

# ENVIRONMENTAL PRODUCT DECLARATION

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

## Puracore<sup>®</sup> Panelling System



**EPD HUB, HUB-0761**

Publishing date 19 October 2023, last updated on 19 October 2023, valid until 19 October 2028.

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Gilcrest Manufacturing
Address	3 Portview Rd, Avonmouth, Bristol BS11 9LQ
Contact details	sgriffiths@gilcrestmanufacturing.com
Website	<a href="https://www.gilcrestmanufacturing.com/solutions/puracore/">https://www.gilcrestmanufacturing.com/solutions/puracore/</a>

### 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	Sam McGarrick (Blue Marble Environmental Partnerships Ltd.)
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	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	Puracore® Panelling System
Additional labels	Range of thicknesses - 10mm, 17.5mm, 40mm, 50mm, 65mm
Product reference	-
Place of production	Bristol, UK
Period for data	Calendar Year - 2022
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	+15 / -28 %

## ENVIRONMENTAL DATA SUMMARY

Declared unit	1m2 of Puracore Panel
Declared unit mass	12.5 kg
GWP-fossil, A1-A3 (kgCO2e)	6.12E1
GWP-total, A1-A3 (kgCO2e)	6.15E1
Secondary material, inputs (%)	32.2
Secondary material, outputs (%)	84.2
Total energy use, A1-A3 (kWh)	277.0
Total water use, A1-A3 (m3e)	1.24E0

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Puracore® is a leading specialist cleanroom panel manufacturer established for over 15 years. Based in the UK, Puracore® offers a flush, FM approved and GMP compliant range of cleanroom components including walls, ceilings, doors and ancillaries. Puracore® is a complete engineered system, whilst maintaining flexibility for bespoke project requirements.

### PRODUCT DESCRIPTION

Our industry-respected Puracore Panels are fully flush, FM-approved and made using an aluminium honeycomb core, which provides a high strength-to-weight ratio, perfect for a cleanroom project. The core is non-shedding, meaning it won't shed any particles or contaminants that could affect your cleanroom, which is particularly important in the pharmaceutical sector. Our panels can be produced with a range of different finishes, including PVC Food Safe Laminate, PET and Polyester, and many more, depending on your project's requirements.

10mm - Our Puracore 10mm Aluminium Honeycomb Lining Panel has been specifically designed to be used as cladding to existing walls. Whether your objective is functional or aesthetic, this lining panel can provide an immaculate interior to any wall system.

17.5mm - Our Puracore 17.5mm Aluminium Honeycomb Lining Panel is an effective single-wall option for any class of cleanroom. The secret extrusion design allows for simple installation and no surface fixings.

40mm - Our 40mm panel was specifically designed for the semi-conductor and Microelectronics market. Semiconductors and microelectronics are sensitive to static and can easily be damaged by it. Our range of anti-static or static dissipative finishes allows for a safer environment to manufacture semi-conductors and microelectronics and avoid static damage and consequently, a lower production defect rate.

50mm - Our Puracore 50mm Aluminium Honeycomb Panels are the standard and most popular choice for cleanroom projects. The high strength-to-weight ratio and non-shedding core, make this panel perfectly suited for most cleanroom specifications. We produce thousands of them every month and they are used by companies such as Pfizer and GSK.

65mm - We have developed this market-leading 65mm Aluminium Honeycomb Ceiling Panel to provide a high-load ceiling deck to a cleanroom system. This panel has all the same features and benefits as the 50mm ceiling panel, except it can withstand greater loads.

Further information can be found at <https://www.gilcrestmanufacturing.com/solutions/puracore/>.

## PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	94	UK, South Korea, Spain
Minerals	0	-
Fossil materials	6	UK
Bio-based materials	0	-

## 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	0.108

## FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m2 of Puracore Panel
Mass per declared unit	12.5 kg
Functional unit	-
Reference service life	-

## 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.

The main raw materials of the panel production include an aluminium honeycomb core, aluminium frame, polyurethane adhesive and galvanised steel sheets. The steel sheets are painted and coated. The aluminium used has a recycled content of between 40-45%, the steel contains 20% recycled content (A1).

The raw materials are sourced globally, and a weighted average of transportation distances has been applied. Transport is via both lorry and container ship (A2).

