

# ENVIRONMENTAL PRODUCT DECLARATION

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

Rustikotta Classic  
Cerámica Mayor S.A



**EPD HUB, HUB-2168**

Publishing date 16 October 2024, last updated on 22 October 2024, valid until 16 October 2029.

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Cerámica Mayor S.A
Address	03510 Callosa D'en Sarriá, España
Contact details	laboratorio@ceramicamayor.com
Website	<a href="http://www.ceramicamayor.com">www.ceramicamayor.com</a>

### EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 und ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023 EN 17160 Product category rules for ceramic tiles
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Martin Oddershede, JJW Architects
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <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	Rustikotta Classic
Place of production	Alicante, Spain
Period for data	01.01.2023 – 31.12.2023

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 square meter of Rustikotta Classic
Declared unit mass	31.5 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	3,29E+01
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	3,20E+01
Secondary material, inputs (%)	0.12
Secondary material, outputs (%)	71.1
Total energy use, A1-A3 (kWh)	146
Net freshwater use, A1-A3 (m <sup>3</sup> )	0.1

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

As a prominent producer of premium ceramic materials for outdoor construction solutions, we specialize in the manufacturing and rehabilitation of ventilated facades. Our diverse product portfolio is meticulously crafted to meet and exceed consumer expectations in design, quality, and safety. We take pride in fostering a work environment that inspires and encourages peak performance. Committed to fostering a work environment where inspiration thrives, we pride ourselves on being an efficient, organized, and environmentally conscious company.

### PRODUCT DESCRIPTION

Rustikotta Classic is the ideal product for new constructions and renovation projects. It is a flexible product with a raw and rustic surface that gives the façade a natural patina. The brick is made solely from clay, water, and fire, making it an environmentally friendly choice for your façade. The product is 100% UV-resistant. Minimal maintenance is required as rain and wind keep the façade clean and tidy. You will also get a product that lasts extremely long. References from around the world show durability spanning several hundred years. This EPD evaluates the lifecycle processes of Rustikotta Classic tiles. When using Rustikotta Prima, apply a multiplier of 1.25 to the environmental impact data.

The brick has no joints and can be installed in all types of weather. Should you ever wish to change the façade, it can be reused for another building project.

Further information can be found at [www.ceramicamayor.com](http://www.ceramicamayor.com).

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	100	EU
Fossil materials	-	-
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	0.22498

## FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 square meter of Rustikotta Classic ceramic tiles for covering walls
Mass per declared unit	31.5 kg
Reference service life	50 years has been considered, although the products manufactured and marketed by Cerámica Mayor and Tempio have a longer durability.

## 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	D	M/N	D	M/N	D	M/N	D	M/N	D	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 raw materials of clay are assumed to be transported 1336 km to the manufacturers production facility, where the manufacturing includes material preparation, shaping, drying, followed by glazing/decoration and

firing. The manufacturing process requires electricity and fuels for the different equipment as well as heating.

Certain ancillary materials are also included. The product is finally packaged in cardboard and plastic and sent to the installation site on a wooden pallet.

## 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.

This EPD does not cover the transport and installation stages.

## 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.

50 years of reference service life has been considered, although the products manufactured and marketed by Cerámica Mayor and Tempio have a longer durability.

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

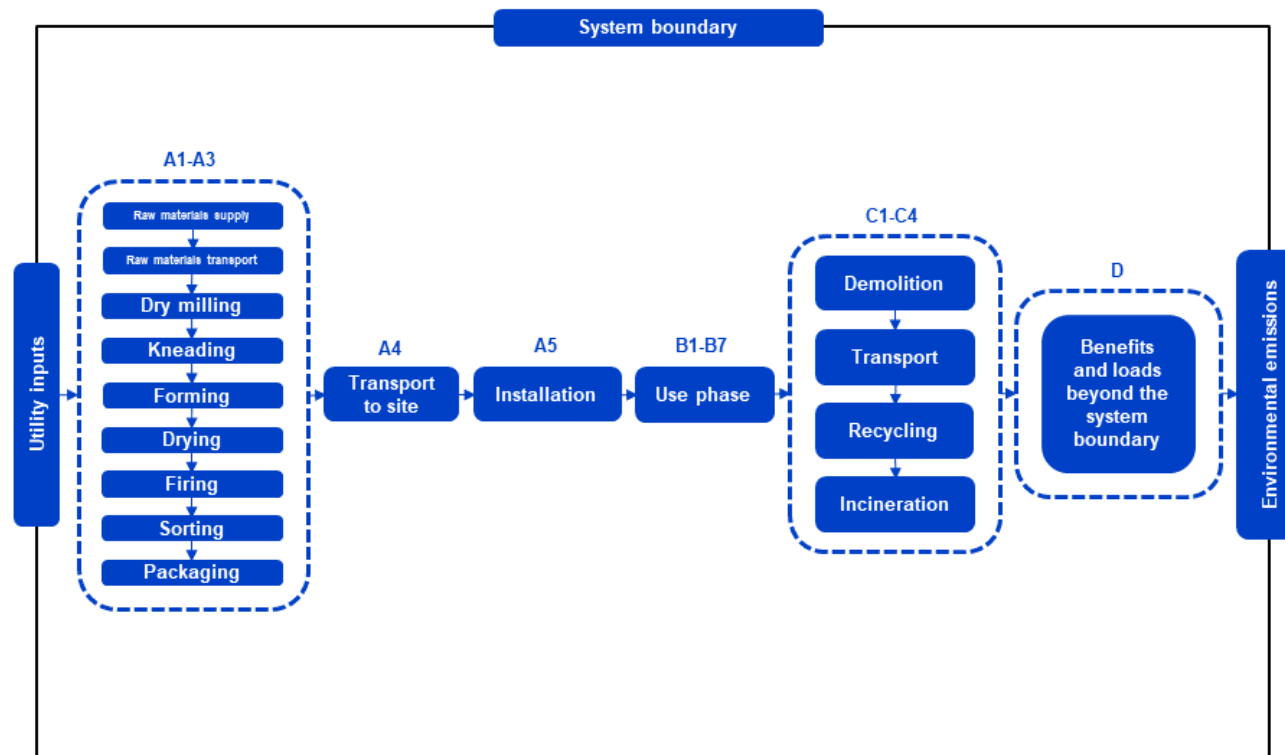
Energy consumption of a demolition process is assumed being and is on the average 0.01 kWh/kg (Bozdağ, Ö & Seçer, M. 2007). At the end of its service life, the product will be removed, either during a building renovation or demolition. In the case of demolition, the environmental impacts associated with the product's removal are considered negligible.

