

# ENVIRONMENTAL PRODUCT DECLARATION

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

Steel panel radiators

Purmo Group



**EPD HUB, HUB-2894**

Publishing date 21 March 2025, last updated on 21 March 2025, valid until 20 March 2030.

## GENERAL INFORMATION

### MANUFACTURER

|                 |                                                           |
|-----------------|-----------------------------------------------------------|
| Manufacturer    | Purmo Group                                               |
| Address         | No.33, East Wuzhou Road, YZETDZ, Yangzhou, Jiangsu, China |
| Contact details | eva.wu@purmogroup.com                                     |
| Website         | www.purmogroup.com                                        |

### EPD STANDARDS, SCOPE AND VERIFICATION

|                    |                                                                                                                                                                                    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Program operator   | EPD Hub, hub@epdhub.com                                                                                                                                                            |
| Reference standard | 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 options A4-A5 and modules C1-C4, D                                                                                                                             |
| EPD author         | Yue WU                                                                                                                                                                             |
| 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       | 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                      | Steel panel radiators |
| Additional labels                 | -                     |
| Product reference                 | -                     |
| Place of production               | Yangzhou, China       |
| Period for data                   | Calendar year 2023    |
| Averaging in EPD                  | No averaging          |
| Variation in GWP-fossil for A1-A3 | -                     |

### ENVIRONMENTAL DATA SUMMARY

|                                             |          |
|---------------------------------------------|----------|
| Declared unit                               | 1 kg     |
| Declared unit mass                          | 1 kg     |
| GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)     | 3,01E+00 |
| GWP-total, A1-A3 (kgCO <sub>2</sub> e)      | 2,75E+00 |
| Secondary material, inputs (%)              | 15,1     |
| Secondary material, outputs (%)             | 80,2     |
| Total energy use, A1-A3 (kWh)               | 10,3     |
| Net freshwater use, A1-A3 (m <sup>3</sup> ) | 1,28     |

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Over 3,000 professionals operate in Purmo Group through 24 countries, manufacturing, selling and distributing to customers in more than 100 countries around the world. Our headquarters is in Helsinki, Finland. Our operations are run through two divisions: Climate Solutions Division and Climate Product and Systems Division. More info at: [www.purmogroup.com](http://www.purmogroup.com).

### PRODUCT DESCRIPTION

Panel radiators are made of cold rolled steel sheets with surface coated in polyester-epoxy resin powder. Steel panel radiators are intended to use in heating systems of buildings to deliver heat securing optimal indoor climate comfort. The radiators fulfil requirements of placing the products on the markets according to Regulation (EU) No 305/2011 (CPR). The required declarations of performance and CE marking have been prepared in accordance with the harmonised standards: EN 442-1:2014 - Radiators and convectors - part 1: Technical specifications and requirements and EN 442-2:2014 - Radiators and convectors - part 2: Test methods and performance specifications. Their essential characteristics values are provided in a form of individual Declaration of Performance according to EN-442 standard.

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

### PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|-----------------------|----------------|-----------------|
| Metals                | 99,3           | CN              |
| Minerals              | -              | -               |
| Fossil materials      | 0,7            | CN              |
| 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 | 0,0708 |

### FUNCTIONAL UNIT AND SERVICE LIFE

|                        |      |
|------------------------|------|
| Declared unit          | 1 kg |
| Mass per declared unit | 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             | X              | MND      | 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.

Raw material/energy supply (A1):

The raw materials mainly include : cold rolled steel coils and powder for coating.

Transportation to manufacturing site (A2):

Transportation distances for raw materials, packaging components, ancillary materials using during manufacturing process have been calculated as distances from suppliers warehouses to production site.

Manufacturing (A3):

Main processes flow during production: pressing, welding, testing, painting, packaging. All components consumption declared in mass unit [kg].

Relevant manufacturing wastes (e.g. steel scraw) and their proper Eol scenarios have been included. Less relevant production wastes have been excluded from calculation accordingly to allowed cut-off criteria. Electricity and natural gas consumption for processes at the factory are calculated in kWh or m<sup>3</sup> with allocation by mass 1 kg of product.

### 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.

Transport (A4):

Products with unit packaging are transported to the customers on wooden pallets, mainly by lorries. Average distance covered by finished product to construction site has been given as calculated average distance to customer warehouse (795 km) + estimated value of 50 km to construction site what gives total distance 845 km.