The product is manufactured in the UK at Puracore facilities and power consumption is drawn from both UK grid (48%) and on-site solar electricity (photovoltaic) panels (52%). There is 3% manufacturing waste from aluminium and 1.9% from steel. Aluminium manufacturing waste is sent to specific waste treatment facilities and is 95% is assumed to reach recycling with 5% sent to landfill. Steel manufacturing waste is collected as scrap metal and is sorted and pressed with 95% recycled and 5% reaching landfill. 100km transport to waste treatment facilities has been modelled (A3).

A wooden pallet and packaging film are used as packaging materials for transporting the product from the factory gate (A3).

## 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.

For transportation beyond the factory gate, a typical scenario has been applied. In the reference period most panels were shipped to customers in the UK, and a typical site located 240km from the

manufacturing facility was selected. The transportation method modelled is via lorry. Vehicle capacity utilisation volume factor is assumed to be 1, which means full load. It may vary but as the 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 the return trip is used by the transportation company to serve the needs of other clients. There are no transportation losses as the product is packaged properly (A4).

Environmental impacts from installation into the building include use of hand operated power tools using low-voltage electricity only. There are no installation losses modelled as the product is prefabricated for installation (A5).

Packaging waste is assumed to leave the system at the point of installation. Plastics are conservatively assumed to be sent to landfill with no benefits. Pallets are assumed to be broken up and incinerated where some energy recovery is achieved (73%) and accounted for beyond the system boundary in Module D. 100km transportation to waste treatment is assumed (A5).

### **PRODUCT USE AND MAINTENANCE (B1-B7)**

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

### **PRODUCT END OF LIFE (C1-C4, D)**

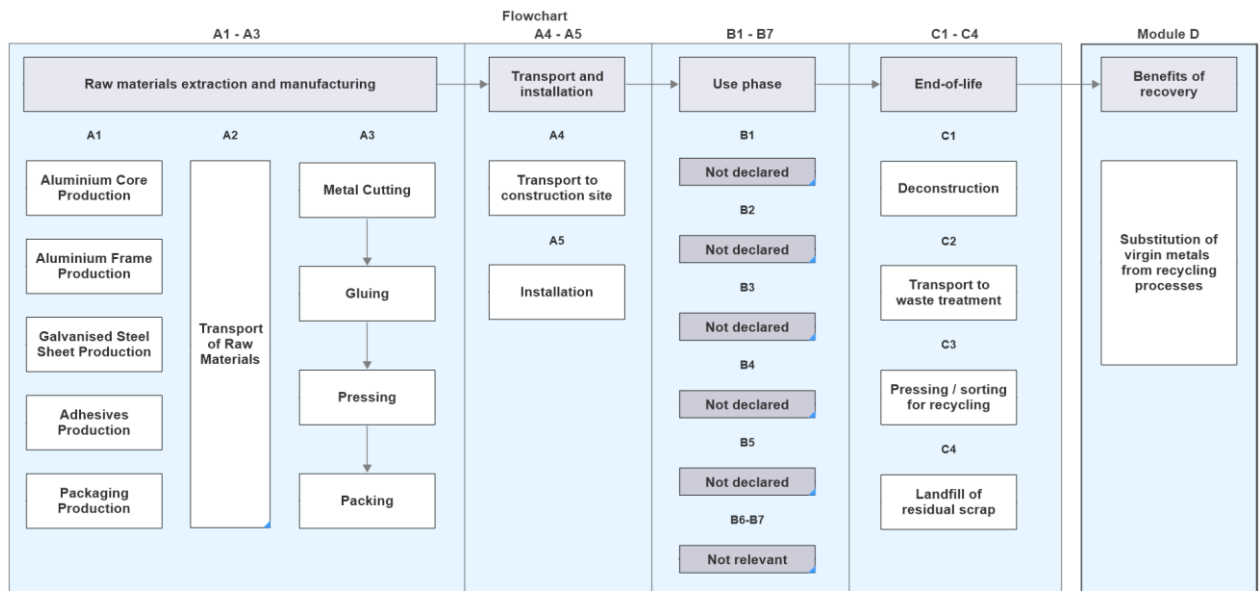
At the end-of-life, the product is removed using hand operated power tools using low-voltage electricity (C1).

