



Statement of Verification

BREG EN EPD No: 000782

Issue: 01

This is to verify that the Environmental Product Declaration provided by:

Specialist Building Products Limited

are in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for: 1 kg of coloured + foiled cellular PVC profile

Company Address

Specialist Building Products Limited,
Pioneer House, Mariner,
Lichfield Road Industrial Estate,
Tamworth,
Staffordshire,
B79 7TF



Signed for BRE Global Limited

Emma Baker
Operator

13 April 2026
Date of this Issue

13 April 2026
Date of First Issue

12 April 2031
Expiry Date



This Statement of Verification is issued subject to terms and conditions (for details visit www.greenbooklive.com/terms).

To check the validity of this statement of verification please, visit www.greenbooklive.com/check or contact us.

BRE Global Ltd., Garston, Watford WD25 9XX
T: +44 (0)333 321 8811 F: +44 (0)1923 664603 E: Enquiries@breglobal.com





Environmental Product Declaration

EPD Number: 000782

General Information

| EPD Programme Operator | Applicable Product Category Rules |
|---|--|
| BRE Global Watford, Herts WD25 9XX United Kingdom | BRE Environmental Profiles 2025 Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 PN 514 Rev 3.2 |
| Commissioner of LCA study | LCA consultant/Tool |
| Specialist Building Products Limited, Pioneer House, Mariner, Lichfield Road Industrial Estate, Tamworth, Staffordshire, B79 7TF | LCA consultant: Bala Subramanian LCA Tool: BRE LINA A2 |
| Declared/Functional Unit | Applicability/Coverage |
| 1 kg of coloured + foiled cellular PVC profile | Product Average. |
| EPD Type | Background database |
| Cradle to Gate with options | Ecoinvent 3.8 |
| Demonstration of Verification | |
| CEN standard EN 15804 serves as the core PCR ^a | |
| Independent verification of the declaration and data according to EN ISO 14025:2010 <input checked="" type="checkbox"/> Internal <input type="checkbox"/> External | |
| (Where appropriate ^b) Third party verifier: Regina Poveda | |
| a: Product category rules b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4) | |
| Comparability | |
| Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance | |

Information modules covered

| Product | | | Construction | | Use stage | | | | | | | End-of-life | | | | Benefits and loads beyond the system boundary |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|
| | | | | | Related to the building fabric | | | | | Related to the building | | | | | | |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| Raw materials supply | Transport | Manufacturing | Transport to site | Construction – Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction demolition | Transport | Waste processing | Disposal | Reuse, Recovery and/or Recycling potential |
| <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Swish Building Products,
Lichfield Road Industrial Estate,
Tamworth,
B79 7TF

Construction Product:

Product Description

Cellular profiles are manufactured by extruding an expanding, or foaming PVC formulation, which produces a strong, lightweight board. During the process a smooth skin is co-extruded onto one side of the board to form the durable visible face.

To provide multiple finishes including plain colours, woodgrain effects, mild texture or Uliti-matt finishes, either coloured pigments are added to the co-ex-skin or secondary films (laminates) are applied to the visible surfaces.

Co-ex skins – UV stabilised pigments are added to the skin formulation to provide a solid colour, gloss surface finish.



Laminates – base boards are presented to the lamination line where they are cleaned (air blown), primer applied and warmed to activate, and pre-adhesive applied film is laid onto the profile. Rollers are set across the face and return edges of the profile to smooth the film into position. The finished application is cured to ensure the film has a strong durable adhesion.



All Cellular PVC profiles can be cut, drilled, nailed, and routed, using conventional carpentry tools. It is also light and easy to handle and fix. It is also completely weatherproof and has a long service life and no requirement for ongoing maintenance - occasional cleaning. Water will be used, and the quantity is negligible

At the manufacturing sites, cellular PVC profiles are extruded and moulded into various designs. In this EPD, 1 kg of Cellular PVC profiles and their associated finishes have been modelled. This is an average EPD and it is specifically related to these products, which are used as fascia, soffit, barge, cladding, and small trims (skirtings/architraves and window finishing trims). This EPD covers the total production quantity of Swish Cellular PVC profiles. On a kg basis, the products are identical in terms of product composition and manufacturing process.

Cellular PVC profiles can be installed in roofline applications (fascia, soffit, and barge boards at eaves and verges), cladding applications (external wall coverings), and internal trim applications (window boards and trims, skirtings, and architraves).

Technical Information

| Value, Unit |
|--|
| Unit The density of Cellular PVC – nominal 450 kg/m ³ |
| Thermal conductivity - The lambda value of Cellular PVC 0.06 W/mK |
| Thermal movement - The coefficient of linear expansion under test conditions is 5 x 10 ⁻⁵ per °C |
| Water resistance - Unaffected by moisture |
| Chemical stability - Resistant to most acids and alkalis, but can be damaged by ketones, esters and solvents. |
| Durability - Weathering resistance is tested with equipment complying with BS 2782: Part 5: Method 540B |
| Colour fastness - Colour fastness assessed in accordance with BS 1006 shows that coloured or foiled Cellular PVC achieves a positive rating and that therefore no significant fading or change in colour is expected for a minimum of 10-15 years. |

Note: The base profile for coloured and foiled profiles is the standard white profile, therefore all the above technical properties are taken from the standard internal document. For more information, please contact the Swish Building Products technical team or call 01827 317200 or email technical@swishbp.co.uk.

