A3 (kWh)	7,16
Total water use, A1-A3 (m3e)	0,00596

MANUFACTURER

ABOUT LINDAB

Lindab is a leading ventilation company in Europe, offering solutions for energy-efficient ventilation and a healthy indoor climate. The products are characterised by high quality, ease of installation and environmental thinking. In northern Europe, Lindab also offers an extensive range of roof, wall and rainwater systems.

FOR A BETTER CLIMATE

We want to create a better climate. Most of us spend a majority of our time indoors. The air we breathe, in our homes, at our workplaces and at school, affects our well-being. Since air is not visible, we do not always think about it. However, the indoor climate is crucial for how we feel, for our energy levels and whether we stay healthy. Lindab wants to contribute to the architecture and indoor climate of tomorrow. We also want a better climate for our planet. That is why we develop energy-efficient solutions for healthy indoor environments

THE IMPORTANCE OF CONSTRUCTION PRODUCTS

Ingenious systems for ceilings, walls, and floors to specially designed rivets, screws, and profiled sheeting profiles. All equal important parts of a well-functioning building. By choosing the right kind of facade or roof for example, we can create a durable, sustainable building that shortens the need for renovation and expands the life cycle. In that way we use our resources more efficient and at the same time cut costs and unnecessary transportation and waste. All key ingredients in the EU Green Deal. When it comes to construction, it is not just a question of getting it done, but rather, getting it done right.

SUSTAINABILITY PLAN

For us, sustainability is a way of thinking and working. This affects how we work with Lindab's strategy in all areas. Everything from the purchases we make, to the deliveries and the service we offer our customers. Lindab has three long-term, non-financial targets for the business, one that focuses on increasing our attractiveness as an employer, one for reducing our own carbon dioxide emissions, and one for a better working environment.

Read more about Lindab Groups sustainability work and non-financial targets on www.lindabgroup.com.

STEEL – A SUSTAINABLE MATERIAL

Steel provides products with a long service life. Steel has many advantages over other materials – it has a very long service life, is non-combustible and meets hygiene requirements. Steel is a fully recyclable material and scrap steel has a strong market position: steel recovered from structures and end products at the end of their lifecycle is efficiently recycled and re-used. We prioritise cooperation with steel suppliers driving development towards fossil-free steel and whose carbon dioxide intensity values are good. The steel we use must be free of particularly hazardous substances.

The use of steel in Lindab's products is what contributes most to Lindab's CO2 emissions. The transition to decarbonised steel is Lindab's most significant individual action in terms of its effect on the environment. Through our collaboration with SSAB and H2 Green Steel, we will also be among the first in Europe to have access to near-zero and fossil free steel in 2026.

PRODUCT

PRODUCT DESCRIPTION

Lindab Magestic is flat steel with an innovative zink-magnesium surface coating consisting of 3 percent magnesium, 3.5 percent aluminium and the rest zinc and it is usable in corrosion class up to C4. Lindab Magestic is created to cope with the toughest environments with sea salt or other areas with chloride and ammonia. This durable material also ages with dignity and patinas over time.

The Lindab Magestic steel is delivered in wide coils, slit coils, or sheets. It can be processed by conventional processing operations such as bending, drawing, clinching, profiling, stamping, welding etc. Zink-magnesium coated steels are available in thickness range of 0.60 – 2.0 mm and widths up to 1500 mm, and contains approximately 20% of recycled scrap steel.

Lindab Magestic protects the steel from corrosion in two ways. It serves as a protective layer keeping oxygen and water away from the steel, but it also acts as a cathodic protection. This means that at cut edges or in case of damages through the metal coating, the coating will sacrifice itself and react to form protective compounds and block further corrosion processes. The zink-magnesium coating covers the steel on both sides. In addition, Lindab Magestic can improve formability, resistance welding properties and paintability.

The product is available in various qualities, thicknesses and coating masses. For current assortment please contact your sales representative or visit our webpage, www.lindab.se.

Conversion table: Weight per m² (linear correlation)

Thickness (mm)	Kg/m²
0,6	4,71
1,0	7,85
2,0	15,7

PRODUCT RAW MATERIAL MAIN COMPOSITION VP

Raw material category	Amount, mass- %	Material origin
Metals	100	EU
Minerals		
Fossil materials		
Bio-based materials		

BIOGENIC CARBON CONTENT VP

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0,0
Biogenic carbon content in packaging, kg C	0,0052

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1kg of Metal coated steel Magestic
Mass per declared unit	1kg
Functional unit	
Reference service life	60 years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). More detailed information about the products material content can be found in the Building Product Declaration available online.

