



# ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Terrain PVC Ring Seal Adaptors

Polypipe Building Services



## EPD HUB, HUB-4121

Published on 12.10.2025, last updated on 12.10.2025, valid until 11.10.2030

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.



Created with One Click LCA



## GENERAL INFORMATION

### MANUFACTURER

|                 |                                                                                  |
|-----------------|----------------------------------------------------------------------------------|
| Manufacturer    | Polypipe Building Services                                                       |
| Address         | College Road, New Hythe Business Park, Aylesford, Kent, ME20 7PJ, United Kingdom |
| Contact details | commercialenquiries@polypipe.com                                                 |
| Website         | www.polypipe.com/commercial-building-services                                    |

### 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 options, A4-A5, and modules C1-C4, D                                                                                                                           |
| EPD author         | Nigel Delo & Chris Goodwin                                                                                                                                                         |
| 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       | Haiha Nguyen, as an authorized verifier acting for EPD Hub Limited                                                                                                                 |

This EPD is intended for business-to-business and/or business-to-consumer communication. 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                               | Terrain PVC Ring Seal Adaptors                   |
| Additional labels                          | 109.3, 109.4, 109.6                              |
| Product reference                          | 109.4G                                           |
| Place(s) of raw material origin            | Europe                                           |
| Place of production                        | Aylesford, United Kingdom                        |
| Place(s) of installation and use           | United Kingdom, Republic of Ireland, Middle East |
| Period for data                            | Calendar year 2024                               |
| Averaging in EPD                           | No averaging                                     |
| Variation in GWP-fossil for A1-A3 (%)      | 0%                                               |
| GTIN (Global Trade Item Number)            | 4025416367536                                    |
| NOBB (Norwegian Building Product Database) | -                                                |

## ENVIRONMENTAL DATA SUMMARY

|                                             |                                               |
|---------------------------------------------|-----------------------------------------------|
| Declared unit                               | 1x Terrain PVC Ring Seal Adaptor - 110mm Grey |
| Declared unit mass                          | 0,09 kg                                       |
| GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)     | 3,10E-01                                      |
| GWP-total, A1-A3 (kgCO <sub>2</sub> e)      | -7,66E-01                                     |
| Secondary material, inputs (%)              | 1,43                                          |
| Secondary material, outputs (%)             | 34,4                                          |
| Total energy use, A1-A3 (kWh)               | 2,06                                          |
| Net freshwater use, A1-A3 (m <sup>3</sup> ) | 0                                             |

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Polypipe Building Services is a UK manufacturer of highly engineered above ground drainage and supply systems, servicing the commercial and industrial sectors of the UK construction Industry.

As part of the Genuit Group we aim to help create a better built environment by developing and producing sustainable solutions to the key challenges in water, climate and ventilation management.

Polypipe Building Services are specialists in providing engineered solutions, leveraging offsite fabrication to design and deliver to mechanical and public health engineers, M&E contractors as well as local authorities. Polypipe Building Services houses the industry leading brand Terrain and has been delivering solutions to commercial, multiple occupancy residential, healthcare, education and leisure projects for over 60 years.

### PRODUCT DESCRIPTION

Soil pipes are designed to convey wastewater from sanitary appliances through the building and out into the sewer system. Terrain PVC-u soil systems include an extensive range of products for single and multi-occupancy residential, hotels, hospitals, schools and public sector developments. The system can connect to our cPVC waste system as well as our HDPE and Polypropylene soil pipe systems via use of ring seals, solvent weld boss horns (PVC-u) and other adaptors.

Terrain PVC soil is available in both solvent-weld and push-fit systems. Suitable for both interior and exterior use, the lightweight PVC-u system offers soil pipes with an extensive range of compatible soil fittings.

Built on a platform of innovation and technical expertise, Terrain PVC soil is a kitemarked system, which offers premium quality, quick installation, and outstanding flexibility.

Further information can be found at [www.polypipe.com/commercial-building-services](http://www.polypipe.com/commercial-building-services).

### PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|-----------------------|----------------|-----------------|
| Metals                | -              | -               |
| Minerals              | 5              | Europe          |
| Fossil materials      | 95             | Europe          |
| Bio-based materials   | -              | -               |

### BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

|                                            |        |
|--------------------------------------------|--------|
| Biogenic carbon content in product, kg C   | -      |
| Biogenic carbon content in packaging, kg C | 0,1055 |

## FUNCTIONAL UNIT AND SERVICE LIFE

|                        |                                                  |
|------------------------|--------------------------------------------------|
| Declared unit          | 1x Terrain PVC Ring Seal<br>Adaptor - 110mm Grey |
| Mass per declared unit | 0,09 kg                                          |
| Functional unit        | -                                                |
| Reference service life | 50 Years                                         |

## 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.

Raw material pellets are manufactured into a product via a Moulding machine. Seals are then added to the part by our Assembly team to create a

final product. The product is then placed onto a cardboard carton, taped and placed onto a wooden pallet. Electricity consumed is split between renewable energy via wind turbines (32% supported by a Renewable Energy Guarantee of Origin - REGO) and 68% by an onsite Combined Heat and Energy Plant - CHP. Production scrap is reprocessed on site and put back into the process. Head waste that cannot be reprocessed on site is sent to local waste processing (A3).

## TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The average transport distance to builders merchants (319km) and from builders merchants to site of installation (40km). This was calculated using a comprehensive sample of products shipped throughout 2024. This could vary depending on location of builders merchants and installation. All vehicles used are to Euro 5 standard and use HVO biodiesel. There are no losses associated with transport because the product is wrapped and secured effectively. Volume capacity utilisation is assumed to be that for packaged products.

The installation of the declared unit requires the use of a forklift truck to take the product from the vehicle on to site ready for installation. Lubricant is used on the pipe and ring seal for the installation process. Solvent adhesive and cleaner are used to adhere the adaptor to the fitting.

At Polypipe Building Services we offer a collection and recovery service for product and packaging through our distribution channel, for all plastic waste, which can then be recycled and reused at our Aylesford site. However, we realise that not everyone will use this and therefore the reality is that some of our product and packaging will become part of the general site waste.

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

This EPD does not cover the use phase.

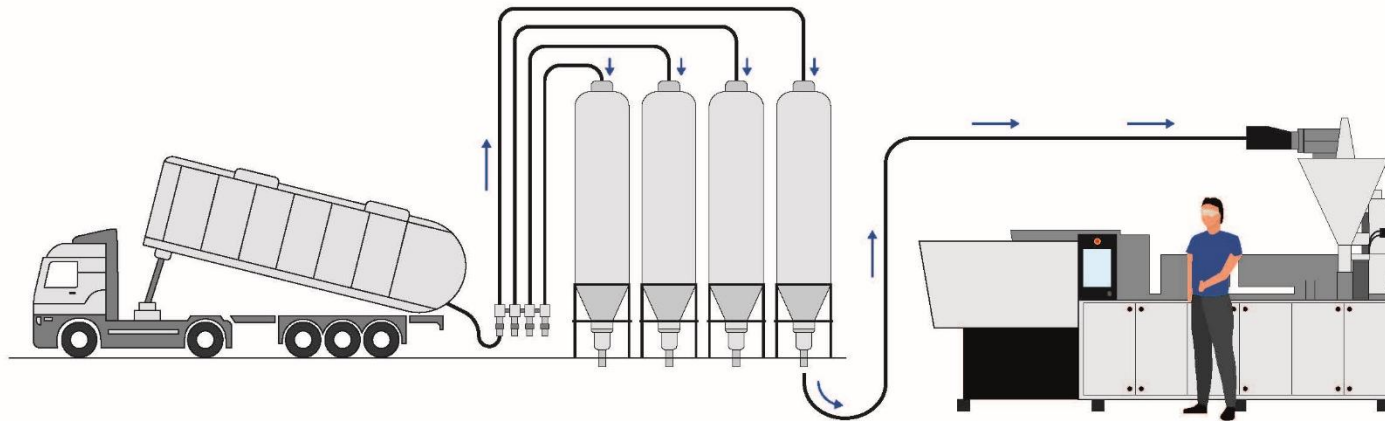
Air, soil, and water impacts during the use phase have not been studied.