Installation (A5):

Energy for machinery during installation estimated as 0,01 kWh per 1 kg of product. During installation packaging is wasting. All the packaging waste can be recycled

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

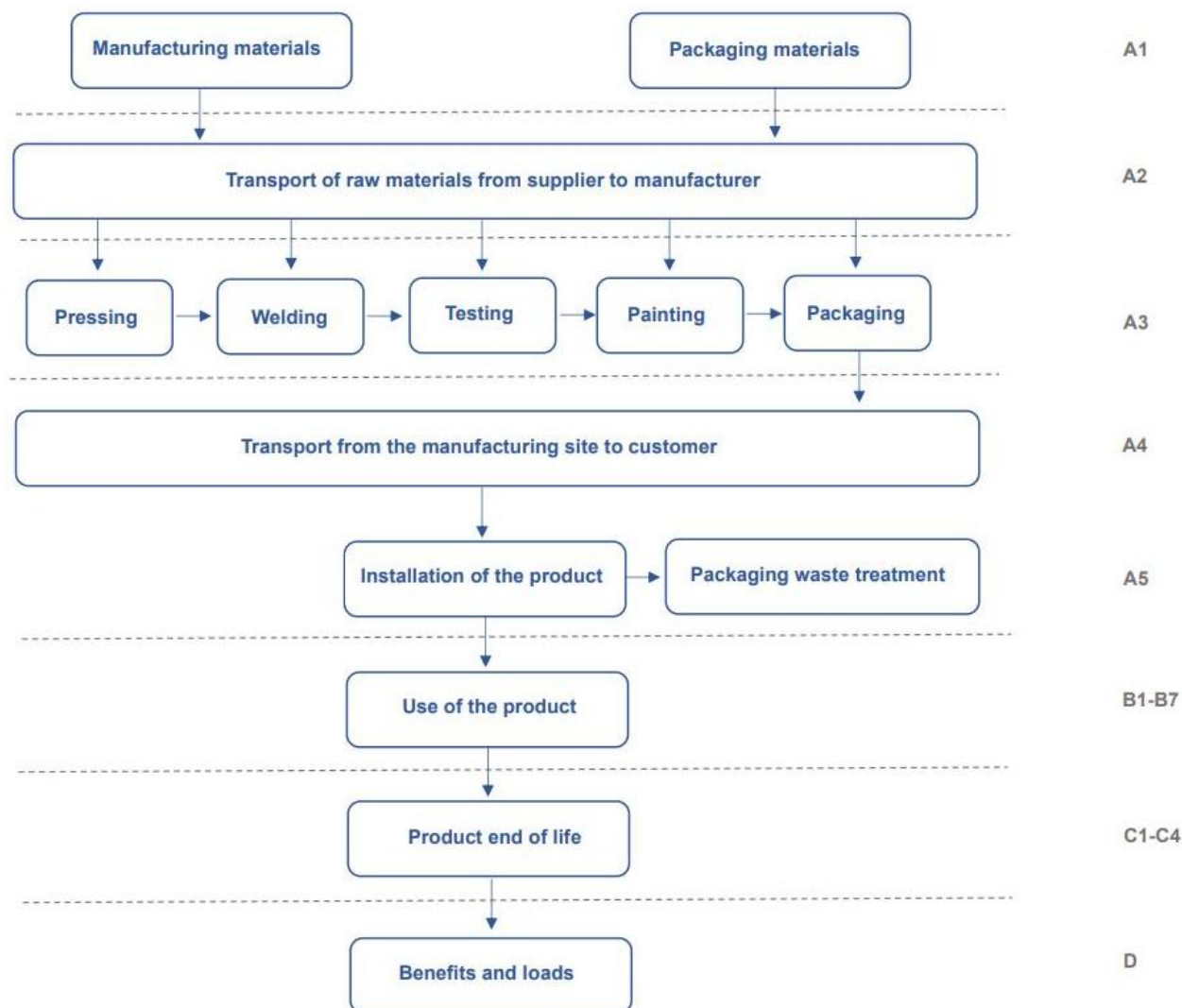
This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

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

According to World Steel Association report 85% of steel is assumed to be recycled. The rest 15% is landfilled. The paint is assumed to be fully landfilled. Consumption of energy during deconstruction is considered as 0,01 kWh per 1kg of product of electricity by machines. It is assumed that the wastes are collected separately and transported by lorries to the waste treatment facilities at average distance 50 km.

