ENVIRONMENTAL PRODUCT DECLARATION

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

Greenpipe Quick Eco Base 60
Greenpipe Group AB

EPD HUB, HUB-2144
Published on 13.12.2024, last updated on 13.12.2024, valid until 12.12.2029

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Greenpipe Group AB
Address	Storgatan 82B, 35227 Växjö, SWEDEN
Contact details	info@greenpipe.se
Website	www.greenpipegroup.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 1.1, 5 Dec 2023 EN 16903 Product Category Rules (PCR) for buried plastics piping systems
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4, and modules C1-C4, D
EPD author	Tobias Svensson, Greenpipe Group AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Haiha Nguyen, 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	Greenpipe Quick Eco Base 60
Additional labels	
Product reference	7773126
Place of production	Väckelsång 24, 362 50 Väckelsång, Sweden
Period for data	Calender year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	Not Relevant

ENVIRONMENTAL DATA SUMMARY

Declared unit	One piece of foundation for 60 mm pole
Declared unit mass	3.5 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	2,28E+00
GWP-total, A1-A3 ($kgCO_2e$)	1,41E+00
Secondary material, inputs (%)	95.7
Secondary material, outputs (%)	25.1
Total energy use, A1-A3 (kWh)	20.9
Net freshwater use, A1-A3 (m^3)	0.04

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Greenpipe is a Swedish company that leads in the development and production of innovative, eco-friendly infrastructure solutions. Our expansive offering includes divisible cable protection pipes and sustainable foundations, designed for an array of applications including park facilities, lighting systems, and electric vehicle charging stations.

PRODUCT DESCRIPTION

Greenpipe Quick ECO Base 60 is a cutting-edge foundation specifically engineered for 60mm poles and constructed entirely from recycled plastic. Its innovative design and low weight, simplifying installation as well as optimizes logistics, leading to increased efficiency and enhancing the work environment for installers. By utilizing recycled plastic, the Quick ECO Base 60 lessens environmental impact by reducing greenhouse gas emissions and also decreases reliance on cement, contributing to more sustainable construction practices.

Further information can be found at www.greenpipegroup.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	4	Poland
Minerals	-	-
Fossil materials	96	Sweden and Germany
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	0.316

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	One piece of foundation for 60 mm pole
Mass per declared unit	3.5 kg
Functional unit	
Reference service life	50 years

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	MND	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	Deconstruction/ demolition	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.

The product is manufactured using recycled polypropylene (PP) and EPDM, with recycled polyethylene (PE) utilized as a substitute in this specific model. The raw materials, sourced from car bumpers, are
processed into granules by a material supplier before being transported to our production facility. At the facility, the granulate is injected into molds to form bases, which are then calibrated to precise dimensions, cooled, and packaged. Material loss during this process is minimal and any waste generated is recycled in a closed-loop system. Each final product is carefully wrapped in stretch film and the packaged items are delivered to construction sites on pallets. The factory is equipped with solar panels on the roof, which contribute to the facility's energy needs.

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.

Transportation in (A4) is characterized by the mean distance to construction sites, derived from sales data. The transportation method is assumed to be lorry. 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. Also, volume capacity utilisation factor is assumed to be 100 for the nested packaged products.

The environmental impacts and other indicators related to the installation stage of bases are highly dependent on the specific details of the installation site, particularly whether existing masses can be used for backfilling or if additional materials are required. While the base is always installed at the same depth, local variations in other aspects of the installation process make it difficult to predict a general scenario. Therefore, (A5) is not included.

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.

