



# ENVIRONMENTAL PRODUCT DECLARATION

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

APL StrongBak™ & Tritherm™ Framing System  
Architectural Profiles Limited



**EPD HUB, EPD number HUB-5463**

Published on 20.02.2026, last updated on 20.02.2026, valid until 19.02.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.





## GENERAL INFORMATION

### MANUFACTURER

|                 |                                                                              |
|-----------------|------------------------------------------------------------------------------|
| Manufacturer    | Architectural Profiles Limited (APL)                                         |
| Address         | 53b, Crockhamwell Road, Woodley, Reading, Berkshire, United Kingdom, RG5 3JP |
| Contact details | info@archprof.co.uk                                                          |
| Website         | <a href="https://www.archprof.co.uk/">https://www.archprof.co.uk/</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 1.1, 5 Dec 2023                                                                                                                                           |
| Sector             | Construction product                                                                                                                                                               |
| Category of EPD    | Third party verified EPD                                                                                                                                                           |
| Parent EPD number  | -                                                                                                                                                                                  |
| Scope of the EPD   | Cradle to gate with modules C1-C4, D                                                                                                                                               |
| EPD author         | Adeleh Ghodsizadeh (Blue Marble Environmental Partnerships Ltd.)                                                                                                                   |
| EPD verification   | Independent verification of this EPD and data, according to ISO 14025:<br><input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification |
| EPD verifier       | Yazan Badour as an authorized verifier for EPD Hub                                                                                                                                 |

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                      | APL StrongBak™ & Tritherm™ Secondary-Steel Rail Framing                                      |
| Additional labels                 | SK201, SK451, SK601, P103, P105, P152, P191, P192, P546 P600, P601, P618, P621, P157/, P665/ |
| Product reference                 | -                                                                                            |
| Place of production               | Flint, United Kingdom                                                                        |
| Place(s) of raw material origin   | Europe                                                                                       |
| Period for data                   | 01 April 2023 - 31 March 2024                                                                |
| Averaging in EPD                  | Multiple products                                                                            |
| Variation in GWP-fossil for A1-A3 | -25% / +42%                                                                                  |
| A1-A3 Specific data (%)           | 5.51                                                                                         |

### ENVIRONMENTAL DATA SUMMARY

|                                             |                                                                     |
|---------------------------------------------|---------------------------------------------------------------------|
| Declared unit                               | 1 square metre of internal steel liner profile with support framing |
| Declared unit mass                          | 16.1 kg                                                             |
| Mass of packaging                           | 0.12 kg                                                             |
| GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)     | 51.5E+01                                                            |
| GWP-total, A1-A3 (kgCO <sub>2</sub> e)      | 51.5E+01                                                            |
| Secondary material, inputs (%)              | 23.1                                                                |
| Secondary material, outputs (%)             | 94.3                                                                |
| Total energy use, A1-A3 (kWh)               | 185                                                                 |
| Net freshwater use, A1-A3 (m <sup>3</sup> ) | 0.46                                                                |



## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Architectural Profiles Limited (APL) is a UK-based manufacturer specializing in high-quality, non-combustible multi-metal roofing and cladding systems for the entire building envelope. With over 40 years of experience, APL offers a comprehensive range of products crafted from materials such as steel, aluminium, and specialist metals like Cor-ten. APL manufacture a wide range of solid and perforated profiles, including sinusoidal, trapezoidal, louvre, standing seam, as well as a range of rainscreen panel systems. These are combined as a full through-wall system using the APL Tritherm™ and Tritherm™ AluE spacer systems.

### PRODUCT DESCRIPTION

The product is a non-combustible built-up system that comprises of an internal steel liner profile fixed to either primary or secondary steel that uses the APL Tritherm™ spacer system to provide the required cavity depth in order to meet the thermal, structural, acoustic and fire-resistance performance.

The steel liner profile is produced from either a hot-dip galvanised (Z275), Aluzinc or zinc-magnesium steel substrate and then formed into a liner-tray profile with a range of thickness from 0.75mm to 1.5mm. These can be combined with an additional organic coating to provide a pre-painted external surface. These profiles are produced using a combination of processes, generally being profiling and cold roll forming without damaging the top surface. Perforation of the substrate can also be achieved.