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	MND	MND	MND	MND	MND	MND	MND	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 = 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 generated 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 steel raw material is received by Lindab Group's own steel service centre, Lindab Steel AB. After a quality control the most suitable coil is selected for the manufacturing orders, to minimize scrap. The coil is slitted into correct dimensions, re-coiled or cut to length. For protection and transport purposes, the units are protected with a composite material with a mix of paper and plastic, wooden pallets, steel strap and steel edge protection.

Before packing and shipping each unit gets a unique ID number for traceability.

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. Installation spills and handling of packaging material is considered. Material loss during installation is estimated to be zero.

Transport from production place to user (A4)

To	Total dist. (km)	Transportation method
EU	350	Lorry

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. These life cycle stages are dependent on how the product is used and should be developed and included as part of a holistic assessment of specific construction works.

PRODUCT END OF LIFE (C1-C4, D)

Energy (0,1kWh) for deconstruction is included in C1, and activities related to steel recycling is included in C3. A recycling rate of 95% (according to World Steel Association, 2017) and landfill rate of 5% has been assumed for the product. That is to be seen as the proportion of the material in the product that will be recycled in a subsequent system. External scrap in the raw material is also deducted and accounts for 20%. Hence the net flow to be credited in module D is 76%. See below tables for scenarios used in Modules C and D, based on national and EU statistics.

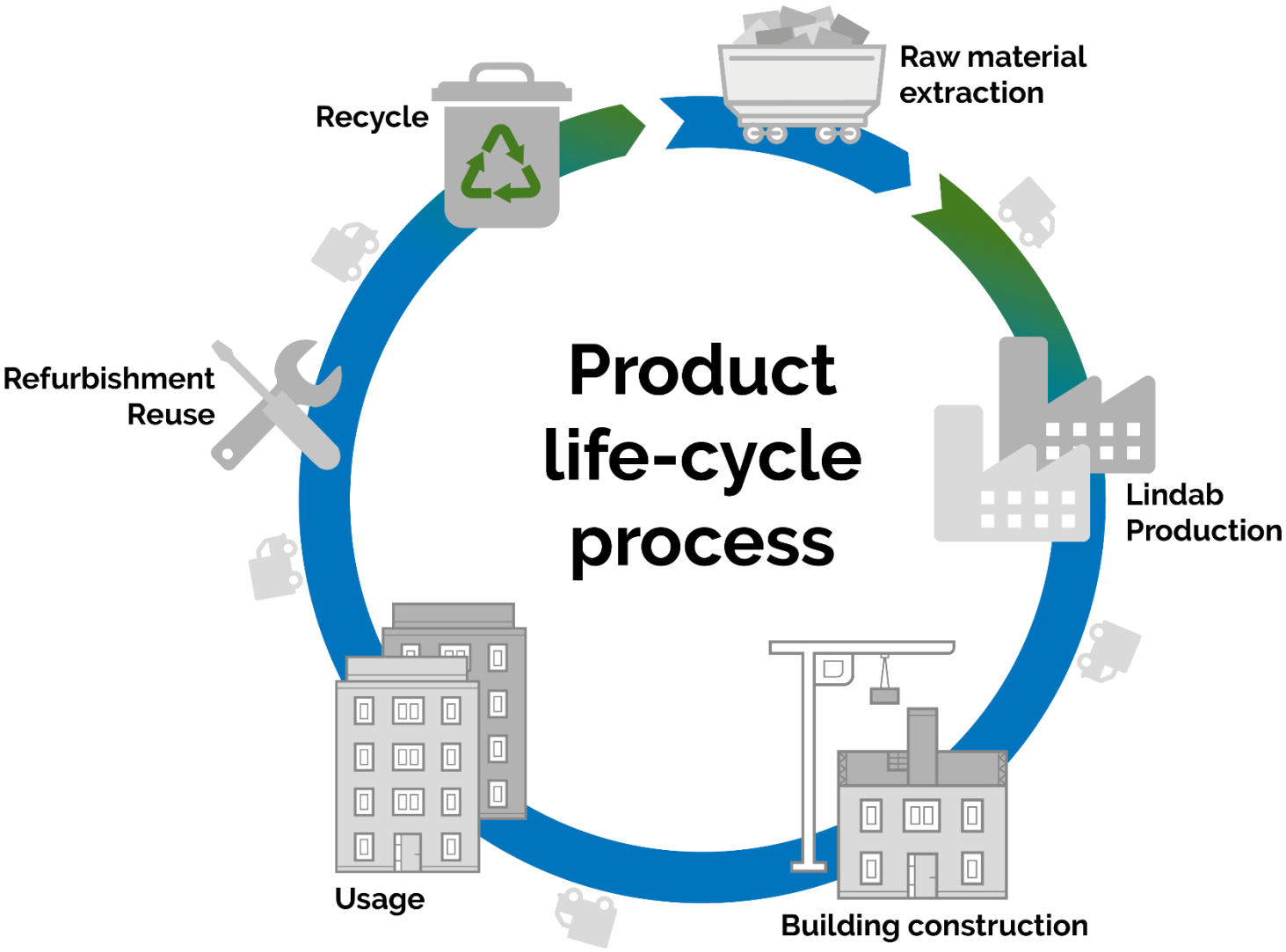
Transport to waste processing scenario (C2)

