ENVIRONMENTAL PRODUCT DECLARATION

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

Grid+ LEC

Tate

EPD HUB, HUB-2428
Publishing date 15 February 2025, last updated on
15 February 2025, valid until 14 February 2030.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Tate North America
Address	52 Springvale Road, Red Lion PA, 17356, USA
Contact details	info@tateinc.com
Website	www.tateinc.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
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	N/A
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Emma Johnson
EPD verification	Independent verification of this EPD and data, according to ISO 14025: o Internal verification þ 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	Tate Grid+ LEC
Additional labels	-
Product reference	Tate Grid+ LEC
Place of production	Red Lion, PA, United States
Period for data	Calendar Year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m2
Declared unit mass	4.267 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1.09E+01
GWP-total, A1-A3 ($kgCO_2e$)	1.07E+01
Secondary material, inputs (%)	65.8
Secondary material, outputs (%)	92.4
Total energy use, A1-A3 (kWh)	53.2
Net freshwater use, A1-A3 (m^3)	0.28

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

For over 60 years, Tate has been an industry leading global manufacturer of data center solutions. We work collaboratively with our data center clients to provide structural ceilings, containment systems, airflow grills and security cages that are reliable, innovative, and high performing.

Our team of professional and highly qualified technical engineers are on hand to support our clients with their specific data center project requirements. We have a long-term commitment to delivering a sustainable agenda as part of Kingspan Group's 10-year Planet Passionate programme, which addresses climate change, circularity and protection of our natural world.

We believe these can only be met through true collaboration and partnership and are delighted that together our initiatives have been recognised by global environmental impact non-profit CDP since 2016, for driving climate change. As a member of RE100, together with Kingspan Group, we are actively committed to 100% renewable electricity and have joined as a key global partner with the World's GBC's.

PRODUCT DESCRIPTION

Tate Grid+ LEC is a pre-engineered and factory produced structural ceiling capable of directly supporting cable trays, utilities, light fixtures, HVAC registers and other accessories as indicated per area of work. High strength and performance with the ability to suspend a uniform load of 75 lbs/ SF. Continuously threaded M10 bottom slot to allow multiple containment configurations.

This EPD is based on 1 m2 of Tate Grid+ LEC based on a 1200mm x 600mm configuration. Tate Grid+ LEC is a design update of the Tate Grid structural ceiling product which also had an existing and available EPD. Tate Grid+ LEC is produced with lower embodied carbon Aluminum. This product has been optimized to give superior environmental and structural performance.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100%	EU, Asia
Minerals	0%	N/A
Fossil materials	0%	N/A
Bio-based materials	0%	N/A

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m2
Mass per declared unit	4.267 kg
Functional unit	-
Reference service life	50 Years

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	0.106

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	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 transport of the raw material from supplier to the factory site is composed of 790 km by road transport, assuming it is done by a >32-ton EURO6 lorry and 6,560 km by sea transport via container ship.

The production of the Tate Grid+ LEC takes place at the facility in Red Lion, Pennsylvania. The data from the Red Lion manufacturing site, such as energy and ancillary resources consumption and waste generation for the year 2023 was considered and allocated to the Tate Grid+ LEC product as per the site's annual production volumes.

As per co-product allocation, aluminium manufacturing losses are excluded for the main product. There is no other manufacturing losses modelled - as only other wastes are lubrication oil and saw blades which are considered minor waste streams that are individually less than 1% of the total product weight and well below 5% cumulatively.

The finished product is packaged in carboard boxes, loaded onto a wooden crate, and secured with pallet wrap clear. Installation parts such as the turnbuckle, screws and connectors are considered in the module A5 installation as they enter the system's scope at the installation stage.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts incurred 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 based on the weighted average distance of sales made in 2023. The installation parts are made of carbon steel and ductile iron. The installation is carried out with electrical machinery. No construction losses are considered other than packaging waste, as none of the system's parts are amended on site.

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 following recommended US scenarios are considered for the packaging end of life:

Resource	Scenario	Reference
Wood pallet	26.9% recycled 14.3% incinerated with ER 58.8% landfill	Containers and Packaging: Product-Specific Data | US EPA
Plastics	13.7% recycled 16.9% incinerated with ER 69.4% landfill	Containers and Packaging: Product-Specific Data | US EPA
Cardboard	80.9% recycled 3.7% incinerated with ER 15.4% landfill	Containers and Packaging: Product-Specific Data | US EPA

PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not covered, assuming there are no use emissions or replacements. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The energy consumption during demolition, the construction of the waste processing facility and the appropriate equipment are not a part of this model. Due to the material and energy recovery potential of the materials, a part of the end-of-life product is converted into recycled raw materials while electric and heat energy are generated from incineration. The distance from demolition site to metal recycling facility was assumed at 250km and landfill at 25km, the transport was assumed as road freight, lorry >32 metric ton.

