



ENVIRONMENTAL PRODUCT DECLARATION

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

MasterFiber Micro Monofilament PP Fibers

Master Builders Solutions



EPD HUB, HUB-0626

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GENERAL INFORMATION

MANUFACTURER

Manufacturer	Master Builders Solutions
Address	Dr.-Albert-Frank-Str. 32, 83308 Trostberg, Germany
Contact details	masterfiber-eu@masterbuilders.com
Website	www.master-builders-solutions.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 (A1—A3)
EPD author	Shirin Fataei - Master Builders Solutions Deutschland GmbH
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> 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	MasterFiber Micro Monofilament PP Fibers
Product number / reference	MasterFiber 006, MasterFiber 012, MasterFiber 018, MasterFiber 021, MasterFiber 022, MasterFiber 080, MasterFiber 081
Place of production	Kostalov, Czech Republic Barcelona, Spain
Period for data	2022
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	2.73
GWP-total, A1-A3 (kgCO ₂ e)	2.63
Secondary material, inputs (%)	0.273
Secondary material, outputs (%)	0.0
Total energy use, A1-A3 (kWh)	14.3
Total water use, A1-A3 (m ³ e)	0.0376

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Master Builders Solutions is one of the leading suppliers of concrete admixtures and underground construction solutions worldwide. With over a century of experience in the construction industry, we leverage cutting-edge technologies, a global community of experts at the core of our business, as well as in-depth knowledge of local building needs to provide innovative and sustainable solutions.

PRODUCT DESCRIPTION

MasterFiber Micro Monofilament PP Fibers are made from extruded polypropylene. They are ultra-thin monofilament homopolymer polypropylene micro synthetic fibers. Mixed into fresh concrete these fibers uniformly distribute quickly throughout the concrete matrix and form an internal, randomly oriented fiber network improving the following aspects of concrete technology:

- Stabilization of concrete mix reducing segregation
- Reduction of crack propensity due to plastic shrinkage
- Improves the fire resistance of concrete (anti-spalling effect especially at short length)
- Limits crack formation due to eigen stresses

Further information can be found at www.master-builders-solutions.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100%	EU
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	0.03

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg

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	MND	x	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	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 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.

Micro monofilament PP fibers are created through an extrusion process, in which molten polypropylene is formed into continuous fibers, cooled, and cut into shorter lengths. The manufacturing energy and materials remain consistent regardless of length and diameter, ensuring efficient production. Waste is minimized through recycling, as any production waste is molten, ground and reused as raw material, eliminating production loss.

Micro monofilament PP fibers are produced in two locations, 1) Kostalov, Czech Republic, and 2) Barcelona, Spain. In this EPD, the production site

with higher environmental indicators is considered to cover both production locations.

Micro monofilament PP fibers are offered in two packaging types, 1) degradable paper bags that can be directly added to concrete, and 2) big bags with a minimum of 150 kg products. The environmental impact of the first packaging type (degradable paper bags) is the representative case (highest volume share and higher GWP-fossil) and therefore, modelled in this EPD to cover both packaging types.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to the construction site (A4) is not covered in this EPD.

Treatment of packaging materials is covered in A5 module.