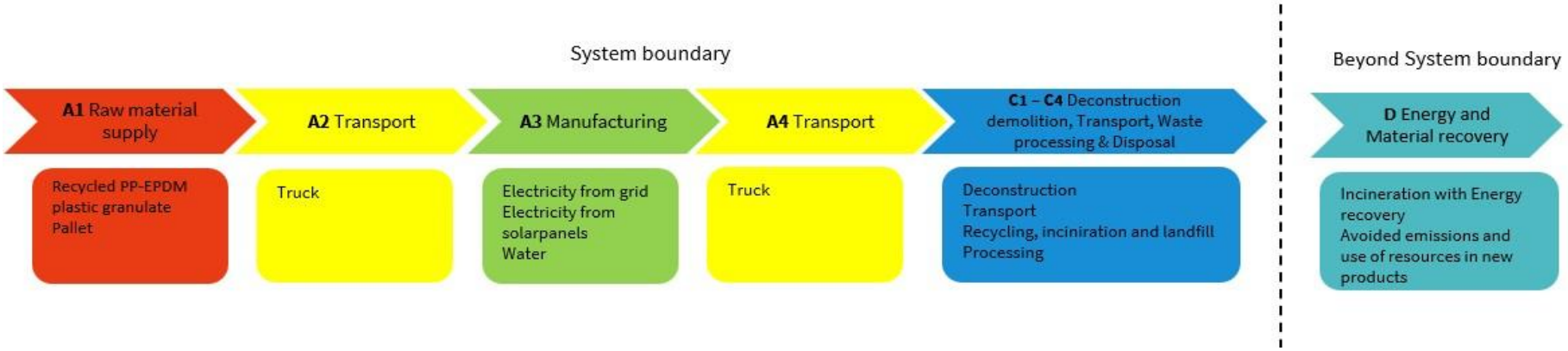
PRODUCT END OF LIFE (C1-C4, D)

After approximately 50 years of service life, it is assumed that 100% of the end-of-life (EOL) product will either remain inert in the ground or be dug up (C1) and transported to the nearest treatment facilities (C2). At the EOL stage, the products are managed either through 50% material recycling and 50% energy recovery (C3), or they are left inert in the ground (C4). Given the absence of specific studies on the EOL processing of this product, a conservative approach has been adopted in line with the EOL scenario outlined in EN16903:2016.

As A5 is not part of this EPD, packaging material is declared in this stage. Wooden pallets are assumed to be incinerated with energy recovery, and plastic waste from packaging is recycled or incinerated with energy recovery.

The impacts and benefits of waste packaging materials are evaluated in module (D)

SYSTEM BOUNDARY



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	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

There is no average result considered in this study since this EPD refers to one specific product produced in one production plant.