Type	Distance
Lorry	50 km

End of Life Scenarios (C3, C4, D)

	%
Steel to recycling	95
Steel to landfill	5
Paper to recycling	79
Paper to incineration	21
Plastic to recycling	47
Plastic to incineration	53
Wood to recycling	50
Wood to reuse	50

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. While cut-off criteria according to the PCR were employed, much data which would have fallen within that scope were included regardless, if available, resulting in a data set which is robust and captures all significant contributors to the LCA results.

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 materials	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
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	Not applicable

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. Data from Arcelor have been used to represent the raw material. For other inputs Ecoinvent 3.6 and One Click LCA databases were used 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	kg CO_2e	2,71E0	5,31E-2	-4,86E-3	2,76E0	3,06E-2	2,52E-2	MND	MND	MND	MND	MND	MND	MND	5,59E-3	4,36E-3	2,55E-2	2,64E-4	-1,45E0
GWP – FOSSIL	kg CO_2e	2,71E0	5,3E-2	1,16E-2	2,77E0	3,09E-2	5,61E-3	MND	MND	MND	MND	MND	MND	MND	5,06E-3	4,35E-3	2,71E-2	2,63E-4	-1,45E0
GWP – BIOGENIC	kg CO_2e	6,62E-3	7,02E-5	-1,65E-2	-9,83E-3	2,34E-5	1,92E-2	MND	MND	MND	MND	MND	MND	MND	2E-4	3,3E-6	-1,61E-3	5,22E-7	4,62E-3
GWP – LULUC	kg CO_2e	3,1E-4	3,01E-5	1,71E-5	3,57E-4	9,71E-6	3,29E-4	MND	MND	MND	MND	MND	MND	MND	3,29E-4	1,37E-6	3,18E-5	7,82E-8	-2,87E-4
OZONE DEPLETION POT.	kg CFC_{-11}e	3,82E-12	1,09E-8	9,84E-10	1,19E-8	7,59E-9	2,51E-9	MND	MND	MND	MND	MND	MND	MND	2,48E-9	1,07E-9	3,31E-9	1,08E-10	-4,68E-8
ACIDIFICATION POTENTIAL	mol H^+e	5,28E-3	5,32E-4	7,6E-5	5,88E-3	9,94E-5	3,42E-5	MND	MND	MND	MND	MND	MND	MND	3,29E-5	1,4E-5	3E-4	2,5E-6	-7,13E-3
EP-FRESHWATER	kg Pe	3,5E-6	7,4E-7	6,95E-7	4,94E-6	2,62E-7	4,51E-7	MND	MND	MND	MND	MND	MND	MND	4,41E-7	3,7E-8	1,57E-6	3,18E-9	-8,7E-5
EP-MARINE	kg Ne	1,27E-3	1,46E-4	1,43E-5	1,43E-3	2,18E-5	5,95E-6	MND	MND	MND	MND	MND	MND	MND	5,64E-6	3,08E-6	6,66E-5	8,61E-7	-1,39E-3
EP-TERRESTRIAL	mol Ne	1,33E-2	1,62E-3	2,07E-4	1,52E-2	2,43E-4	7,75E-5	MND	MND	MND	MND	MND	MND	MND	7,39E-5	3,43E-5	7,68E-4	9,48E-6	-1,57E-2
POCP (“SMOG”)	kg NMVOCe	4,38E-3	4,46E-4	5,77E-5	4,88E-3	9,54E-5	1,79E-5	MND	MND	MND	MND	MND	MND	MND	1,68E-5	1,34E-5	2,1E-4	2,75E-6	-7,5E-3
ADP-MINERALS & METALS	kg Sbe	5,53E-5	4,64E-7	2,66E-7	5,6E-5	5,5E-7	2,08E-7	MND	MND	MND	MND	MND	MND	MND	2,04E-7	7,75E-8	1,33E-6	2,41E-9	-2,61E-5
ADP-FOSSIL RESOURCE	MJ	2,34E1	5,5E-1	1,69E-1	2,41E1	5,02E-1	5,96E-1	MND	MND	MND	MND	MND	MND	MND	5,93E-1	7,07E-2	3,33E-1	7,36E-3	-1,19E1
WATER USE	m^3e depr.	2,01E-1	3,43E-3	4,67E-3	2,09E-1	1,87E-3	7,81E-3	MND	MND	MND	MND	MND	MND	MND	7,77E-3	2,63E-4	5,26E-3	3,4E-4	-6,78E-1