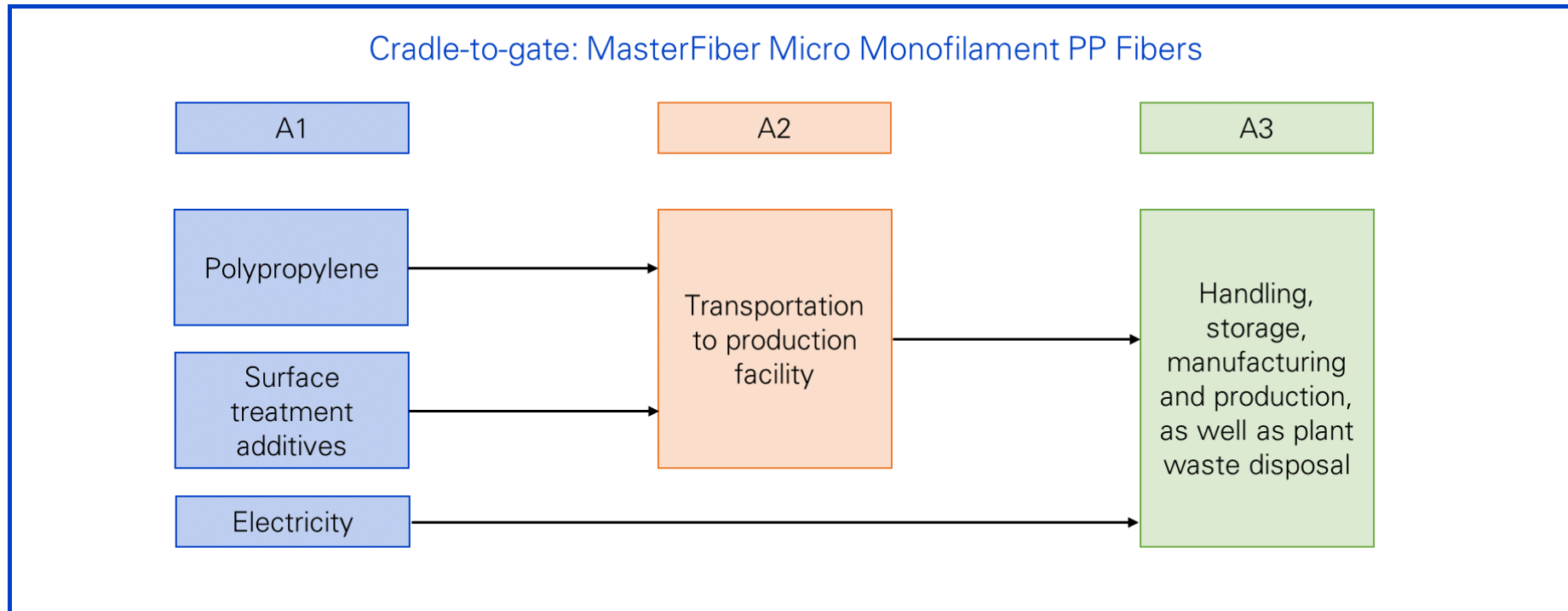
PRODUCT USE AND MAINTENANCE (B1-B7)

These modules are not relevant for this family of products and are not covered in this EPD.

PRODUCT END OF LIFE (C1-C4, D)

The product end of life stages (C1 – C4) are not included in this EPD based on the EN 15804 standard special provision for construction products and materials which fulfil the conditions for exemption based on the product being integrated and not capable of separation from concrete at end of life, the product not being identifiable as original based on the physical change after deconstruction and the omission of any biogenic carbon in the product. The benefits and loads of recycled and incinerated packaging (from A5) are modelled and included beyond the system boundary (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 materials	No allocation
Ancillary materials	No allocation
Manufacturing energy and waste	Allocated by mass or volume

The manufacturing energy is allocated by mass considering the annual total production. The plant produces similar other products (PP as base material), which allows for mass allocation.

The following assumptions were made:

- 0% production loss (module A1) due to reuse of PP waste
- Treatment of degradable paper bags are not necessary as they become part of the concrete structure.

- Waste processing ratios for plastic packaging: 34.6% recycling and reuse as plastic, 42.0% incineration with 73% efficiency, 23.4% sanitary landfill (A5) [Sources: Ref. 1 and Ref. 2]
- Waste processing ratios for wooden pallet: 100% incineration with 73% efficiency after 10 times reuse (A5) [Source: Ref. 1]
- Waste processing ratios for cardboard box: 81.5% recycling, 9.1% incineration with 73% efficiency, 9.4% sanitary landfill (A5) [Sources: Ref. 1 and Ref. 3]
- Transport distance for waste (A5) is considered 100 km.