The assumptions for recycled materials were acquired from the Aluminum Association and the World Steel Association, stating 90% recycled Aluminum and 85% recycled steel. Due to the material and energy recovery potential of parts in the end-of-life product and packaging, recycled raw materials lead to avoided virgin material production, while the energy recovered from incineration displaces electricity and heat production (D). The benefits and loads of incineration and recycling are included in Module D for packaging materials as well.

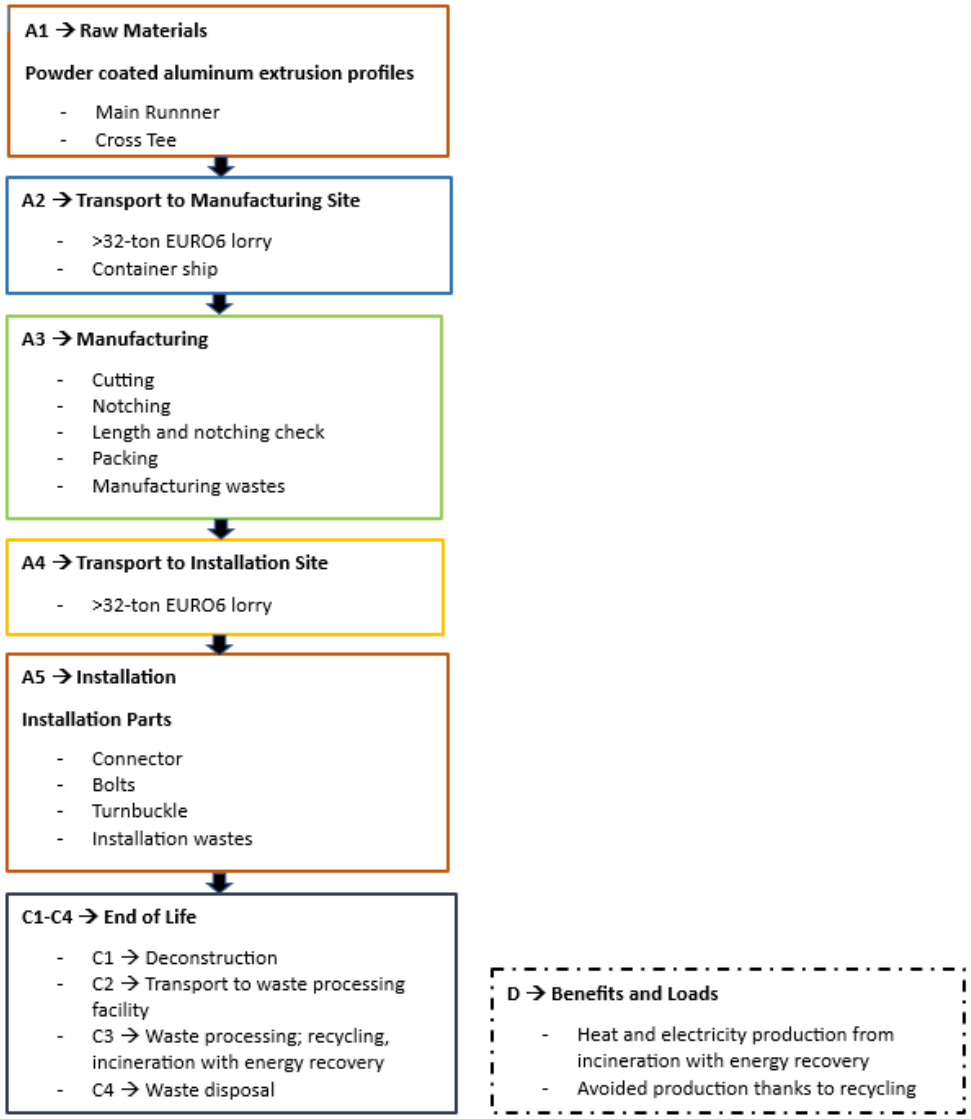
The table below shows the used waste processing scenarios for the accumulated product materials and installation parts. The systems parts are either Aluminum or steel, the following recommended scenarios were considered for the End of Life:

Resource	Scenario	Reference
Aluminum	90% recycled 10% landfill	Aluminum Association
Steel	85% recycled 15% landfill	World Steel Association

The benefits considered for the system parts are the avoided production of Aluminum and steel thanks to recycling (while discounting the recycled content of the parts to avoid double accounting). The loads considered are from the recycling of such parts.