## 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             | No allocation               |
| Ancillary materials            | No allocation               |
| 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 | -              |

This EPD is product and factory specific and does not contain average calculations.

### 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 <sup>1)</sup>           | kg CO <sub>2</sub> e   | 2,47E+00 | 3,51E-03 | 2,74E-01  | 2,75E+00  | 7,93E-02 | 2,69E-01 | MND | MND | MND | MND | MND | MND | MND | 7,01E-03 | 4,46E-03 | 4,22E-01 | 7,80E-04 | -1,55E-01 |
| GWP – fossil                        | kg CO <sub>2</sub> e   | 2,47E+00 | 3,51E-03 | 5,33E-01  | 3,01E+00  | 7,93E-02 | 8,64E-03 | MND | MND | MND | MND | MND | MND | MND | 7,01E-03 | 4,46E-03 | 4,21E-01 | 7,79E-04 | -1,55E-01 |
| GWP – biogenic                      | kg CO <sub>2</sub> e   | 0,00E+00 | 0,00E+00 | -2,60E-01 | -2,60E-01 | 0,00E+00 | 2,60E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00  |
| GWP – LULUC                         | kg CO <sub>2</sub> e   | 4,26E-04 | 1,30E-06 | 2,81E-04  | 7,08E-04  | 2,93E-05 | 3,48E-06 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,64E-06 | 5,60E-04 | 7,36E-07 | 4,38E-05  |
| Ozone depletion pot.                | kg CFC-11e             | 1,46E-07 | 8,08E-10 | 1,64E-08  | 1,63E-07  | 1,82E-08 | 1,45E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,03E-09 | 2,46E-08 | 3,15E-10 | -4,52E-09 |
| Acidification potential             | mol H <sup>+</sup> e   | 6,50E-03 | 1,49E-05 | 4,56E-03  | 1,11E-02  | 3,36E-04 | 1,16E-05 | MND | MND | MND | MND | MND | MND | MND | 6,14E-06 | 1,89E-05 | 1,89E-03 | 7,33E-06 | -6,41E-04 |
| EP-freshwater <sup>2)</sup>         | kg Pe                  | 1,06E-06 | 2,87E-08 | 1,97E-04  | 1,98E-04  | 6,49E-07 | 2,33E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,65E-08 | 2,42E-05 | 8,17E-09 | -1,29E-06 |
| EP-marine                           | kg Ne                  | 1,15E-03 | 4,42E-06 | 6,67E-04  | 1,82E-03  | 9,98E-05 | 3,83E-06 | MND | MND | MND | MND | MND | MND | MND | 1,38E-06 | 5,61E-06 | 3,44E-04 | 2,54E-06 | -3,76E-05 |
| EP-terrestrial                      | mol Ne                 | 1,21E-02 | 4,87E-05 | 7,09E-03  | 1,93E-02  | 1,10E-03 | 3,32E-05 | MND | MND | MND | MND | MND | MND | MND | 1,51E-05 | 6,19E-05 | 3,95E-03 | 2,79E-05 | -1,63E-03 |
| POCP (“smog”) <sup>3)</sup>         | kg NMVOCe              | 4,49E-03 | 1,56E-05 | 1,99E-03  | 6,50E-03  | 3,52E-04 | 9,65E-06 | MND | MND | MND | MND | MND | MND | MND | 4,23E-06 | 1,98E-05 | 1,13E-03 | 8,12E-06 | -8,43E-04 |
| ADP-minerals & metals <sup>4)</sup> | kg Sbe                 | 2,22E-06 | 8,23E-09 | 1,52E-06  | 3,75E-06  | 1,86E-07 | 4,56E-09 | MND | MND | MND | MND | MND | MND | MND | 3,68E-17 | 1,05E-08 | 1,26E-06 | 1,79E-09 | -4,07E-06 |
| ADP-fossil resources                | MJ                     | 2,86E+01 | 5,27E-02 | 6,56E+00  | 3,52E+01  | 1,19E+00 | 7,97E-02 | MND | MND | MND | MND | MND | MND | MND | 6,64E-02 | 6,69E-02 | 6,00E+00 | 2,14E-02 | -1,59E+00 |
| Water use <sup>5)</sup>             | m <sup>3</sup> e depr. | 2,60E+00 | 2,36E-04 | 2,73E-01  | 2,87E+00  | 5,33E-03 | 1,40E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,00E-04 | 2,42E-01 | 6,78E-05 | 3,81E-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     | 2,63E-07 | 4,05E-10 | 1,20E-08 | 2,76E-07 | 9,14E-09 | 1,85E-10 | MND | MND | MND | MND | MND | MND | MND | 5,01E-11 | 5,14E-10 | 4,05E-08 | 1,48E-10 | -7,94E-09 |
| Ionizing radiation <sup>6)</sup> | kBq<br>11235e | 3,22E-02 | 2,51E-04 | 3,09E-02 | 6,34E-02 | 5,67E-03 | 8,97E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,19E-04 | 1,18E-01 | 9,67E-05 | 2,96E-03  |
| Ecotoxicity (freshwater)         | CTUe          | 6,49E+00 | 4,74E-02 | 6,24E+00 | 1,28E+01 | 1,07E+00 | 4,21E-02 | MND | MND | MND | MND | MND | MND | MND | 3,97E-06 | 6,02E-02 | 7,89E+00 | 1,39E-02 | -3,69E+00 |
| Human toxicity, cancer           | CTUh          | 1,03E-09 | 1,17E-12 | 3,70E-10 | 1,40E-09 | 2,63E-11 | 1,06E-12 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,48E-12 | 2,17E-08 | 3,49E-13 | 1,26E-09  |
| Human tox. non-cancer            | CTUh          | 6,15E-09 | 4,70E-11 | 3,86E-09 | 1,01E-08 | 1,06E-09 | 1,59E-11 | MND | MND | MND | MND | MND | MND | MND | 2,87E-14 | 5,96E-11 | 1,08E-08 | 9,12E-12 | 7,56E-09  |
| SQP <sup>7)</sup>                | -             | 1,54E+00 | 6,08E-02 | 2,21E+01 | 2,37E+01 | 1,37E+00 | 1,32E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,71E-02 | 1,69E+00 | 4,57E-02 | -1,90E+00 |