AVERAGES AND VARIABILITY

Type of average	Multiple products and multiple factories
Averaging method	Not applicable (explained below)
Variation in GWP-fossil for A1-A3	0 / - 6.23%

This EPD is for MasterFiber Micro Monofilament PP Fibers, including following products:

Product number	Length [mm]	Diameter [mm]
MasterFiber 006	6	0.032
MasterFiber 021	6	0.032
MasterFiber 012	12	0.032
MasterFiber 022	12	0.032
MasterFiber 018	18	0.032
MasterFiber 080	6	0.018
MasterFiber 081	12	0.018

Raw materials, production process and energy consumption are the same for all these products, therefore, no specific averaging was required.

MasterFiber Micro Monofilament PP Fibers are produced in two locations: 1) Kostalov, Czech Republic and 2) Barcelona, Spain. In this EPD, the production site with higher GWP-fossil is considered to cover both production locations.

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 and One Click LCA databases were used as sources of environmental data.

Additional references are:

- Ref. 1: Eriksson O., Finnveden G. (2017) Energy Recovery from Waste Incineration—The Importance of Technology Data and System Boundaries on CO2 Emissions
- Ref. 2: [The Circular Economy for Plastics, A European Overview.](#)
- Ref. 3: eurostat - [Packaging waste by waste management operations.](#)

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	1.99E0	3.29E-2	6.07E-1	2.63E0	MND	1.15E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3E-2	
GWP – fossil	kg CO ₂ e	1.98E0	3.28E-2	7.15E-1	2.73E0	MND	5.06E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.49E-2
GWP – biogenic	kg CO ₂ e	-9.39E-4	1.28E-5	-1.09E-1	-1.1E-1	MND	1.1E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-5.28E-3
GWP – LULUC	kg CO ₂ e	7.87E-3	1.18E-5	1.23E-3	9.11E-3	MND	1.38E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.72E-4
Ozone depletion pot.	kg CFC ₁₁ e	2.69E-8	7.84E-9	1.57E-8	5.04E-8	MND	2.17E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.11E-9
Acidification potential	mol H ⁺ e	6.83E-3	1.37E-4	3.1E-3	1.01E-2	MND	1.22E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1E-4
EP-freshwater ²⁾	kg Pe	2.58E-5	2.25E-7	1.16E-4	1.42E-4	MND	4.16E-8	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-7.69E-7
EP-marine	kg Ne	1.19E-3	4.15E-5	5.74E-4	1.81E-3	MND	1.14E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.98E-5
EP-terrestrial	mol Ne	1.26E-2	4.57E-4	5.67E-3	1.87E-2	MND	4.18E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.21E-4
POCP (“smog”) ³⁾	kg NMVOCe	6.06E-3	1.47E-4	1.5E-3	7.71E-3	MND	1.43E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-6.32E-5
ADP-minerals & metals ⁴⁾	kg Sbe	1.32E-5	7.71E-8	1.14E-6	1.44E-5	MND	1.73E-8	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.73E-8
ADP-fossil resources	MJ	7.09E1	5.02E-1	1.05E1	8.18E1	MND	2.11E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.73E-1
Water use ⁵⁾	m ³ e depr.	8.17E-1	2.32E-3	5.54E-1	1.37E0	MND	1.64E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.22E-2

¹⁾ GWP = Global Warming Potential; ²⁾ EP = Eutrophication potential; ³⁾ POCP = Photochemical ozone formation; ⁴⁾ ADP = Abiotic depletion potential
 For EP-freshwater, the required characterization method and data are in kg P-eq. Multiply by 3,07 to get PO4e

^{4,5)} 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 experienced with the indicator

ADDITIONAL 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	7.23E-8	3.86E-9	9.7E-9	8.58E-8	MND	4.64E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-7.21E-10
Ionizing radiation ⁶⁾	kBq U235e	1.02E-1	2.59E-3	2.16E-1	3.2E-1	MND	1.09E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.61E-3
Ecotoxicity (freshwater)	CTUe	9.56E0	4.18E-1	5.45E0	1.54E1	MND	2.23E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.21E-1
Human toxicity, cancer	CTUh	5.04E-10	1.1E-11	2.37E-10	7.52E-10	MND	5.22E-12	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-8E-12
Human tox. non-cancer	CTUh	1.21E-8	4.42E-10	6.14E-9	1.87E-8	MND	1.07E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.38E-10
SQP ⁷⁾	-	1.97E0	5.86E-1	7.35E0	9.91E0	MND	2.01E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-1.55E0