The product is transported 100km to a notional waste processing facility (C2).

Fifteen percent (15%) of the metals (aluminium and steel) are sent to landfill, the remaining eighty-five percent (85%) are recycled (World Steel Association, 2021) (C3, C4).

After the percentage reaching landfill is deducted, the fifty-five to sixty percent (55-60%) primary aluminium content (in the core and frame respectively) is included in Module D as an avoided product (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

## AVERAGES AND VARIABILITY

Type of average Multiple products

Averaging method Representative product

Variation in GWP-fossil for A1-A3 +15 / -28 %

This EPD applies to Puracore panels in the following range of thicknesses:

10mm (taken to be the **minimum** case product for GWP fossil)  
 17.5mm  
 40mm  
 50mm (the **base case**, highly typical product within the range)  
 65mm (taken to be the **maximum** case product for GWP fossil)

The 50mm base case product was selected as highly typical due to its typical raw material composition and typical GWP (fossil) content within the range, as well as being a product with high production and sales volumes. For this base case product, within units A1-A3, 98% of GWP fossil impacts are associated with the raw materials, therefore this has been the main comparator for this average.

The range of Puracore panels are all manufactured by Puracore at their facility using a common manufacturing process. The products all share an equivalent purpose (cleanroom panels). Products within this range have very similar raw material composition (aluminium honeycomb core, galvanised steel sheets, adhesives, coatings); only the 10mm is supplied without aluminium frame.

For the Puracore range, the variance against the base case GWP fossil is shown below:

MAX GWP (fossil) value: 71.05 kg CO<sub>2</sub> e  
 MIN GWP (fossil) value: 44.88 kg CO<sub>2</sub> e  
 Base Case Product GWP (fossil) value: 61.97 kg CO<sub>2</sub> e

Variance from base case product (max +/- 50%):

15% Max  
 -28% Min

## 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 v3.8 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 <sup>1)</sup>	kg CO <sub>2</sub> e	6.08E+01	5.07E-01	1.66E-01	6.15E+01	3.70E-01	4.46E-01	MND	MND	MND	MND	MND	MND	MND	4.02E-02	1.17E-01	7.31E-02	-7.26E-03	-1.56E+01
GWP – fossil	kg CO <sub>2</sub> e	6.02E+01	5.06E-01	5.62E-01	6.12E+01	3.70E-01	5.40E-02	MND	MND	MND	MND	MND	MND	MND	4.01E-02	1.17E-01	2.74E-01	2.81E-02	-1.48E+01
GWP – biogenic	kg CO <sub>2</sub> e	2.41E-01	0.00E+00	-3.97E-01	-1.55E-01	0.00E+00	3.91E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-2.01E-01	-3.54E-02	-5.26E-01
GWP – LULUC	kg CO <sub>2</sub> e	4.07E-01	2.55E-04	9.40E-04	4.08E-01	1.36E-04	1.02E-04	MND	MND	MND	MND	MND	MND	MND	9.39E-05	4.32E-05	3.56E-04	3.02E-05	-2.88E-01
Ozone depletion pot.	kg CFC <sub>11</sub> e	5.69E-06	1.10E-07	4.12E-08	5.85E-06	8.51E-08	3.16E-09	MND	MND	MND	MND	MND	MND	MND	2.03E-09	2.69E-08	2.94E-08	5.14E-09	-1.33E-06
Acidification potential	mol H <sup>+</sup> e	1.80E+00	7.49E-03	2.65E-03	1.81E+00	1.57E-03	2.63E-04	MND	MND	MND	MND	MND	MND	MND	2.29E-04	4.96E-04	3.13E-03	2.06E-04	-8.83E-02
EP-freshwater <sup>2)</sup>	kg Pe	3.18E-03	3.27E-06	1.82E-05	3.20E-03	3.03E-06	4.57E-06	MND	MND	MND	MND	MND	MND	MND	4.26E-06	9.59E-07	1.19E-05	7.65E-07	-5.44E-04
EP-marine	kg Ne	1.06E-01	1.91E-03	5.46E-04	1.09E-01	4.65E-04	3.98E-05	MND	MND	MND	MND	MND	MND	MND	3.04E-05	1.47E-04	6.65E-04	5.63E-05	-5.93E-03
EP-terrestrial	mol Ne	7.18E+00	2.12E-02	6.14E-03	7.20E+00	5.13E-03	4.35E-04	MND	MND	MND	MND	MND	MND	MND	3.45E-04	1.63E-03	7.66E-03	6.25E-04	-1.27E-01
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	2.28E-01	5.76E-03	2.02E-03	2.36E-01	1.64E-03	1.23E-04	MND	MND	MND	MND	MND	MND	MND	9.46E-05	5.20E-04	2.10E-03	1.84E-04	-5.57E-02
ADP-minerals & metals <sup>4)</sup>	kg Sbe	5.14E-03	1.00E-06	1.05E-05	5.15E-03	8.67E-07	3.87E-07	MND	MND	MND	MND	MND	MND	MND	3.69E-07	2.75E-07	3.13E-05	6.57E-08	-1.67E-04
ADP-fossil resources	MJ	8.45E+02	7.14E+00	1.35E+01	8.66E+02	5.55E+00	9.72E-01	MND	MND	MND	MND	MND	MND	MND	8.50E-01	1.76E+00	3.27E+00	4.90E-01	-2.07E+02
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	5.83E+01	2.84E-02	3.28E-01	5.87E+01	2.49E-02	2.44E-02	MND	MND	MND	MND	MND	MND	MND	2.26E-02	7.87E-03	5.57E-02	4.50E-03	-2.11E+01

