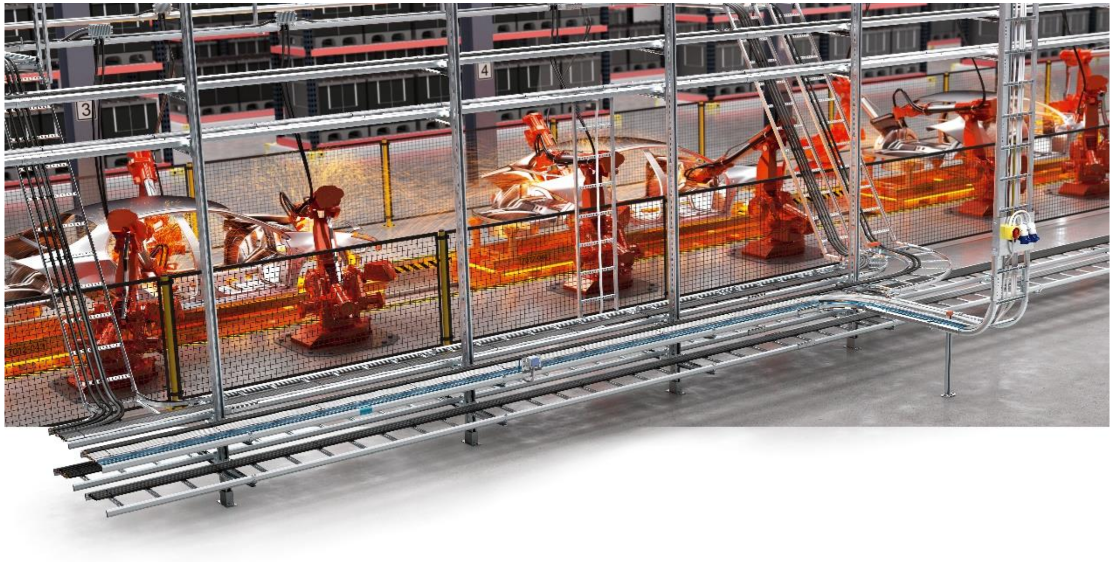
ENVIRONMENTAL PRODUCT DECLARATION

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

Cable support systems with HDG surface treatment.

AB Wibe



EPD HUB, HUB-0667

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Valid until 1 September 2028.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	AB Wibe
Address	Wibevägen 1 BOX 401
Contact details	inquiry-INT@wibe-group.com
Website	https://wibe-group.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	Burak Bugdayci & Jeremy Melun
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	Magaly González Vázquez, 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	Cable support systems with HDG surface treatment.
Additional labels	WIBE, DEFEM
Product reference	-
Place of production	Wibe factory located in Mora / Sweden
Period for data	01/01/2022-31/12/2022
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	Not relevant %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of HDG Cable Support Product, steel based.
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	2,91E0
GWP-total, A1-A3 (kgCO2e)	2,79E0
Secondary material, inputs (%)	19.6
Secondary material, outputs (%)	95.0
Total energy use, A1-A3 (kWh)	13.0
Total water use, A1-A3 (m3e)	1,33E-1

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Wibe Group has nearly a 100-year-long history of continuous development. It started in Mora with Anders Wikstrand's invention of the hexagon shaped ladder. Today we are in a new and exciting development phase with renewed vigor and a desire to show what we can do together with our customers. With our four strong brands Wibe, Stago, Mita and Defem, we offer a complete, innovative range of cable ladders, cable trays, mesh trays and installation system – for applications ranging from commercial buildings to extreme demanding industrial environments.

PRODUCT DESCRIPTION

The cable support system is as essential for the building's infrastructure as the bone structure is for the body.
Wibe Group HDG cable support systems are suitable for areas with high levels of environmental corrosion, humidity and airborne pollution such as industrial and coastal areas, chemical plants, dockyards. This EPD covers the cable support products with HDG treatment produced at Wibe Group Mora Plant located in Sweden. The cable support system consist of ladders, trays, mesh trays, joints, pendants, cantilevers and accessories

Hot-dip galvanization is a form of galvanization. It is the process of coating iron and steel with zinc, which alloys with the surface of the base metal when immersing the metal in a bath of molten zinc at a temperature of around 450 °C (842 °F). When exposed to the atmosphere, the pure zinc (Zn) reacts with oxygen (O_2) to form zinc oxide (ZnO), which further reacts with carbon dioxide (CO_2) to form zinc carbonate ($ZnCO_3$), a usually dull grey, fairly strong material that protects the steel underneath from further corrosion in many circumstances. Galvanized steel is widely used in applications where corrosion resistance is needed and is considered superior in terms of cost and life-cycle. Further information can be found at https://wibe-group.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

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

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.034

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of HDG Cable Support Product, steel based.
Mass per declared unit	1 kg
Functional unit	-
Reference service life	Experience shows +20 years in C3 environment according to EN ISO 12944-2

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	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 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.