APL Tritherm™ is a range of metal secondary support framing to allow for the creation of a cavity outside of the liner tray or profile using a range of thermally-broken steel sections. The steel sections are generally produced using a combination of processes, generally being bending, profiling, punching and cold roll forming. The steel section substrate is either pre-

galvanised (Z275) or a zinc-magnesium equivalent. It consists of a range of steel top-hat and zed-sections that combine with thermally-broken helping hand or RWB brackets to provide the required cavity depth in order to meet the thermal, structural, fire and acoustic performance. All fixings used within the system are stainless steel.

| Product Name                       | Specifics used in EPD                                                                    |
|------------------------------------|------------------------------------------------------------------------------------------|
| APL Strongbak™ 1.5mm               | APL Strongbak™ system with 1.5mm thickness Strongbak liner tray & APL Tritherm™ framing  |
| APL Strongbak™ 1.25mm              | APL Strongbak™ system with 1.25mm thickness Strongbak liner tray & APL Tritherm™ framing |
| APL Strongbak™ 1mm (the base case) | APL Strongbak™ system with 1mm thickness Strongbak liner tray & APL Tritherm™ framing    |
| APL Strongbak™ 0.75mm              | APL Strongbak™ system with 0.75mm thickness Strongbak liner tray & APL Tritherm™ framing |

Further information can be found at <https://www.archprof.co.uk/>.





### PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|-----------------------|----------------|-----------------|
| Metals                | 98.2           | Europe          |
| Minerals              | 1.8            | United Kingdom  |
| Fossil materials      | 0              | -               |
| 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 | 0.034 |

### FUNCTIONAL UNIT AND SERVICE LIFE

|                        |                                                                     |
|------------------------|---------------------------------------------------------------------|
| Declared unit          | 1 square metre of internal steel liner profile with support framing |
| Mass per declared unit | 16.1 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             | ND             | ND       | ND        | ND          | ND     | ND          | ND            | ND                     | ND                    | 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 = ND. Modules not relevant = NR

### 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 made up of liner tray/ profile, bracket, zed/tophat sections and thermal breaks. The liner tray/profile, bracket and zed/tophat sections are

produced from pre-galvanised steel that is sourced in forms of flat sheet or coil from multiple suppliers (A1, A2).

The raw materials are delivered to the Architectural Profile manufacturing site where they go through a combination of processes such as bending, profiling, punching and cold roll forming. The manufacturing energy is electricity sourced from the UK grid.

During the manufacturing process 5% waste is generated from the materials used for the liner tray, washer, bracket and thermal break. Steel manufacturing waste is assumed to be recycled at the rate of 85% (World Steel Association, 2021) and the remaining 15% is assumed to be sent to landfill. Steel manufacturing waste will be transferred to a recycling centre 29 km away from site. All other manufacturing wastes are assumed to be sent to landfill no more than 50 km away via a >32-tonne lorry (A3).

The product parts are packaged using cardboard boxes and plastic wrap. Packaged products are palletised for transportation to the installation site.

### TRANSPORT AND INSTALLATION (A4-A5)

This EPD does not cover the transportation to site and installation phases.

Product packaging leaves the system at the point of installation. As this EPD does not cover the Installation Phase (Module A5), Packaging end-of-life has been modelled in Module C3/C4.