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 PO<sub>4</sub>e; 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	1.81E-05	4.24E-08	2.82E-08	1.82E-05	4.26E-08	1.31E-09	MND	MND	MND	MND	MND	MND	MND	7.49E-10	1.35E-08	4.27E-08	3.43E-09	-8.58E-07
Ionizing radiation <sup>6)</sup>	kBq U235e	8.68E+00	3.36E-02	2.83E-01	9.00E+00	2.65E-02	2.46E-02	MND	MND	MND	MND	MND	MND	MND	2.28E-02	8.38E-03	1.96E-02	2.62E-03	-3.36E+00
Ecotoxicity (freshwater)	CTUe	3.94E+03	5.79E+00	1.42E+01	3.96E+03	5.00E+00	6.74E-01	MND	MND	MND	MND	MND	MND	MND	5.78E-01	1.58E+00	1.54E+01	3.36E+02	-2.51E+02
Human toxicity, cancer	CTUh	2.90E-07	2.19E-10	8.78E-10	2.91E-07	1.23E-10	2.22E-11	MND	MND	MND	MND	MND	MND	MND	1.89E-11	3.89E-11	4.59E-10	2.29E-11	4.75E-08
Human tox. non-cancer	CTUh	3.57E-06	5.20E-09	1.02E-08	3.59E-06	4.95E-09	7.11E-10	MND	MND	MND	MND	MND	MND	MND	6.22E-10	1.57E-09	1.98E-08	6.08E-10	-7.67E-08
SQP <sup>7)</sup>	-	1.79E+02	5.82E+00	5.35E+01	2.39E+02	6.40E+00	2.55E-01	MND	MND	MND	MND	MND	MND	MND	1.54E-01	2.03E+00	6.53E+00	7.96E-01	-2.53E+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 <sup>8)</sup>	MJ	1.42E+02	7.00E-02	8.65E+00	1.51E+02	6.26E-02	1.79E-01	MND	MND	MND	MND	MND	MND	MND	1.69E-01	1.98E-02	5.04E-01	2.11E-02	-8.14E+01
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.41E+00	3.41E+00	0.00E+00	-3.41E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	1.42E+02	7.00E-02	1.21E+01	1.54E+02	6.26E-02	-3.24E+00	MND	MND	MND	MND	MND	MND	MND	1.69E-01	1.98E-02	5.04E-01	2.11E-02	-8.14E+01
Non-re. PER as energy	MJ	8.28E+02	7.14E+00	1.11E+01	8.46E+02	5.55E+00	9.70E-01	MND	MND	MND	MND	MND	MND	MND	8.48E-01	1.76E+00	3.27E+00	4.90E-01	-2.07E+02
Non-re. PER as material	MJ	1.72E+01	0.00E+00	2.07E+00	1.93E+01	0.00E+00	-2.39E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-1.43E+01	-2.53E+00	0.00E+00
Total use of non-re. PER	MJ	8.45E+02	7.14E+00	1.32E+01	8.65E+02	5.55E+00	-1.42E+00	MND	MND	MND	MND	MND	MND	MND	8.48E-01	1.76E+00	-1.11E+01	-2.04E+00	-2.07E+02
Secondary materials	kg	4.02E+00	2.41E-03	1.31E-02	4.04E+00	1.54E-03	1.27E-04	MND	MND	MND	MND	MND	MND	MND	8.66E-05	4.88E-04	3.51E-03	1.14E-04	4.63E+00
Renew. secondary fuels	MJ	6.48E-03	1.63E-05	9.20E-02	9.84E-02	1.56E-05	1.06E-06	MND	MND	MND	MND	MND	MND	MND	7.07E-07	4.93E-06	1.79E-04	5.75E-06	-9.03E-04
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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 <sup>3</sup>	1.23E+00	7.68E-04	7.88E-03	1.24E+00	7.20E-04	7.85E-04	MND	MND	MND	MND	MND	MND	MND	7.17E-04	2.28E-04	1.59E-03	4.41E-04	-6.91E-01