Raw material consists of steel purchased in tubes, coils or sheets and zinc purchased in billets. The distance between exact manufacturer location and Wibe factory has been considered. Mainly truck but based on location also sea freight has been considered for transportation of raw materials.
The manufacturing process includes a variation of process steps like cutting, punching, forming and welding of the steel raw material before the products are hot dip galvanized. During manufacturing of 1 kg finel product 0.17kg production loss has been considered in the calculations. All production wastes are being sent to several different recycling facilities. %100 renewable (hydropower) electricity is being used for manufacturing. Finally, the products are stored as is, or packed in either wood crates, pallets, cardboard boxes or plastic bags.

TRANSPORT AND INSTALLATION (A4-A5)

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

The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is assumed as 567 km by lorry and 30km by ferry based on 1 year delivery data. Vehicle capacity utilization volume factor is assumed to be 100% which means full load. In reality, it may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly. For installation of the product small hand drill will be enough. 0.01 kWh is required to assemble 1kg of HDG product. Further, steel for bolts and fasteners is included in the modelling.
As manufacturing waste packaging materials has been considered. %95 of packaging (Plastic, wood, paper) considered to be recycled and %5 has been considered as landfill.

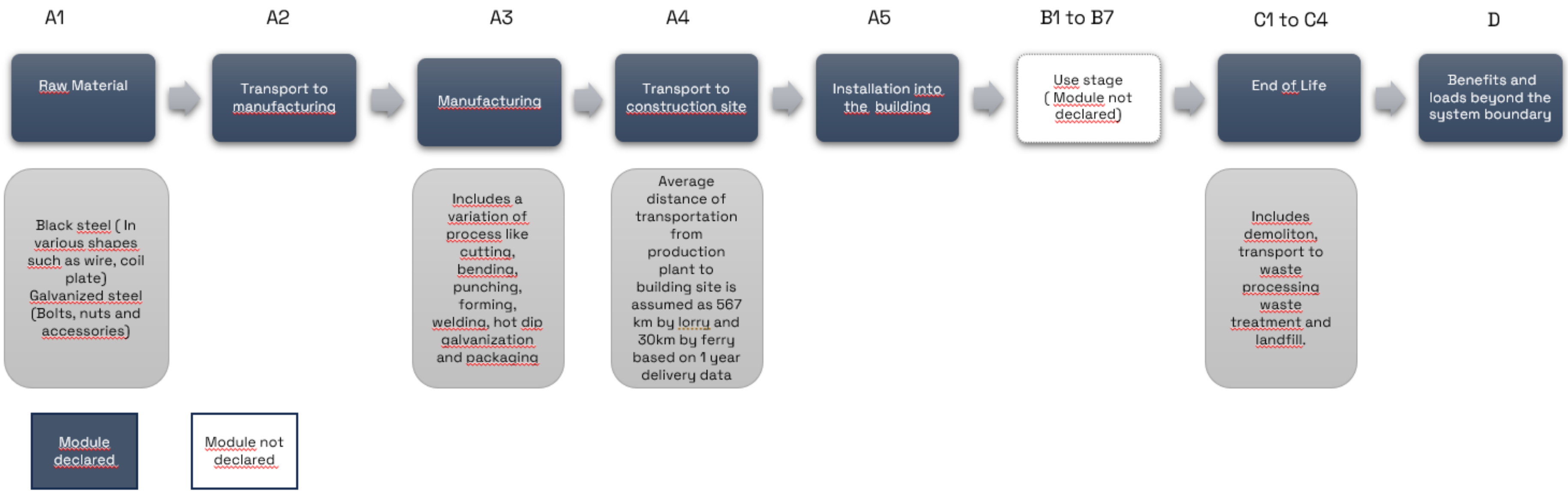
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Disassembling is assumed to consume 0,000138 kWh/kg of product. Small hand drill has been considered same as mounting of the product. Transportation distance to treatment is assumed as 50 km and the transportation method is assumed to be lorry (C2). Approximately 95% of steel is assumed to be recycled based on World Steel Association, 2020 (C3). It is assumed that the remaining 5 % of steel is taken to landfill for final disposal (C4). Due to the recycling process, the end-of-life product is converted into recycled steel, while the wooden pallet is incinerated for energy recovery (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	Allocated by mass or volume
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 relevant %