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	1,14E0	1,66E-2	9,88E-2	1,26E0	6,31E-3	2,85E-1	MND	MND	MND	MND	MND	MND	MND	2,85E-1	8,9E-4	4,6E-2	5,95E-5	-1,21E0
Renew. PER as material	MJ	0E0	0E0	1,83E-1	1,83E-1	0E0	-2E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	5,94E-3
Total use of renew. PER	MJ	1,14E0	1,66E-2	2,82E-1	1,44E0	6,31E-3	8,54E-2	MND	MND	MND	MND	MND	MND	MND	2,85E-1	8,9E-4	4,6E-2	5,95E-5	-1,21E0
Non-re. PER as energy	MJ	2,38E1	5,5E-1	1,58E-1	2,45E1	5,02E-1	5,96E-1	MND	MND	MND	MND	MND	MND	MND	5,93E-1	7,07E-2	3,33E-1	7,36E-3	-1,19E1
Non-re. PER as material	MJ	0E0	0E0	1,03E-2	1,03E-2	0E0	-1,03E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	4,83E-3
Total use of non-re. PER	MJ	2,38E1	5,5E-1	1,69E-1	2,45E1	5,02E-1	5,86E-1	MND	MND	MND	MND	MND	MND	MND	5,93E-1	7,07E-2	3,33E-1	7,36E-3	-1,19E1
Secondary materials	kg	8,47E-2	0E0	8,29E-4	8,55E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	5,79E-1
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	5,71E-3	1,21E-4	1,28E-4	5,96E-3	1,04E-4	1,59E-4	MND	MND	MND	MND	MND	MND	MND	1,58E-4	1,47E-5	1,41E-4	8,05E-6	-9,99E-3

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	1,56E-8	1,04E-3	2,19E-3	3,23E-3	4,87E-4	4,96E-4	MND	MND	MND	MND	MND	MND	MND	4,82E-4	6,87E-5	0E0	6,87E-6	-5,61E-1
Non-hazardous waste	kg	1,2E-2	5,22E-2	3,01E-2	9,43E-2	5,39E-2	1,9E-2	MND	MND	MND	MND	MND	MND	MND	1,82E-2	7,6E-3	0E0	5E-2	-4,72E0
Radioactive waste	kg	1,69E-4	3,66E-6	5,42E-7	1,73E-4	3,45E-6	8,33E-6	MND	MND	MND	MND	MND	MND	MND	8,31E-6	4,86E-7	0E0	4,87E-8	-2,33E-6

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	0E0	0E0	4,21E-6	4,21E-6	0E0	5,62E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	2,55E-2	2,55E-2	0E0	2,21E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,5E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	4,1E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	4,62E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

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_2e	2,62E0	3,73E-2	1,16E-2	2,67E0	3,06E-2	5,85E-3	MND	MND	MND	MND	MND	MND	MND	5,3E-3	4,32E-3	2,65E-2	2,58E-4	-1,38E0
Ozone depletion Pot.	kg CFC_{-11}e	5,23E-12	6,1E-9	8,78E-10	6,99E-9	6,03E-9	4,03E-9	MND	MND	MND	MND	MND	MND	MND	4,01E-9	8,5E-10	2,71E-9	8,59E-11	-4,09E-8
Acidification	kg SO_2e	4,61E-3	3,48E-4	5,55E-5	5,02E-3	6,57E-5	2,75E-5	MND	MND	MND	MND	MND	MND	MND	2,67E-5	9,25E-6	1,9E-4	1,04E-6	-5,87E-3
Eutrophication	kg PO_4^3e	4,77E-4	5,75E-5	2,75E-5	5,62E-4	1,33E-5	1,48E-5	MND	MND	MND	MND	MND	MND	MND	1,43E-5	1,87E-6	7,32E-5	2,02E-7	-4E-3
POCP (“smog”)	kg C_2H_4e	7,53E-4	1,11E-5	5,38E-6	7,7E-4	3,78E-6	1,18E-6	MND	MND	MND	MND	MND	MND	MND	1,14E-6	5,32E-7	8,82E-6	7,64E-8	-9,51E-4
ADP-elements	kg Sbe	5,53E-5	4,64E-7	2,66E-7	5,6E-5	5,5E-7	2,08E-7	MND	MND	MND	MND	MND	MND	MND	2,04E-7	7,75E-8	1,33E-6	2,41E-9	-2,61E-5
ADP-fossil	MJ	2,34E1	5,5E-1	1,69E-1	2,41E1	5,02E-1	5,96E-1	MND	MND	MND	MND	MND	MND	MND	5,93E-1	7,07E-2	3,33E-1	7,36E-3	-1,19E1

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.

12.05.2023

EPD Hub

VERIFIED ISO 14025