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	1.35E+01	9.56E-03	3.58E-02	1.35E+01	7.37E-03	3.36E-03	MND	MND	MND	MND	MND	MND	MND	3.05E-03	2.33E-03	2.52E-02	0.00E+00	-5.39E+00
Non-hazardous waste	kg	1.20E+02	1.30E-01	6.95E-01	1.21E+02	1.21E-01	2.59E-01	MND	MND	MND	MND	MND	MND	MND	1.94E-01	3.83E-02	6.38E-01	1.87E+00	-3.53E+01
Radioactive waste	kg	3.09E-03	4.87E-05	7.56E-05	3.21E-03	3.72E-05	6.91E-06	MND	MND	MND	MND	MND	MND	MND	6.15E-06	1.18E-05	1.44E-05	0.00E+00	-1.15E-03

## 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	0.00E+00	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	2.59E-01	2.59E-01	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	1.06E+01	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	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	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 <sub>2</sub> e	5.88E+01	5.02E-01	5.51E-01	5.98E+01	3.66E-01	5.21E-02	MND	MND	MND	MND	MND	MND	MND	3.97E-02	1.16E-01	2.69E-01	2.74E-02	-1.44E+01
Ozone depletion Pot.	kg CFC <sub>11</sub> e	5.14E-06	8.75E-08	3.59E-08	5.26E-06	6.74E-08	2.66E-09	MND	MND	MND	MND	MND	MND	MND	1.76E-09	2.13E-08	2.37E-08	4.09E-09	-1.21E-06
Acidification	kg SO <sub>2</sub> e	1.06E+00	5.96E-03	2.15E-03	1.07E+00	1.22E-03	2.22E-04	MND	MND	MND	MND	MND	MND	MND	1.94E-04	3.85E-04	2.53E-03	1.62E-04	-7.53E-02
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	3.13E-01	7.85E-04	8.13E-04	3.14E-01	2.77E-04	4.46E-04	MND	MND	MND	MND	MND	MND	MND	1.49E-04	8.78E-05	7.87E-04	4.39E-05	-2.96E-02
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	2.32E-02	1.67E-04	1.74E-04	2.35E-02	4.75E-05	1.00E-05	MND	MND	MND	MND	MND	MND	MND	7.95E-06	1.50E-05	9.63E-05	9.90E-06	-1.00E-02
ADP-elements	kg Sbe	5.10E-03	9.77E-07	1.05E-05	5.11E-03	8.40E-07	3.86E-07	MND	MND	MND	MND	MND	MND	MND	3.69E-07	2.66E-07	3.13E-05	6.25E-08	-1.63E-04
ADP-fossil	MJ	8.45E+02	7.14E+00	1.35E+01	8.65E+02	5.55E+00	9.70E-01	MND	MND	MND	MND	MND	MND	MND	8.48E-01	1.76E+00	3.27E+00	4.90E-01	-2.07E+02

## 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  
19.10.2023