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. 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 – total1)	kg CO_2e	2,74E0	7,44E-2	-3,14E-2	2,79E0	5,79E-2	2,37E-1	MND	MND	MND	MND	MND	MND	MND	7,09E-6	4,55E-3	2,21E-2	2,64E-4	-8,86E-1
GWP – fossil	kg CO_2e	2,72E0	7,44E-2	1,21E-1	2,91E0	5,78E-2	3,59E-3	MND	MND	MND	MND	MND	MND	MND	6,4E-6	4,54E-3	2,34E-2	2,63E-4	-8,97E-1
GWP – biogenic	kg CO_2e	2,31E-2	3,97E-5	-1,55E-1	-1,32E-1	3,87E-5	2,33E-1	MND	MND	MND	MND	MND	MND	MND	2,59E-7	3,3E-6	-1,34E-3	5,22E-7	1,1E-2
GWP – LULUC	kg CO_2e	2,45E-3	2,71E-5	2,65E-3	5,13E-3	1,85E-5	3,45E-6	MND	MND	MND	MND	MND	MND	MND	4,32E-7	1,37E-6	2,66E-5	7,82E-8	-1,83E-4
Ozone depletion pot.	kg CFC_{11}e	8,4E-8	1,7E-8	3,65E-8	1,37E-7	1,35E-8	3,12E-10	MND	MND	MND	MND	MND	MND	MND	3,24E-12	1,07E-9	3,37E-9	1,08E-10	-2,86E-8
Acidification potential	mol H^+e	1,17E-2	7,42E-4	6,89E-4	1,31E-2	3,42E-4	1,3E-5	MND	MND	MND	MND	MND	MND	MND	3,05E-8	1,91E-5	2,84E-4	2,5E-6	-4,4E-3
EP-freshwater2)	kg Pe	8,75E-5	5,46E-7	1,01E-5	9,81E-5	4,57E-7	1,08E-7	MND	MND	MND	MND	MND	MND	MND	4,78E-10	3,7E-8	1,62E-6	3,18E-9	-5,36E-5
EP-marine	kg Ne	2,56E-3	1,98E-4	2,01E-4	2,96E-3	9,72E-5	3,41E-6	MND	MND	MND	MND	MND	MND	MND	6,73E-9	5,75E-6	6,27E-5	8,61E-7	-8,53E-4
EP-terrestrial	mol Ne	2,88E-2	2,19E-3	1,92E-3	3,3E-2	1,08E-3	3,67E-5	MND	MND	MND	MND	MND	MND	MND	8,74E-8	6,35E-5	7,28E-4	9,48E-6	-9,69E-3
POCP ("smog")3)	kg NMVOCe	9,74E-3	6,19E-4	5,9E-4	1,09E-2	3,26E-4	1,13E-5	MND	MND	MND	MND	MND	MND	MND	1,93E-8	2,04E-5	1,99E-4	2,75E-6	-4,62E-3
ADP-minerals & metals4)	kg Sbe	7,97E-3	5,66E-7	2E-6	7,98E-3	9,51E-7	3,83E-8	MND	MND	MND	MND	MND	MND	MND	1,07E-10	7,75E-8	1,3E-6	2,41E-9	-1,61E-5
ADP-fossil resources	MJ	1,45E1	5,15E-1	6,03E0	2,1E1	8,9E-1	4,21E-2	MND	MND	MND	MND	MND	MND	MND	7,77E-4	7,07E-2	3,25E-1	7,36E-3	-7,68E0
Water use5)	m^3e depr.	6,65E-1	3,8E-3	1,02E-1	7,71E-1	3,23E-3	6,1E-4	MND	MND	MND	MND	MND	MND	MND	9,96E-6	2,63E-4	4,61E-3	3,4E-4	-4,22E-1

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.