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_2e	1,72E+00	2,53E-01	-5,62E-01	1,41E+00	3,01E-01	MND	MND	MND	MND	MND	MND	MND	MND	2,30E-02	6,83E-03	1,24E+00	4,04E-01	-1,73E-01
GWP – fossil	kg CO_2e	1,60E+00	2,52E-01	4,31E-01	2,28E+00	3,01E-01	MND	MND	MND	MND	MND	MND	MND	MND	2,30E-02	6,83E-03	2,40E-01	4,04E-01	-1,72E-01
GWP – biogenic	kg CO_2e	1,15E-01	1,03E-04	-1,00E+00	-8,90E-01	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,00E+00	-7,38E-06	-1,25E-04
GWP – LULUC	kg CO_2e	1,94E-03	9,53E-05	1,12E-02	1,32E-02	1,20E-04	MND	MND	MND	MND	MND	MND	MND	MND	2,29E-06	2,72E-06	2,27E-05	3,61E-05	-8,81E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1,00E-07	6,21E-08	4,50E-08	2,08E-07	6,97E-08	MND	MND	MND	MND	MND	MND	MND	MND	4,91E-09	1,58E-09	7,73E-10	1,05E-08	-2,29E-08
Acidification potential	mol H^+e	7,01E-03	8,12E-04	2,99E-03	1,08E-02	8,55E-04	MND	MND	MND	MND	MND	MND	MND	MND	2,39E-04	2,00E-05	8,39E-05	2,97E-04	-3,19E-03
EP-freshwater[2)]	kg Pe	7,84E-05	1,82E-06	2,71E-05	1,07E-04	2,15E-06	MND	MND	MND	MND	MND	MND	MND	MND	7,61E-08	4,93E-08	8,10E-07	5,62E-07	-1,16E-05
EP-marine	kg Ne	1,58E-03	1,83E-04	6,03E-04	2,36E-03	1,71E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,06E-04	4,17E-06	2,50E-05	1,69E-04	-7,21E-04
EP-terrestrial	mol Ne	1,61E-02	2,03E-03	6,81E-03	2,49E-02	1,90E-03	MND	MND	MND	MND	MND	MND	MND	MND	1,16E-03	4,63E-05	2,70E-04	1,10E-03	-1,18E-02
POCP ("smog")[3)]	kg NMVOCe	4,56E-03	7,79E-04	2,23E-03	7,57E-03	7,28E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,19E-04	1,74E-05	7,16E-05	4,04E-04	-2,11E-03
ADP-minerals & metals[4)]	kg Sbe	2,15E-05	6,51E-07	2,36E-05	4,58E-05	1,09E-06	MND	MND	MND	MND	MND	MND	MND	MND	1,17E-08	2,41E-08	1,12E-07	1,17E-07	-2,92E-07
ADP-fossil resources	MJ	2,44E+01	3,99E+00	2,42E+01	5,25E+01	4,48E+00	MND	MND	MND	MND	MND	MND	MND	MND	3,09E-01	1,02E-01	1,85E-01	8,03E-01	-2,29E+00
Water use[5)]	m^3e depr.	4,53E-01	1,84E-02	1,06E+00	1,53E+00	2,10E-02	MND	MND	MND	MND	MND	MND	MND	MND	8,31E-04	4,75E-04	1,25E-02	4,75E-03	-3,68E-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	6,27E-08	2,82E-08	3,63E-08	1,27E-07	2,43E-08	MND	MND	MND	MND	MND	MND	MND	MND	6,40E-09	5,66E-10	9,14E-10	5,93E-09	-4,02E-08
Ionizing radiation[6]	kBq U235e	4,03E-01	2,05E-02	1,43E+00	1,85E+00	2,35E-02	MND	MND	MND	MND	MND	MND	MND	MND	1,42E-03	5,31E-04	3,71E-03	3,86E-03	-4,48E-02
Ecotoxicity (freshwater)	CTUe	3,05E+01	3,33E+00	2,01E+01	5,39E+01	3,74E+00	MND	MND	MND	MND	MND	MND	MND	MND	1,86E-01	8,54E-02	2,75E-01	8,19E-01	-2,57E+01
Human toxicity, cancer	CTUh	7,07E-10	8,80E-11	1,70E-09	2,50E-09	1,15E-10	MND	MND	MND	MND	MND	MND	MND	MND	7,12E-12	2,59E-12	3,12E-11	2,59E-11	-2,75E-10
Human tox. non-cancer	CTUh	1,75E-08	3,37E-09	1,94E-08	4,03E-08	3,66E-09	MND	MND	MND	MND	MND	MND	MND	MND	1,34E-10	8,36E-11	5,32E-10	4,88E-10	-8,97E-09
SQP[7]	-	8,70E+00	4,44E+00	8,56E+01	9,87E+01	3,18E+00	MND	MND	MND	MND	MND	MND	MND	MND	4,02E-02	7,52E-02	1,13E-01	1,93E+00	-4,83E+01