### 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)

At the end of life, a combination of diesel-powered aerial lift and hand-held power tools are assumed to be used for the removal of the product. The electricity is modelled as UK average low voltage supply (C1). Transport to

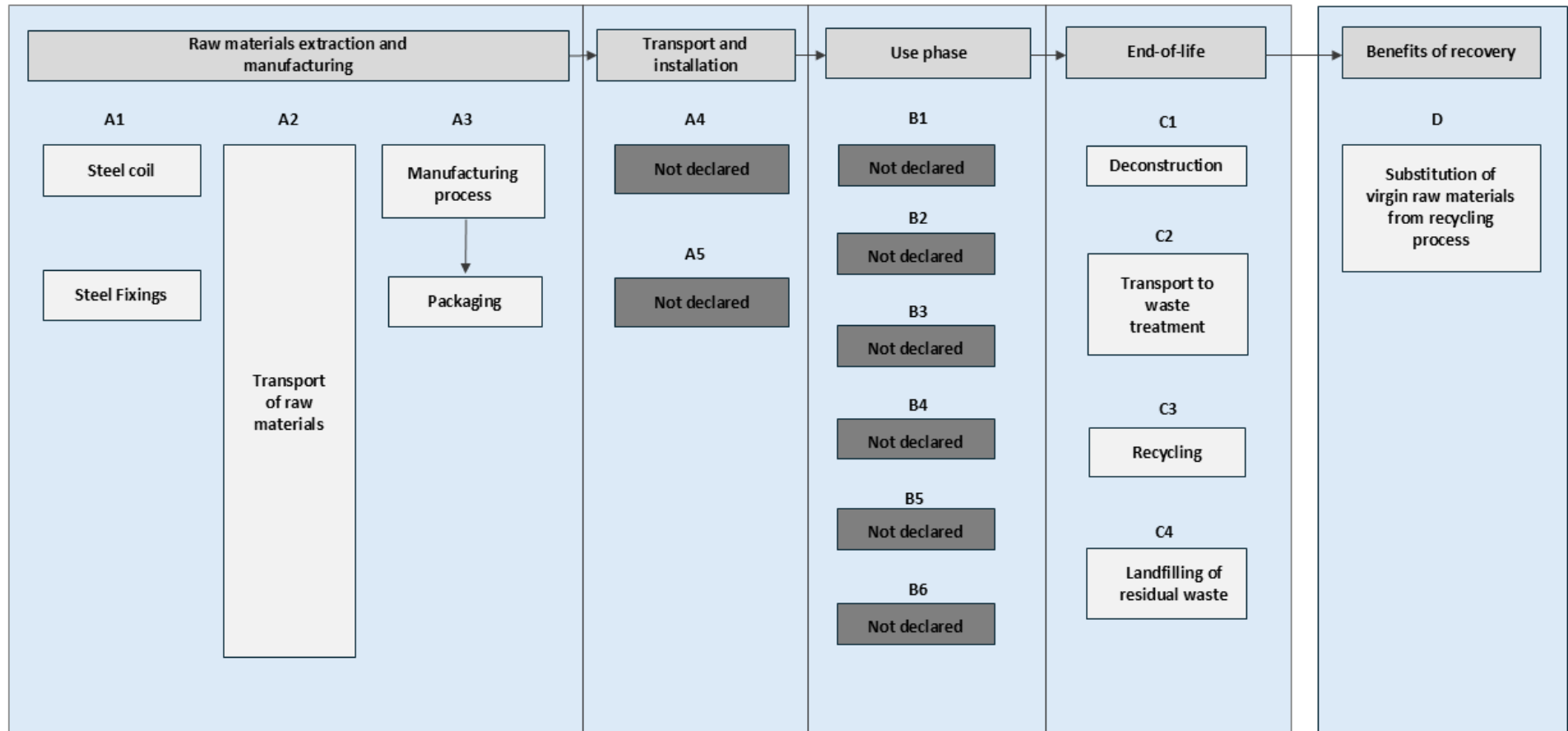


waste treatment has been conservatively modelled as 50 km via a >32-tonne lorry (C2).

Steel parts are recycled at a rate of 85% (World Steel Association, 2021). The remaining metals are assumed to reach landfill (C3, C4). Packaging waste leaves the system at the end of life with pallets being recycled at a rate of 44.1% (DEFRA, 2022). All plastic film used for packaging is conservatively assumed to be transferred to landfill with no benefits. It is also assumed that waste treatment occurs no more than 50 km from the installation site, with transport via a >32-tonne lorry (C3, C4).