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

As part of the deconstruction process it is assumed that diesel powered equipment would be used to transport the product around the site. This would vary depending on the deconstruction methodology. C2 has been modeled using secondary data of waste processing facilities across the UK which all fall within a 50km distance. End of life scenarios have been modeled against Plastics Europe 2021 data due to a lack of verified product specific end-of-life data, the following scenario was used 34% recycled, 41% energy recovery, 25% landfill.

Due to the recycling and incineration potential of PVC, the end-of-life product is converted into recycled PVC while energy and heat is produced from its incineration. The benefits and loads of waste packaging materials in A5 are also considered in module D.

## MANUFACTURING PROCESS

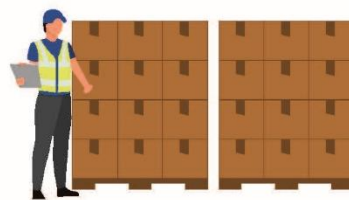


### Step 1

Raw material is delivered to our factory on a tanker and deposited into our silos.

### Step 2

Fitting are made by raw material being fed via the hopper where the material is passed through a screw and barrel into a moulding machine, where the material is moulded into shape and then cooled.



### Step 3

Once produced, Terrain fittings are palletised and stored on site.



### Step 4

The product is then loaded onto a lorry and dispatched.

## 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 (%) | 0%             |

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 v3.10.1 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

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

### CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

| 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   | 2,06E-01 | 4,35E-03 | -2,87E-01 | -7,66E-02 | 1,45E-03  | 4,54E-01 | MND | MND | MND | MND | MND | MND | MND | 9,01E-04 | 1,56E-03 | 8,38E-02  | 2,75E-03  | -8,35E-02 |
| GWP – fossil                        | kg CO <sub>2</sub> e   | 2,05E-01 | 4,35E-03 | 1,01E-01  | 3,10E-01  | 2,08E-03  | 5,21E-02 | MND | MND | MND | MND | MND | MND | MND | 9,01E-04 | 1,56E-03 | 8,39E-02  | 2,75E-03  | -7,66E-02 |
| GWP – biogenic                      | kg CO <sub>2</sub> e   | 3,14E-04 | 8,29E-07 | -3,88E-01 | -3,87E-01 | -6,54E-04 | 4,02E-01 | MND | MND | MND | MND | MND | MND | MND | 9,20E-08 | 3,52E-07 | -1,29E-04 | -1,45E-06 | -6,88E-03 |
| GWP – LULUC                         | kg CO <sub>2</sub> e   | 1,78E-04 | 1,95E-06 | 3,30E-04  | 5,10E-04  | 2,62E-05  | 3,49E-05 | MND | MND | MND | MND | MND | MND | MND | 9,23E-08 | 6,96E-07 | 1,27E-05  | 1,68E-07  | -4,02E-05 |
| Ozone depletion pot.                | kg CFC-11e             | 5,63E-08 | 6,42E-11 | 2,93E-09  | 5,93E-08  | 2,60E-11  | 1,43E-08 | MND | MND | MND | MND | MND | MND | MND | 1,38E-11 | 2,30E-11 | 3,80E-10  | 6,65E-12  | -2,54E-08 |
| Acidification potential             | mol H <sup>+</sup> e   | 7,76E-04 | 1,48E-05 | 4,50E-04  | 1,24E-03  | 1,29E-05  | 2,07E-04 | MND | MND | MND | MND | MND | MND | MND | 8,13E-06 | 5,30E-06 | 6,55E-05  | 1,83E-06  | -3,04E-04 |
| EP-freshwater <sup>2)</sup>         | kg Pe                  | 6,52E-05 | 3,39E-07 | 2,87E-05  | 9,43E-05  | 1,43E-07  | 1,11E-05 | MND | MND | MND | MND | MND | MND | MND | 2,60E-08 | 1,21E-07 | 4,13E-06  | 2,71E-08  | -3,96E-05 |
| EP-marine                           | kg Ne                  | 1,47E-04 | 4,87E-06 | 1,27E-04  | 2,79E-04  | 1,11E-05  | 4,40E-05 | MND | MND | MND | MND | MND | MND | MND | 3,77E-06 | 1,74E-06 | 2,23E-05  | 6,09E-06  | -5,79E-05 |
| EP-terrestrial                      | mol Ne                 | 1,44E-03 | 5,30E-05 | 1,39E-03  | 2,88E-03  | 5,67E-05  | 4,31E-04 | MND | MND | MND | MND | MND | MND | MND | 4,13E-05 | 1,90E-05 | 1,83E-04  | 7,46E-06  | -5,46E-04 |
| POCP (“smog”) <sup>3)</sup>         | kg NMVOce              | 9,33E-04 | 2,19E-05 | 6,52E-04  | 1,61E-03  | 3,42E-06  | 2,14E-04 | MND | MND | MND | MND | MND | MND | MND | 1,23E-05 | 7,82E-06 | 5,84E-05  | 3,24E-06  | -3,09E-04 |
| ADP-minerals & metals <sup>4)</sup> | kg Sbe                 | 3,40E-06 | 1,21E-08 | 5,50E-07  | 3,97E-06  | 2,65E-09  | 4,08E-07 | MND | MND | MND | MND | MND | MND | MND | 3,23E-10 | 4,34E-09 | 1,12E-07  | 5,80E-10  | -1,10E-06 |
| ADP-fossil resources                | MJ                     | 5,21E+00 | 6,31E-02 | 1,98E+00  | 7,25E+00  | 5,11E-03  | 1,10E+00 | MND | MND | MND | MND | MND | MND | MND | 1,18E-02 | 2,26E-02 | 1,43E-01  | 5,71E-03  | -1,96E+00 |
| Water use <sup>5)</sup>             | m <sup>3</sup> e depr. | 7,98E-02 | 3,12E-04 | 5,63E-02  | 1,36E-01  | 8,39E-04  | 5,59E-02 | MND | MND | MND | MND | MND | MND | MND | 2,94E-05 | 1,11E-04 | 9,85E-02  | 2,80E-05  | -2,25E-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, EF 3.1