The product waste is transported by a 16-32 metric ton lorry that meets Euro 5 standards. It is then either deposited in inert landfills or sent for recycling. An average transport distance of 50 km from the building site to the waste management facility is assumed.

In C3-C4 it is estimated that 30% of the product is disposed of in controlled landfills at the end of its service life, while 70% of the product are recycled and/or reused, in accordance with the estimates provided in EN17160. For the wood pallet, it is assumed that 31% is recycled, 31% is incinerated, and 38% is landfilled, based on data from Eurostat and PSR-0014. For the plastic packaging, it is assumed that 32.5% is recycled, 42.5% is incinerated, and 25% is landfilled, according to EuroParl (2023).

To prevent double accounting, only the packaging products are included in the benefits and loads beyond the system boundary and only the amount regarding virgin material avoided (Module 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 material	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

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 <sup>1)</sup>	kg CO <sub>2</sub> e	7,65E+00	5,41E-01	2,39E+01	3,20E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,96E-02	1,51E-01	7,45E-01	3,53E-01	-3,96E-02
GWP – fossil	kg CO <sub>2</sub> e	7,64E+00	5,41E-01	2,47E+01	3,29E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,96E-02	1,51E-01	1,69E-01	1,04E-01	-3,76E-02
GWP – biogenic	kg CO <sub>2</sub> e	0,00E+00	0,00E+00	-8,25E-01	-8,25E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	5,76E-01	2,49E-01	-2,01E-03
GWP – LULUC	kg CO <sub>2</sub> e	2,19E-03	2,00E-04	1,14E-02	1,38E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,49E-06	5,58E-05	1,68E-05	1,03E-04	-4,81E-05
Ozone depletion pot.	kg CFC-11e	6,74E-07	1,24E-07	2,30E-06	3,09E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,16E-08	3,48E-08	1,94E-08	3,09E-08	-1,75E-09
Acidification potential	mol H <sup>+</sup> e	2,28E-02	2,29E-03	4,51E-02	7,01E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,41E-03	6,37E-04	9,83E-04	8,61E-04	-2,18E-04
EP-freshwater <sup>2)</sup>	kg Pe	1,01E-04	4,42E-06	4,47E-04	5,52E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,34E-07	1,24E-06	6,03E-07	1,60E-06	-2,52E-06
EP-marine	kg Ne	5,92E-03	6,80E-04	7,51E-03	1,41E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,29E-04	1,89E-04	4,31E-04	3,28E-04	-3,78E-05
EP-terrestrial	mol Ne	6,75E-02	7,51E-03	8,05E-02	1,56E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,89E-03	2,08E-03	4,72E-03	3,23E-03	-4,15E-04
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	2,15E-02	2,40E-03	3,00E-02	5,39E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,80E-03	6,67E-04	1,29E-03	9,43E-04	-1,29E-04
ADP-minerals & metals <sup>4)</sup>	kg Sbe	3,50E-05	1,28E-06	6,83E-05	1,05E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,05E-08	3,54E-07	1,19E-07	3,43E-07	-1,14E-07
ADP-fossil resources	MJ	7,53E+01	8,12E+00	4,06E+02	4,89E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,32E+00	2,27E+00	1,28E+00	2,35E+00	-8,73E-01
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	6,45E-01	3,64E-02	2,90E+00	3,59E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,81E-03	1,02E-02	1,85E-02	1,38E-02	-1,57E-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 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	2,89E-07	6,21E-08	2,26E-07	5,77E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,82E-09	1,74E-08	1,89E-07	1,72E-08	-2,85E-09
Ionizing radiation <sup>6)</sup>	kBq 11235e	4,07E-01	3,87E-02	2,16E+00	2,61E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	6,00E-03	1,08E-02	6,66E-03	1,13E-02	-1,16E-02
Ecotoxicity (freshwater)	CTUe	4,37E+01	7,30E+00	2,06E+02	2,57E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,25E-01	2,04E+00	9,40E-01	1,86E+00	-6,25E-01
Human toxicity, cancer	CTUh	9,27E-09	1,80E-10	5,06E-09	1,45E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,07E-12	5,02E-11	4,97E-11	7,36E-11	-1,35E-11