Benefits and loads are accounted for in Module D for the provision of recyclates to subsequent life cycles (D). The recycling process for steel, wooden pallets and cardboard is considered as load, while the benefits include avoiding the production of materials from primary resources. In order to avoid double counting, the benefits and loads resulting from recycling secondary materials are excluded from module D.

## PRODUCT 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             | Allocated by mass or volume |
| Ancillary materials            | Not applicable              |
| Manufacturing energy and waste | Allocated by mass or volume |

### AVERAGES AND VARIABILITY

|                                   |                                  |
|-----------------------------------|----------------------------------|
| Type of average                   | Multiple products                |
| Averaging method                  | Averaged by shares of total mass |
| Variation in GWP-fossil for A1-A3 | -25% / +42%                      |

This EPD applies to the APL Strongbak™ system (0.75mm, 1mm, 1.25 mm and 1.5 mm).

For the products, the variance in GWP fossil (A1-A3) is shown below:

**APL Strongbak™ 0.75mm:** 38.8 kg CO<sub>2</sub> e

**APL Strongbak™ 1mm:** 51.5 kg CO<sub>2</sub> e (Base Case)

**APL Strongbak™ 1.25mm :** 66.1 kg CO<sub>2</sub> e

**APL Strongbak™ 1.5mm:** 73.3 kg CO<sub>2</sub> e

**Variance (max +/- 50%):** -25% / +42%



| Product Name                        | Specifics used in EPD                                                                    |
|-------------------------------------|------------------------------------------------------------------------------------------|
| APL Strongbak™ 1.5mm                | APL Strongbak™ system with 1.5mm thickness Strongbak liner tray & APL Tritherm™ framing  |
| APL Strongbak™ 1.25mm               | APL Strongbak™ system with 1.25mm thickness Strongbak liner tray & APL Tritherm™ framing |
| APL Strongbak™ 1 mm (the base case) | APL Strongbak™ system with 1mm thickness Strongbak liner tray & APL Tritherm™ framing    |
| APL Strongbak™ 0.75mm               | APL Strongbak™ system with 0.75mm thickness Strongbak liner tray & APL Tritherm™ framing |

## 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 v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2’.



## 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   | 4.91E+01 | 2.01E+00 | 4.27E-01  | 5.15E+01  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.83E+00 | 9.77E-02 | 4.68E-01 | 9.07E-02 | -5.82E+01 |
| GWP – fossil                        | kg CO <sub>2</sub> e   | 4.90E+01 | 2.00E+00 | 5.52E-01  | 5.15E+01  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.83E+00 | 9.77E-02 | 4.12E-01 | 2.10E-02 | -5.81E+01 |
| GWP – biogenic                      | kg CO <sub>2</sub> e   | 6.58E-02 | 4.30E-04 | -1.25E-01 | -5.89E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 5.57E-02 | 6.98E-02 | -7.01E-02 |
| GWP – LULUC                         | kg CO <sub>2</sub> e   | 4.13E-02 | 9.26E-04 | 5.57E-04  | 4.28E-02  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.17E-04 | 3.67E-05 | 4.85E-04 | 1.21E-05 | -5.47E-02 |
| Ozone depletion pot.                | kg CFC-11e             | 5.31E-07 | 2.95E-08 | 1.89E-08  | 5.80E-07  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.89E-08 | 1.97E-09 | 4.43E-09 | 5.93E-10 | -4.06E-07 |
| Acidification potential             | mol H <sup>+</sup> e   | 1.17E+00 | 1.55E-02 | 3.11E-03  | 1.18E+00  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.64E-02 | 3.15E-04 | 4.41E-03 | 1.62E-04 | -3.35E-01 |
| EP-freshwater <sup>2)</sup>         | kg Pe                  | 2.46E-02 | 1.40E-04 | 1.03E-04  | 2.48E-02  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 5.67E-05 | 6.59E-06 | 2.23E-04 | 7.57E-06 | -1.84E-02 |
| EP-marine                           | kg Ne                  | 7.76E-02 | 4.30E-03 | 6.11E-04  | 8.25E-02  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 7.57E-03 | 1.07E-04 | 9.79E-04 | 7.26E-05 | -5.76E-02 |
| EP-terrestrial                      | mol Ne                 | 4.75E+00 | 4.73E-02 | 6.67E-03  | 4.80E+00  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 8.29E-02 | 1.17E-03 | 1.10E-02 | 6.14E-04 | -6.14E-01 |
| POCP (“smog”) <sup>3)</sup>         | kg NMVOce              | 1.74E-01 | 1.57E-02 | 3.07E-03  | 1.93E-01  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.47E-02 | 5.14E-04 | 3.25E-03 | 2.21E-04 | -1.93E-01 |
| ADP-minerals & metals <sup>4)</sup> | kg Sbe                 | 3.31E-03 | 4.99E-06 | 6.74E-06  | 3.32E-03  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.09E-06 | 2.70E-07 | 2.43E-05 | 3.61E-08 | -1.72E-03 |
| ADP-fossil resources                | MJ                     | 5.66E+02 | 2.83E+01 | 1.65E+01  | 6.11E+02  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.43E+01 | 1.41E+00 | 4.86E+00 | 5.03E-01 | -6.43E+02 |
| Water use <sup>5)</sup>             | m <sup>3</sup> e depr. | 1.93E+01 | 1.31E-01 | 1.15E-01  | 1.95E+01  | ND | ND | ND | ND | ND | ND | ND | ND | ND | 6.59E-02 | 7.25E-03 | 7.70E-02 | 1.68E-03 | -1.42E+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.