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	4,21E+00	5,19E-02	1,90E+01	2,33E+01	6,52E-02	MND	MND	MND	MND	MND	MND	MND	MND	1,77E-03	1,46E-03	2,65E-02	1,46E-02	-1,16E+01
Renew. PER as material	MJ	0,00E+00	0,00E+00	8,80E+00	8,80E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-8,80E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	4,21E+00	5,19E-02	2,78E+01	3,21E+01	6,52E-02	MND	MND	MND	MND	MND	MND	MND	MND	1,77E-03	1,46E-03	-8,78E+00	1,46E-02	-1,16E+01
Non-re. PER as energy	MJ	2,44E+01	3,99E+00	2,34E+01	5,17E+01	4,48E+00	MND	MND	MND	MND	MND	MND	MND	MND	3,09E-01	1,02E-01	1,84E-01	8,03E-01	-2,23E+00
Non-re. PER as material	MJ	1,42E+02	0,00E+00	7,51E-01	1,43E+02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-7,74E+00	-1,35E+02	5,62E-02
Total use of non-re. PER	MJ	1,67E+02	3,99E+00	2,41E+01	1,95E+02	4,48E+00	MND	MND	MND	MND	MND	MND	MND	MND	3,09E-01	1,02E-01	-7,55E+00	-1,34E+02	-2,18E+00
Secondary materials	kg	3,58E+00	1,15E-03	3,68E-02	3,61E+00	1,52E-03	MND	MND	MND	MND	MND	MND	MND	MND	1,21E-04	3,42E-05	3,65E-04	2,84E-04	6,74E-04
Renew. secondary fuels	MJ	1,10E-04	1,05E-05	2,97E-01	2,97E-01	1,68E-05	MND	MND	MND	MND	MND	MND	MND	MND	3,95E-07	3,75E-07	2,71E-06	1,09E-05	-4,20E-06
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	1,46E-02	5,26E-04	2,62E-02	4,12E-02	5,71E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,88E-05	1,30E-05	1,62E-04	8,61E-04	-1,79E-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	6,87E-02	4,37E-03	4,36E-02	1,17E-01	5,10E-03	MND	MND	MND	MND	MND	MND	MND	MND	4,14E-04	1,17E-04	1,43E-03	0,00E+00	-1,31E-02
Non-hazardous waste	kg	3,67E+00	7,58E-02	9,91E-01	4,74E+00	9,06E-02	MND	MND	MND	MND	MND	MND	MND	MND	2,91E-03	2,07E-03	1,26E-01	3,33E+00	2,21E-01
Radioactive waste	kg	2,69E-04	2,74E-05	3,14E-04	6,10E-04	3,08E-05	MND	MND	MND	MND	MND	MND	MND	MND	2,18E-06	6,99E-07	1,06E-06	0,00E+00	-1,50E-05

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	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	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	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	9,28E-02	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	7,86E-01	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,80E-02	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_2e	1,67E+00	2,50E-01	4,33E-01	2,36E+00	2,98E-01	MND	MND	MND	MND	MND	MND	MND	MND	2,27E-02	6,77E-03	2,40E-01	3,29E-01	-1,69E-01
Ozone depletion Pot.	kg CFC_{-11}e	8,33E-08	4,92E-08	3,94E-08	1,72E-07	5,53E-08	MND	MND	MND	MND	MND	MND	MND	MND	3,89E-09	1,25E-09	6,70E-10	8,34E-09	-2,22E-08
Acidification	kg SO_2e	5,81E-03	6,57E-04	2,41E-03	8,87E-03	7,02E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,70E-04	1,63E-05	6,51E-05	2,25E-04	-2,24E-03
Eutrophication	kg PO_4^3e	3,61E-03	1,40E-04	1,16E-03	4,90E-03	1,51E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,95E-05	3,54E-06	8,73E-05	1,50E-02	-5,99E-04
POCP (“smog”)	kg C_2H_4e	3,63E-04	3,05E-05	1,88E-04	5,81E-04	3,54E-05	MND	MND	MND	MND	MND	MND	MND	MND	3,72E-06	8,09E-07	3,01E-06	6,01E-05	-1,31E-04
ADP-elements	kg Sbe	4,26E-05	6,33E-07	2,36E-05	6,68E-05	1,06E-06	MND	MND	MND	MND	MND	MND	MND	MND	1,15E-08	2,36E-08	1,10E-07	1,13E-07	-2,92E-07
ADP-fossil	MJ	2,41E+01	3,99E+00	2,41E+01	5,22E+01	4,48E+00	MND	MND	MND	MND	MND	MND	MND	MND	3,09E-01	1,02E-01	1,84E-01	8,03E-01	-2,29E+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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited
13.12.2024

VERIFIED ISO 14025