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             | 3,38E-01 | 5,94E-04 | 2,30E+00 | 2,64E+00 | 1,34E-02 | 1,17E-02  | MND | MND | MND | MND | MND | MND | MND | 1,11E-02 | 7,54E-04 | 8,16E-01 | 1,86E-04 | -3,51E-01 |
| Renew. PER as material             | MJ             | 0,00E+00 | 0,00E+00 | 2,28E+00 | 2,28E+00 | 0,00E+00 | -2,28E+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             | 3,38E-01 | 5,94E-04 | 4,58E+00 | 4,92E+00 | 1,34E-02 | -2,27E+00 | MND | MND | MND | MND | MND | MND | MND | 1,11E-02 | 7,54E-04 | 8,16E-01 | 1,86E-04 | -3,51E-01 |
| Non-re. PER as energy              | MJ             | 2,82E+01 | 5,27E-02 | 6,26E+00 | 3,45E+01 | 1,19E+00 | 7,97E-02  | MND | MND | MND | MND | MND | MND | MND | 6,64E-02 | 6,70E-02 | 5,99E+00 | 2,14E-02 | -1,32E+00 |
| Non-re. PER as material            | MJ             | 0,00E+00 | 0,00E+00 | 2,90E-01 | 2,90E-01 | 0,00E+00 | -2,90E-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             | 2,82E+01 | 5,27E-02 | 6,55E+00 | 3,48E+01 | 1,19E+00 | -2,10E-01 | MND | MND | MND | MND | MND | MND | MND | 6,64E-02 | 6,70E-02 | 5,99E+00 | 2,14E-02 | -1,32E+00 |
| Secondary materials                | kg             | 1,51E-01 | 1,46E-05 | 8,34E-03 | 1,59E-01 | 3,31E-04 | 1,51E-05  | MND | MND | MND | MND | MND | MND | MND | 6,23E-06 | 1,86E-05 | 9,08E-01 | 4,49E-06 | 8,78E-02  |
| Renew. secondary fuels             | MJ             | 0,00E+00 | 1,48E-07 | 7,44E-02 | 7,44E-02 | 3,34E-06 | 1,42E-07  | MND | MND | MND | MND | MND | MND | MND | 4,34E-08 | 1,88E-07 | 8,00E-05 | 1,17E-07 | -2,72E-05 |
| 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> | 1,28E+00 | 6,83E-06 | 3,77E-03 | 1,28E+00 | 1,54E-04 | 4,52E-06  | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 8,67E-06 | 7,75E-03 | 2,34E-05 | -3,82E-03 |