## 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     | 1.25E-05 | 1.77E-07 | 3.28E-08 | 1.28E-05 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 4.63E-07 | 9.72E-09 | 6.15E-08 | 3.38E-09 | -4.69E-06 |
| Ionizing radiation <sup>6)</sup> | kBq<br>11235e | 3.10E+00 | 2.30E-02 | 1.45E-01 | 3.27E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.53E-02 | 1.71E-03 | 1.76E-02 | 3.46E-04 | -3.56E+00 |
| Ecotoxicity (freshwater)         | CTUe          | 1.02E+03 | 3.73E+00 | 1.41E+00 | 1.02E+03 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.37E+00 | 1.67E-01 | 2.85E+00 | 1.17E-01 | -1.67E+02 |
| Human toxicity, cancer           | CTUh          | 7.93E-08 | 3.46E-10 | 4.66E-10 | 8.01E-08 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.95E-10 | 1.61E-11 | 3.30E-10 | 5.13E-12 | -5.85E-08 |
| Human tox. non-cancer            | CTUh          | 1.04E-06 | 1.67E-08 | 6.93E-09 | 1.06E-06 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.37E-09 | 9.19E-10 | 2.11E-08 | 1.87E-10 | -1.28E-06 |
| SQP <sup>7)</sup>                | -             | 1.69E+02 | 2.47E+01 | 1.40E+01 | 2.08E+02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.08E+00 | 1.43E+00 | 9.20E+00 | 1.03E+00 | -3.20E+02 |