The same logic is applied to the packaging with the addition of recovered energy from the incineration with ER. The benefits and loads of product and packaging material recycling are included in 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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by annual production volume
Manufacturing energy and waste	Allocated by annual production volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	-

There is no average result considered in this study since 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	9.85E+00	4.19E-01	4.08E-01	1.07E+01	5.14E-01	4.39E+00	MND	MND	MND	MND	MND	MND	MND	4.82E-04	1.23E-01	2.81E-02	-2.69E-03	-1.58E+01
GWP – fossil	kg CO_2e	9.67E+00	4.19E-01	7.94E-01	1.09E+01	5.14E-01	4.00E+00	MND	MND	MND	MND	MND	MND	MND	4.82E-04	1.23E-01	6.68E-02	1.69E-03	-1.53E+01
GWP – biogenic	kg CO_2e	4.21E-02	0.00E+00	-3.87E-01	-3.45E-01	0.00E+00	3.88E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-3.88E-02	-4.37E-03	0.00E+00
GWP – LULUC	kg CO_2e	1.45E-01	2.29E-04	6.08E-04	1.46E-01	2.00E-04	1.11E-03	MND	MND	MND	MND	MND	MND	MND	2.14E-07	4.93E-05	7.91E-05	1.59E-06	-4.23E-01
Ozone depletion pot.	kg CFC_{-11}e	7.67E-07	9.14E-08	1.04E-07	9.63E-07	1.21E-07	4.36E-07	MND	MND	MND	MND	MND	MND	MND	2.71E-11	2.86E-08	5.37E-09	6.82E-10	-1.75E-06
Acidification potential	mol H^+e	5.62E-02	7.03E-03	2.26E-03	6.55E-02	1.67E-03	1.28E-02	MND	MND	MND	MND	MND	MND	MND	1.54E-06	3.51E-04	5.32E-04	1.58E-05	-1.06E-01
EP-freshwater[2)]	kg Pe	3.25E-04	2.60E-06	2.20E-05	3.50E-04	4.35E-06	2.02E-05	MND	MND	MND	MND	MND	MND	MND	3.88E-08	8.81E-07	3.31E-06	1.77E-08	-7.47E-04
EP-marine	kg Ne	8.24E-03	1.71E-03	5.79E-04	1.05E-02	3.68E-04	3.29E-03	MND	MND	MND	MND	MND	MND	MND	2.10E-07	7.03E-05	1.35E-04	5.49E-06	-8.84E-03
EP-terrestrial	mol Ne	9.24E-02	1.90E-02	6.17E-03	1.18E-01	4.08E-03	3.58E-02	MND	MND	MND	MND	MND	MND	MND	2.38E-06	7.81E-04	1.31E-03	6.03E-05	-1.23E-01
POCP ("smog")[3)]	kg NMVOCe	2.92E-02	5.15E-03	1.89E-03	3.62E-02	1.58E-03	1.19E-02	MND	MND	MND	MND	MND	MND	MND	7.12E-07	3.00E-04	3.56E-04	1.75E-05	-4.68E-02
ADP-minerals & metals[4)]	kg Sbe	2.00E-05	8.16E-07	7.34E-06	2.82E-05	1.25E-06	3.71E-06	MND	MND	MND	MND	MND	MND	MND	8.23E-10	4.44E-07	4.62E-06	3.87E-09	-4.83E-05
ADP-fossil resources	MJ	1.23E+02	5.96E+00	1.22E+01	1.41E+02	8.05E+00	5.06E+01	MND	MND	MND	MND	MND	MND	MND	8.12E-03	1.84E+00	7.42E-01	4.62E-02	-2.48E+02
Water use[5)]	m^3e depr.	3.14E+00	2.30E-02	2.46E+00	5.63E+00	3.59E-02	4.60E-01	MND	MND	MND	MND	MND	MND	MND	9.94E-05	8.61E-03	1.87E-02	1.47E-04	-3.33E+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 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	4.15E+01	5.64E-02	6.93E+00	4.85E+01	9.06E-02	4.11E-01	MND	MND	MND	MND	MND	MND	MND	7.87E-04	2.67E-02	1.24E-01	4.01E-04	-1.10E+02
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.39E+00	3.39E+00	0.00E+00	-3.39E+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	4.15E+01	5.64E-02	1.03E+01	5.19E+01	9.06E-02	-2.97E+00	MND	MND	MND	MND	MND	MND	MND	7.87E-04	2.67E-02	1.24E-01	4.01E-04	-1.10E+02
Non-re. PER as energy	MJ	1.23E+02	5.96E+00	1.37E+01	1.43E+02	8.05E+00	2.91E+01	MND	MND	MND	MND	MND	MND	MND	8.12E-03	1.84E+00	7.41E-01	4.62E-02	-2.48E+02