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	2,08E0	1,28E-2	6,26E0	8,36E0	1,09E-2	3,61E-3	MND	MND	MND	MND	MND	MND	MND	3,73E-4	8,9E-4	5,1E-2	5,95E-5	-7,55E-1
Renew. PER as material	MJ	0E0	0E0	1,7E0	1,7E0	0E0	-1,71E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	7,46E-1
Total use of renew. PER	MJ	2,08E0	1,28E-2	7,96E0	1,01E1	1,09E-2	-1,71E0	MND	MND	MND	MND	MND	MND	MND	3,73E-4	8,9E-4	5,1E-2	5,95E-5	-9,3E-3
Non-re. PER as energy	MJ	3,15E1	1,12E0	5,73E0	3,83E1	8,9E-1	4,21E-2	MND	MND	MND	MND	MND	MND	MND	7,77E-4	7,07E-2	3,25E-1	7,36E-3	-7,38E0
Non-re. PER as material	MJ	0E0	0E0	3,04E-1	3,04E-1	0E0	-2,9E-1	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	1,76E-3
Total use of non-re. PER	MJ	3,15E1	1,12E0	6,03E0	3,86E1	8,9E-1	-2,48E-1	MND	MND	MND	MND	MND	MND	MND	7,77E-4	7,07E-2	3,25E-1	7,36E-3	-7,38E0
Secondary materials	kg	1,96E-1	0E0	1,03E-3	1,97E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	3,17E-1
Renew. secondary fuels	MJ	4,85E-23	0E0	0E0	4,85E-23	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	3,1E-9	0E0	0E0	3,1E-9	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	4,34E-2	2,1E-4	8,97E-2	1,33E-1	1,8E-4	1,22E-5	MND	MND	MND	MND	MND	MND	MND	2,02E-7	1,47E-5	1,33E-4	8,05E-6	-6,17E-3

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	2,75E-1	1,11E-3	8,74E-3	2,85E-1	8,7E-4	1,97E-4	MND	MND	MND	MND	MND	MND	MND	5,83E-7	6,87E-5	0E0	6,87E-6	-3,43E-1
Non-hazardous waste	kg	5,57E0	1,02E-1	3,11E-1	5,98E0	9,15E-2	1,08E-2	MND	MND	MND	MND	MND	MND	MND	1,69E-5	7,6E-3	0E0	5E-2	-2,89E0
Radioactive waste	kg	2,56E-4	7,69E-6	6,73E-5	3,31E-4	6,12E-6	2,11E-7	MND	MND	MND	MND	MND	MND	MND	1,09E-8	4,85E-7	0E0	4,87E-8	-1,35E-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	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	1,71E-2	0E0	1,64E0	1,66E0	0E0	7,54E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,5E-1	0E0	0E0
Materials for energy rec	kg	1,36E-1	0E0	0E0	1,36E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	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	1,48E0	3,3E-2	1,21E-1	1,64E0	5,73E-2	3,57E-3	MND	MND	MND	MND	MND	MND	MND	6,73E-6	4,5E-3	2,31E-2	2,58E-4	-8,56E-1
Ozone depletion Pot.	kg $CFC_{-11}e$	4,28E-8	6,16E-9	4,86E-8	9,76E-8	1,07E-8	2,75E-10	MND	MND	MND	MND	MND	MND	MND	5,24E-12	8,49E-10	2,86E-9	8,59E-11	-2,5E-8
Acidification	kg SO_2e	7,58E-3	7,72E-5	5,1E-4	8,17E-3	2,02E-4	1,02E-5	MND	MND	MND	MND	MND	MND	MND	2,31E-8	9,25E-6	1,77E-4	1,04E-6	-3,63E-3
Eutrophication	kg $PO_4{}^3e$	2,24E-3	1,6E-5	2,64E-4	2,52E-3	3,26E-5	1,3E-5	MND	MND	MND	MND	MND	MND	MND	1,4E-8	1,87E-6	7,21E-5	2,02E-7	-2,44E-3
POCP (“smog”)	kg C_2H_4e	4,45E-4	4,33E-6	3,51E-5	4,84E-4	9,35E-6	6,92E-7	MND	MND	MND	MND	MND	MND	MND	1,04E-9	5,86E-7	8,28E-6	7,64E-8	-5,84E-4
ADP-elements	kg Sbe	7,97E-3	5,66E-7	2E-6	7,98E-3	9,51E-7	3,83E-8	MND	MND	MND	MND	MND	MND	MND	1,07E-10	7,75E-8	1,3E-6	2,41E-9	-1,61E-5
ADP-fossil	MJ	1,45E1	5,15E-1	6,03E0	2,1E1	8,9E-1	4,21E-2	MND	MND	MND	MND	MND	MND	MND	7,77E-4	7,07E-2	3,25E-1	7,36E-3	-7,68E0

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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
01.09.2023