| 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 | 7,83E-09 | 4,36E-10 | 7,14E-09 | 1,54E-08 | 8,73E-11 | 2,23E-09 | MND | MND | MND | MND | MND | MND | MND | 2,31E-10 | 1,56E-10 | 6,46E-10 | 4,14E-11 | -1,14E-09 |
| Ionizing radiation <sup>6)</sup> | kBq U235e | 2,65E-02 | 5,50E-05 | 8,92E-03 | 3,55E-02 | 1,88E-05 | 4,35E-03 | MND | MND | MND | MND | MND | MND | MND | 5,22E-06 | 1,97E-05 | 6,28E-04 | 5,68E-06 | -1,88E-02 |
| Ecotoxicity (freshwater)         | CTUe      | 1,20E+00 | 8,93E-03 | 4,55E-01 | 1,67E+00 | 1,80E-02 | 3,65E-01 | MND | MND | MND | MND | MND | MND | MND | 6,49E-04 | 3,19E-03 | 4,15E+00 | 8,51E-03 | -3,67E-01 |
| Human toxicity, cancer           | CTUh      | 2,66E-10 | 7,18E-13 | 3,77E-10 | 6,44E-10 | 4,70E-13 | 1,49E-11 | MND | MND | MND | MND | MND | MND | MND | 9,27E-14 | 2,57E-13 | 2,62E-11 | 1,35E-13 | -1,11E-10 |
| Human tox. non-cancer            | CTUh      | 2,34E-09 | 4,09E-11 | 9,42E-10 | 3,32E-09 | 4,72E-11 | 4,95E-10 | MND | MND | MND | MND | MND | MND | MND | 1,47E-12 | 1,46E-11 | 4,13E-10 | 2,65E-11 | -8,14E-10 |
| SQP <sup>7)</sup>                | -         | 7,59E-01 | 6,36E-02 | 3,11E+01 | 3,20E+01 | 5,23E-02 | 2,13E-01 | MND | MND | MND | MND | MND | MND | MND | 8,26E-04 | 2,27E-02 | 9,08E-02 | 1,33E-02 | -1,02E+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             | 2,99E-01 | 8,65E-04 | 2,41E+00 | 2,71E+00 | 2,57E-03 | -1,88E-01 | MND | MND | MND | MND | MND | MND | MND | 7,47E-05 | 3,09E-04 | 1,41E-02  | 8,95E-05  | -2,75E-01 |
| Renew. PER as material             | MJ             | 0,00E+00 | 0,00E+00 | 3,40E+00 | 3,40E+00 | 0,00E+00 | -3,40E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00  | 0,00E+00  | 8,95E-02  |
| Total use of renew. PER            | MJ             | 2,99E-01 | 8,65E-04 | 5,81E+00 | 6,11E+00 | 2,57E-03 | -3,58E+00 | MND | MND | MND | MND | MND | MND | MND | 7,47E-05 | 3,09E-04 | 1,41E-02  | 8,95E-05  | -1,85E-01 |
| Non-re. PER as energy              | MJ             | 3,23E+00 | 6,31E-02 | 1,29E+00 | 4,58E+00 | 4,57E-03 | 6,53E-01  | MND | MND | MND | MND | MND | MND | MND | 1,18E-02 | 2,26E-02 | -1,97E+00 | -8,95E-01 | -2,61E+00 |
| Non-re. PER as material            | MJ             | 1,98E+00 | 0,00E+00 | 5,22E-01 | 2,50E+00 | 0,00E+00 | -5,78E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | -4,81E-01 | -1,44E+00 | 1,35E+00  |