Non-re. PER as material	MJ	0.00E+00	0.00E+00	3.00E-01	3.00E-01	0.00E+00	-3.00E-01	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 non-re. PER	MJ	1.23E+02	5.96E+00	1.40E+01	1.43E+02	8.05E+00	2.88E+01	MND	MND	MND	MND	MND	MND	MND	8.12E-03	1.84E+00	7.41E-01	4.62E-02	-2.48E+02
Secondary materials	kg	2.81E+00	2.09E-03	1.18E-02	2.82E+00	2.23E-03	7.96E-03	MND	MND	MND	MND	MND	MND	MND	6.37E-07	6.24E-04	1.15E-03	9.71E-06	2.39E+00
Renew. secondary fuels	MJ	9.69E-04	1.28E-05	8.79E-02	8.89E-02	2.25E-05	8.01E-05	MND	MND	MND	MND	MND	MND	MND	2.23E-09	6.85E-06	8.56E-05	2.54E-07	-4.70E-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^3	2.73E-01	6.10E-04	5.15E-03	2.79E-01	1.04E-03	4.00E-03	MND	MND	MND	MND	MND	MND	MND	2.88E-06	2.35E-04	5.43E-04	5.06E-05	-8.33E-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	5.01E-01	7.97E-03	1.92E-02	5.28E-01	1.06E-02	4.09E-02	MND	MND	MND	MND	MND	MND	MND	3.12E-05	2.09E-03	6.66E-03	0.00E+00	-4.02E+00
Non-hazardous waste	kg	9.32E+00	1.03E-01	3.67E-01	9.79E+00	1.74E-01	9.86E-01	MND	MND	MND	MND	MND	MND	MND	1.74E-03	3.71E-02	3.54E-01	3.20E-01	-3.93E+01
Radioactive waste	kg	4.10E-04	4.10E-05	3.91E-05	4.90E-04	5.42E-05	1.93E-04	MND	MND	MND	MND	MND	MND	MND	4.04E-08	1.27E-05	4.23E-06	0.00E+00	-1.66E-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	2.51E+00	0.00E+00	0.00E+00	2.51E+00	0.00E+00	8.03E-02	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	3.94E+00	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	3.73E-02	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	1.46E-03	0.00E+00	0.00E+00	1.46E-03	0.00E+00	4.24E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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 (TRACI)	kg CO2e	9.83E+00	4.15E-01	7.86E-01	1.10E+01	5.09E-01	1.93E+00	MND	MND	MND	MND	MND	MND	MND	4.68E-04	1.22E-01	8.21E-02	1.65E-03	-1.50E+01
Ozone Depletion (TRACI)	kg CFC11e	4.80E-07	7.24E-08	1.12E-07	6.65E-07	9.57E-08	3.45E-07	MND	MND	MND	MND	MND	MND	MND	2.21E-11	2.27E-08	4.39E-09	5.39E-10	-1.50E-06
Acidification (TRACI)	kg SO2e	2.24E+00	3.22E-01	5.89E-02	2.62E+00	7.59E-02	3.87E-01	MND	MND	MND	MND	MND	MND	MND	6.77E-05	1.57E-02	2.40E-02	7.75E-04	-4.57E+00
Eutrophication (TRACI)	kg Ne	1.94E-03	3.07E-04	2.43E-04	2.49E-03	1.88E-04	8.15E-04	MND	MND	MND	MND	MND	MND	MND	3.62E-08	4.27E-05	4.57E-05	1.45E-06	9.22E-04
Formation of tropospheric ozone (TRACI)	kg O3e	2.20E-02	4.40E-03	1.98E-02	4.63E-02	9.52E-04	6.20E-03	MND	MND	MND	MND	MND	MND	MND	5.44E-07	1.82E-04	2.81E-04	1.42E-05	-3.12E-02
Depletion of non-renewable energy (TRACI)	MJ	9.11E+00	8.28E-01	1.77E+00	1.17E+01	1.10E+00	3.92E+00	MND	MND	MND	MND	MND	MND	MND	4.78E-04	2.54E-01	5.95E-02	6.46E-03	-1.90E+01

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	9.81E+00	4.19E-01	7.95E-01	1.10E+01	5.14E-01	4.01E+00	MND	MND	MND	MND	MND	MND	MND	4.82E-04	1.23E-01	6.69E-02	1.69E-03	-1.58E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

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

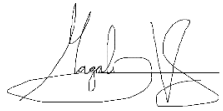
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried 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
15.02.2025



VERIFIED ISO 14025