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	1.14E0	6.51E-3	1.18E0	2.33E0	MND	1.01E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.11E-2
Renew. PER as material	MJ	0E0	0E0	9.79E-1	9.79E-1	MND	-9.79E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.14E-3
Total use of renew. PER	MJ	1.14E0	6.51E-3	2.16E0	3.31E0	MND	-9.78E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.42E-2
Non-re. PER as energy	MJ	3.82E1	5.02E-1	1.03E1	4.9E1	MND	2.11E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.43E-1
Non-re. PER as material	MJ	3.27E1	0E0	1.23E-1	3.28E1	MND	-1.23E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	3.14E-3
Total use of non-re. PER	MJ	7.09E1	5.02E-1	1.05E1	8.18E1	MND	-1.02E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.39E-1
Secondary materials	kg	2.73E-3	1.42E-4	4.75E-2	5.04E-2	MND	3.22E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	1.31E-2
Renew. secondary fuels	MJ	2.74E-5	1.25E-6	8.93E-3	8.95E-3	MND	1.85E-7	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.58E-7
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Use of net fresh water	m ³	2.11E-2	6.67E-5	1.64E-2	3.76E-2	MND	9.62E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-7.21E-5

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	4.65E-2	5.39E-4	2.42E-2	7.12E-2	MND	1.15E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-5.04E-5
Non-hazardous waste	kg	1.07E0	9.37E-3	5.26E0	6.34E0	MND	2.71E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.1E-2
Radioactive waste	kg	3.04E-5	3.46E-6	5.37E-5	8.75E-5	MND	7.86E-8	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.75E-7

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	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	MND	3.93E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	MND	0E0	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	MND	2.1E-1	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	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 ₂ e	1.88E0	3.25E-2	7.13E-1	2.63E0	MND	1.26E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.4E-2	
Ozone depletion Pot.	kg CFC ₁₁ e	2.34E-8	6.21E-9	1.36E-8	4.32E-8	MND	1.77E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-9E-10
Acidification	kg SO ₂ e	5.72E-3	1.06E-4	2.58E-3	8.4E-3	MND	9.32E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-8.24E-5
Eutrophication	kg PO ₄ ³ e	1.33E-3	2.37E-5	3.75E-3	5.1E-3	MND	2.9E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.78E-5
POCP (“smog”)	kg C ₂ H ₄ e	3.8E-4	4.18E-6	1.04E-4	4.88E-4	MND	2.35E-6	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.51E-6
ADP-elements	kg Sbe	1.31E-5	7.49E-8	1.09E-6	1.43E-5	MND	1.7E-8	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.96E-8
ADP-fossil	MJ	7.08E1	5.02E-1	1.05E1	8.18E1	MND	2.11E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.73E-1

ENVIRONMENTAL IMPACTS – TRACI 2.1. / 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	1.81E0	3.25E-2	7.1E-1	2.56E0	MND	1.12E-2	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-2.39E-2
Ozone Depletion	kg CFC ₁₁ e	2.32E-8	6.21E-9	1.35E-8	4.29E-8	MND	1.76E-10	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-8.89E-10
Acidification	kg SO ₂ e	3E-1	6.53E-3	1.35E-1	4.41E-1	MND	6.26E-4	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.6E-3
Eutrophication	kg Ne	2.19E-4	1.42E-5	1.64E-4	3.97E-4	MND	1.01E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-4.83E-6
POCP (“smog”)	kg O ₃ e	3.09E-3	1.07E-4	1.26E-3	4.45E-3	MND	1.05E-5	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-5.17E-5
ADP-fossil	MJ	9.85E0	6.95E-2	2.31E-1	1.01E1	MND	2.31E-3	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	-3.87E-2

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 ED 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
09.08.2023