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             | 6.06E+01 | 3.64E-01 | 2.40E+00 | 6.34E+01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.86E-01 | 2.30E-02 | 7.11E-01  | -7.99E-01 | -1.73E+02 |
| Renew. PER as material             | MJ             | 0.00E+00 | 0.00E+00 | 1.10E+00 | 1.10E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | -4.86E-01 | -6.09E-01 | 1.81E-01  |
| Total use of renew. PER            | MJ             | 6.06E+01 | 3.64E-01 | 3.50E+00 | 6.45E+01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.86E-01 | 2.30E-02 | 2.25E-01  | -1.41E+00 | -1.73E+02 |
| Non-re. PER as energy              | MJ             | 5.66E+02 | 2.83E+01 | 8.47E+00 | 6.03E+02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.43E+01 | 1.41E+00 | 4.86E+00  | 4.99E-01  | -6.43E+02 |
| Non-re. PER as material            | MJ             | 0.00E+00 | 0.00E+00 | 7.55E-02 | 7.55E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | -3.16E-02 | -4.39E-02 | 0.00E+00  |
| Total use of non-re. PER           | MJ             | 5.66E+02 | 2.83E+01 | 8.55E+00 | 6.03E+02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.43E+01 | 1.41E+00 | 4.83E+00  | 4.55E-01  | -6.43E+02 |
| Secondary materials                | kg             | 3.71E+00 | 1.23E-02 | 2.86E-02 | 3.75E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 9.92E-03 | 6.12E-04 | 5.63E-03  | 1.37E-04  | 7.94E+00  |
| Renew. secondary fuels             | MJ             | 5.13E-03 | 1.35E-04 | 3.60E-02 | 4.13E-02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.65E-05 | 7.72E-06 | 2.56E-04  | 2.77E-06  | -1.80E-02 |
| Non-ren. secondary fuels           | MJ             | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00  | 0.00E+00  | 0.00E+00  |
| Use of net fresh water             | m <sup>3</sup> | 4.55E-01 | 3.86E-03 | 3.17E-03 | 4.62E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.72E-03 | 2.09E-04 | 2.12E-03  | -1.02E-03 | -4.77E-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   | 1.81E+01 | 4.64E-02 | 2.14E-01 | 1.83E+01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 2.73E-02 | 2.05E-03 | 3.79E-02 | 6.31E-04 | -6.36E+01 |
| Non-hazardous waste | kg   | 1.23E+02 | 8.33E-01 | 7.13E-01 | 1.25E+02 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 3.82E-01 | 4.10E-02 | 1.07E+00 | 1.94E+00 | -1.27E+02 |
| Radioactive waste   | kg   | 7.93E-04 | 5.64E-06 | 3.23E-05 | 8.30E-04 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 7.96E-06 | 4.22E-07 | 4.34E-06 | 8.42E-08 | -8.93E-04 |

## 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 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 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 | 6.32E-01 | 6.32E-01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 1.52E+01 | 0.00E+00 | 0.00E+00 |
| Materials for energy rec      | kg   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 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 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy – Electricity | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy – Heat        | MJ   | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

## ADDITIONAL INDICATOR – GWP-GHG

| Impact category       | Unit                 | A1       | A2       | A3       | A1-A3    | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1       | C2       | C3       | C4       | D         |
|-----------------------|----------------------|----------|----------|----------|----------|----|----|----|----|----|----|----|----|----|----------|----------|----------|----------|-----------|
| GWP-GHG <sup>9)</sup> | kg CO <sub>2</sub> e | 4.90E+01 | 2.00E+00 | 5.52E-01 | 5.16E+01 | ND | ND | ND | ND | ND | ND | ND | ND | ND | 1.83E+00 | 9.77E-02 | 4.12E-01 | 2.10E-02 | -5.82E+01 |

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH<sub>4</sub> fossil, CH<sub>4</sub> biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO<sub>2</sub> is set to zero.

## SCENARIO DOCUMENTATION

### Manufacturing energy scenario documentation

| Scenario parameter                  | Value                                                                                   |
|-------------------------------------|-----------------------------------------------------------------------------------------|
| Electricity data source and quality | Market for electricity, medium voltage (Reference product: electricity, medium voltage) |
| Electricity CO2e / kWh              | 0.25                                                                                    |

### End-of-Life stages scenario documentation – C1-C4 (Data source)

| Scenario information                               | Value                                                                                                                          |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Collection process – kg collected separately       | -                                                                                                                              |
| Collection process – kg collected with mixed waste | -                                                                                                                              |
| Recovery process – kg for re-use                   | -                                                                                                                              |
| Recovery process – kg for recycling                | 15.18                                                                                                                          |
| Recovery process – kg for energy recovery          | -                                                                                                                              |
| Disposal (total) – kg for final disposition        | 3.05                                                                                                                           |
| Scenario assumptions e.g. transportation           | It is assumed that waste treatment occurs no more than 50 km from the installation site, with transport via a >32-tonne lorry. |



## 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.

Yazan Badour as an authorized verifier for EPD Hub Limited 20.02.2026