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   | 3,26E-04 | 6,99E-05 | 2,93E-02 | 2,96E-02 | 1,58E-03 | 9,23E-04 | MND | MND | MND | MND | MND | MND | MND | 8,75E-04 | 8,88E-05 | 3,19E-01 | 0,00E+00 | -7,93E-02 |
| Non-hazardous waste | kg   | 7,42E-05 | 1,15E-03 | 1,10E+00 | 1,10E+00 | 2,59E-02 | 7,32E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,46E-03 | 1,10E+00 | 1,48E-01 | -2,53E-01 |
| Radioactive waste   | kg   | 3,82E-12 | 3,53E-07 | 1,31E-05 | 1,35E-05 | 7,97E-06 | 1,76E-07 | MND | MND | MND | MND | MND | MND | MND | 1,10E-07 | 4,48E-07 | 3,60E-05 | 0,00E+00 | 2,63E-07  |

## 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 | 2,87E-02 | 2,87E-02 | 0,00E+00 | 2,62E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 8,02E-01 | 0,00E+00 | 0,00E+00 |
| Materials for energy rec | kg   | 0,00E+00 | 0,00E+00 | 1,46E+00 | 1,46E+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               | 2,55E+00 | 3,48E-03 | 5,27E-01 | 3,08E+00 | 7,85E-02 | 8,62E-03 | MND | MND | MND | MND | MND | MND | MND | 7,01E-03 | 4,41E-03 | 4,15E-01 | 7,63E-04 | -1,44E-01 |
| Ozone depletion Pot. | kg CFC <sub>11</sub> e             | 3,85E-08 | 6,40E-10 | 1,39E-08 | 5,31E-08 | 1,44E-08 | 1,15E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 8,12E-10 | 2,07E-08 | 2,49E-10 | -5,97E-09 |
| Acidification        | kg SO <sub>2</sub> e               | 4,82E-03 | 1,15E-05 | 3,95E-03 | 8,78E-03 | 2,61E-04 | 9,22E-06 | MND | MND | MND | MND | MND | MND | MND | 4,99E-06 | 1,47E-05 | 1,55E-03 | 5,54E-06 | -5,14E-04 |
| Eutrophication       | kg PO <sub>4</sub> <sup>3</sup> e  | 1,68E-03 | 2,63E-06 | 1,05E-03 | 2,74E-03 | 5,94E-05 | 4,42E-05 | MND | MND | MND | MND | MND | MND | MND | 4,61E-07 | 3,34E-06 | 1,02E-03 | 1,19E-06 | -2,37E-04 |
| POCP (“smog”)        | kg C <sub>2</sub> H <sub>4</sub> e | 2,77E-04 | 4,51E-07 | 1,60E-04 | 4,38E-04 | 1,02E-05 | 5,65E-07 | MND | MND | MND | MND | MND | MND | MND | 2,28E-07 | 5,72E-07 | 8,20E-05 | 2,32E-07 | -1,06E-04 |
| ADP-elements         | kg Sbe                             | 1,08E-06 | 7,97E-09 | 1,46E-06 | 2,55E-06 | 1,80E-07 | 4,50E-09 | MND | MND | MND | MND | MND | MND | MND | 1,53E-11 | 1,01E-08 | 1,16E-06 | 1,76E-09 | -4,06E-06 |
| ADP-fossil           | MJ                                 | 2,45E+01 | 5,27E-02 | 6,56E+00 | 3,11E+01 | 1,19E+00 | 7,36E-02 | MND | MND | MND | MND | MND | MND | MND | 6,02E-02 | 6,69E-02 | 5,99E+00 | 2,14E-02 | -1,59E+00 |

## 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 <sup>9)</sup> | kg CO <sub>2</sub> e | 2,47E+00 | 3,51E-03 | 5,34E-01 | 3,01E+00 | 7,93E-02 | 8,64E-03 | MND | MND | MND | MND | MND | MND | MND | 7,01E-03 | 4,46E-03 | 4,22E-01 | 7,80E-04 | -1,55E-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 - CH<sub>4</sub> fossil, CH<sub>4</sub> 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 CO<sub>2</sub> 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

21.03.2025