Human tox. non-cancer	CTUh	5,19E-08	7,23E-09	1,06E-07	1,65E-07	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,09E-09	2,02E-09	1,13E-09	1,22E-09	-4,57E-10
SQP <sup>7)</sup>	-	2,23E+01	9,31E+00	8,85E+01	1,20E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,66E-01	2,62E+00	2,01E-01	5,73E+00	-3,37E-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	4,00E+00	9,19E-02	3,55E+01	3,96E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,71E-03	2,56E-02	1,60E-02	4,11E-02	-2,11E-01
Renew. PER as material	MJ	0,00E+00	0,00E+00	7,59E+00	7,59E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-5,38E+00	-2,21E+00	1,84E-02
Total use of renew. PER	MJ	4,00E+00	9,19E-02	4,31E+01	4,72E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,71E-03	2,56E-02	-5,36E+00	-2,17E+00	-1,93E-01
Non-re. PER as energy	MJ	7,53E+01	8,12E+00	4,03E+02	4,86E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,32E+00	2,27E+00	1,28E+00	2,35E+00	-6,26E-01
Non-re. PER as material	MJ	0,00E+00	0,00E+00	2,64E+00	2,64E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,94E+00	-7,06E-01	2,51E-01
Total use of non-re. PER	MJ	7,53E+01	8,12E+00	4,05E+02	4,89E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,32E+00	2,27E+00	-6,57E-01	1,65E+00	-3,75E-01
Secondary materials	kg	3,88E-02	2,26E-03	1,05E-01	1,46E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,57E-05	6,30E-04	6,64E-04	8,46E-04	5,79E-03
Renew. secondary fuels	MJ	9,62E-03	2,29E-05	1,80E-01	1,90E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,12E-06	6,36E-06	2,50E-06	3,25E-05	-8,49E-05
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	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 <sup>3</sup>	1,80E-02	1,05E-03	7,62E-02	9,52E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,62E-05	2,94E-04	9,84E-05	2,53E-03	-4,99E-04

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	1,45E-01	1,07E-02	3,94E-01	5,49E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,63E-04	3,01E-03	2,66E-03	2,03E-05	-2,12E-03
Non-hazardous waste	kg	4,48E+00	1,77E-01	1,95E+01	2,42E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	5,30E-03	4,94E-02	2,11E-01	9,65E+00	-1,21E-01
Radioactive waste	kg	2,25E-04	5,44E-05	6,11E-04	8,90E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,58E-06	1,52E-05	8,73E-06	2,44E-08	-3,32E-06

## 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	MND	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	5,04E+00	5,04E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,23E+01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	3,60E-02	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,27E+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	7,57E+00	5,36E-01	2,42E+01	3,23E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,78E-02	1,49E-01	1,68E-01	1,27E-01	-3,66E-02
Ozone depletion Pot.	kg CFC <sub>11</sub> e	5,70E-07	9,86E-08	1,87E-06	2,54E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,71E-08	2,75E-08	1,54E-08	2,46E-08	-1,53E-09
Acidification	kg SO <sub>2</sub> e	1,79E-02	1,78E-03	3,77E-02	5,74E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,00E-03	4,95E-04	7,02E-04	6,52E-04	-1,81E-04
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	5,54E-03	4,05E-04	1,70E-02	2,29E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,23E-04	1,13E-04	2,09E-04	9,42E-04	-9,21E-05
POCP (“smog”)	kg C <sub>2</sub> H <sub>4</sub> e	1,29E-03	6,95E-05	2,72E-03	4,08E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,97E-05	1,94E-05	1,69E-05	3,23E-05	-1,07E-05
ADP-elements	kg Sbe	3,49E-05	1,24E-06	6,82E-05	1,04E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,00E-08	3,43E-07	1,16E-07	3,31E-07	-1,13E-07
ADP-fossil	MJ	7,52E+01	8,12E+00	4,05E+02	4,89E+02	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,32E+00	2,27E+00	1,28E+00	2,35E+00	-8,71E-01

## 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

### 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 16.10.2024