| Total use of non-re. PER           | MJ             | 5,21E+00 | 6,31E-02 | 1,81E+00 | 7,08E+00 | 4,57E-03 | 7,50E-02  | MND | MND | MND | MND | MND | MND | MND | 1,18E-02 | 2,26E-02 | -2,45E+00 | -2,34E+00 | -1,27E+00 |
| Secondary materials                | kg             | 1,29E-03 | 2,69E-05 | 1,29E-02 | 1,42E-02 | 2,98E-06 | 1,92E-04  | MND | MND | MND | MND | MND | MND | MND | 4,90E-06 | 9,61E-06 | 1,48E-04  | 2,07E-06  | 3,74E-02  |
| Renew. secondary fuels             | MJ             | 2,86E-04 | 3,41E-07 | 1,15E-01 | 1,15E-01 | 4,41E-08 | 3,55E-06  | MND | MND | MND | MND | MND | MND | MND | 1,28E-08 | 1,22E-07 | 1,32E-05  | 3,88E-08  | -3,29E-06 |
| 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> | 2,07E-03 | 9,33E-06 | 1,32E-03 | 3,40E-03 | 1,97E-05 | 1,32E-03  | MND | MND | MND | MND | MND | MND | MND | 7,79E-07 | 3,34E-06 | 2,29E-03  | -8,50E-05 | -6,94E-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   | 1,17E-02 | 1,07E-04 | 6,40E-03 | 1,82E-02 | 5,22E-05 | 2,16E-03 | MND | MND | MND | MND | MND | MND | MND | 1,31E-05 | 3,82E-05 | 2,32E-02 | 1,00E-05 | -4,07E-03 |
| Non-hazardous waste | kg   | 4,70E+00 | 1,98E-03 | 3,26E-01 | 5,03E+00 | 3,41E-04 | 9,40E-02 | MND | MND | MND | MND | MND | MND | MND | 1,79E-04 | 7,08E-04 | 9,97E-02 | 1,14E-01 | -2,18E+00 |
| Radioactive waste   | kg   | 6,88E-06 | 1,35E-08 | 2,30E-06 | 9,19E-06 | 4,53E-09 | 1,11E-06 | MND | MND | MND | MND | MND | MND | MND | 1,28E-09 | 4,81E-09 | 1,61E-07 | 1,39E-09 | -4,87E-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 | 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 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 9,89E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 3,10E-02 | 0,00E+00 | 0,00E+00 |
| Materials for energy rec      | kg   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy               | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,75E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 3,00E-01 | 0,00E+00 | 0,00E+00 |
| Exported energy – Electricity | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,16E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 1,30E-01 | 0,00E+00 | 0,00E+00 |
| Exported energy –             | MJ   | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,59E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 1,70E-01 | 0,00E+00 | 0,00E+00 |

## ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

| 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               | 2,04E-01 | 4,33E-03 | 1,00E-01 | 3,08E-01 | 2,10E-03 | 5,29E-02 | MND | MND | MND | MND | MND | MND | MND | 8,96E-04 | 1,55E-03 | 8,39E-02 | 2,63E-03 | -7,44E-02 |
| Ozone depletion Pot. | kg CFC <sub>11</sub> e             | 5,56E-08 | 5,13E-11 | 2,38E-09 | 5,81E-08 | 2,47E-11 | 1,88E-08 | MND | MND | MND | MND | MND | MND | MND | 1,09E-11 | 1,83E-11 | 3,62E-10 | 5,32E-12 | -2,53E-08 |
| Acidification        | kg SO <sub>2</sub> e               | 6,46E-04 | 1,13E-05 | 3,48E-04 | 1,01E-03 | 7,44E-06 | 1,70E-04 | MND | MND | MND | MND | MND | MND | MND | 5,72E-06 | 4,05E-06 | 5,17E-05 | 1,36E-06 | -2,52E-04 |
| Eutrophication       | kg PO <sub>4</sub> <sup>3</sup> e  | 6,23E-04 | 2,76E-06 | 3,24E-03 | 3,87E-03 | 2,96E-05 | 8,63E-04 | MND | MND | MND | MND | MND | MND | MND | 1,34E-06 | 9,87E-07 | 1,03E-05 | 8,88E-07 | -7,17E-05 |
| POCP (“smog”)        | kg C <sub>2</sub> H <sub>4</sub> e | 6,16E-05 | 1,01E-06 | 6,15E-05 | 1,24E-04 | 2,51E-07 | 2,96E-05 | MND | MND | MND | MND | MND | MND | MND | 4,29E-07 | 3,61E-07 | 4,86E-06 | 5,10E-07 | -2,21E-05 |
| ADP-elements         | kg Sbe                             | 2,91E-06 | 1,18E-08 | 5,39E-07 | 3,46E-06 | 2,92E-09 | 3,51E-07 | MND | MND | MND | MND | MND | MND | MND | 3,14E-10 | 4,23E-09 | 7,63E-08 | 5,63E-10 | -8,77E-07 |
| ADP-fossil           | MJ                                 | 4,74E+00 | 6,23E-02 | 1,83E+00 | 6,63E+00 | 4,80E-03 | 1,02E+00 | MND | MND | MND | MND | MND | MND | MND | 1,17E-02 | 2,23E-02 | 1,32E-01 | 5,62E-03 | -1,63E+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 | 2,06E-01 | 4,35E-03 | 1,01E-01 | 3,11E-01 | 2,11E-03 | 5,22E-02 | MND | MND | MND | MND | MND | MND | MND | 9,01E-04 | 1,56E-03 | 8,39E-02 | 2,75E-03 | -7,67E-02 |

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.

## ANNEX:

### PRODUCT SCALING

| PVC SOIL FITTING (mm) | WEIGHT (kg) | SCALING FACTOR<br>(multiple of) | A1-A3 GWP FOSSIL<br>(kg/CO2e) | PRODUCT |
|-----------------------|-------------|---------------------------------|-------------------------------|---------|
| 82                    | 0.074       | 0.822                           | 0.21                          | 109.3   |
| 110                   | 0.090       | 1.000                           | 0.25                          | 109.4   |
| 160                   | 0.171       | 1.900                           | 0.48                          | 109.6   |

## 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.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited  
12.10.2025