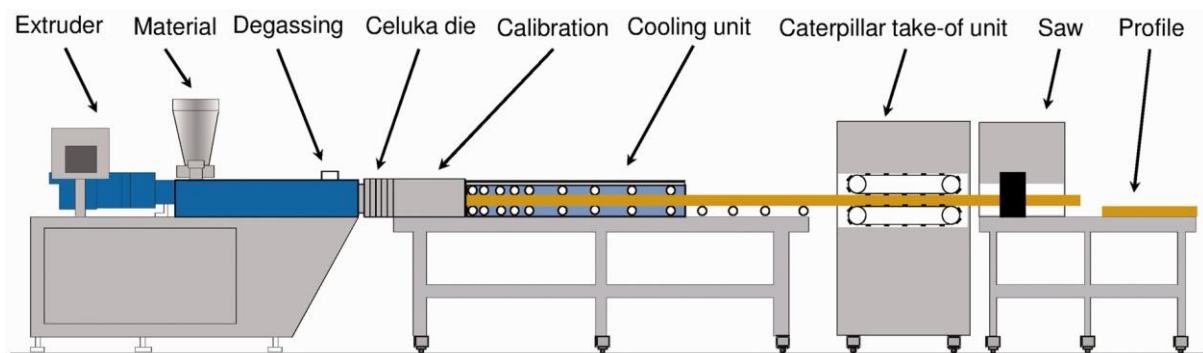


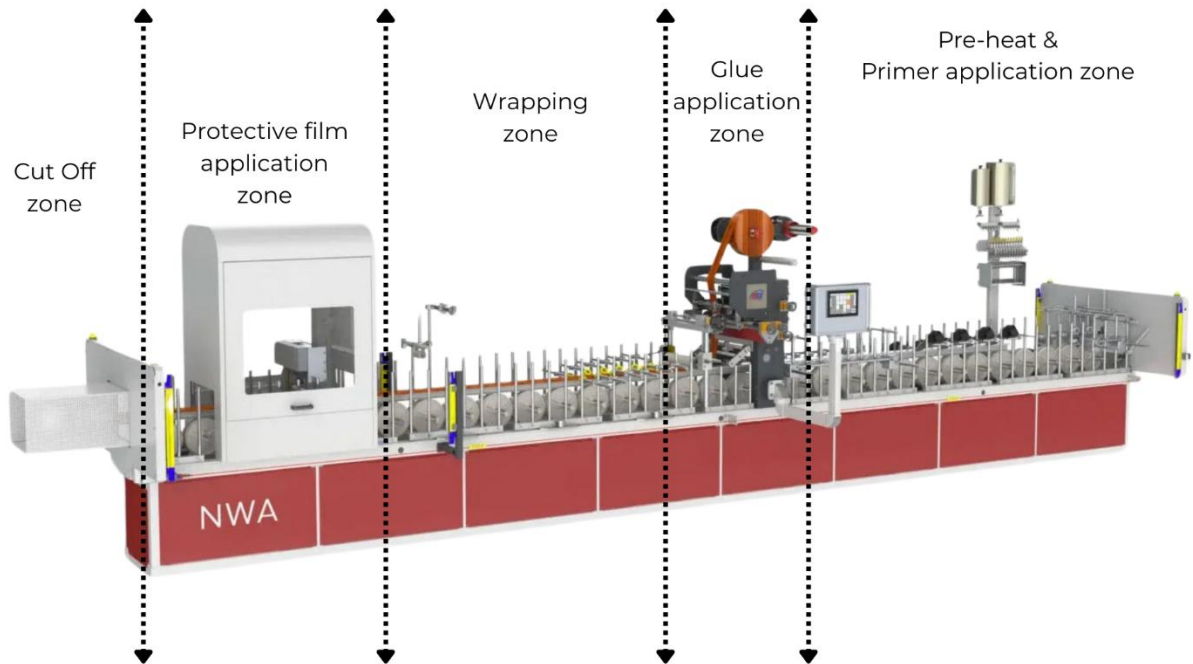
Main Product Contents

| Material/Chemical Input | % |
|------------------------------|-------|
| PVC Resin | 80-85 |
| Post consumer Recycled PVC-U | 0-5 |
| Calcium carbonate chalk | 5-10 |
| Others | 5-10 |

Manufacturing Process

Coloured and foiled cellular products are manufactured via a continuous co-extrusion process. The primary PVC formulation incorporates a blowing agent to create an inward-foamed cellular core, while a secondary rigid PVC skin is co-extruded to form a homogeneous finished profile.





Images of foil lamination line

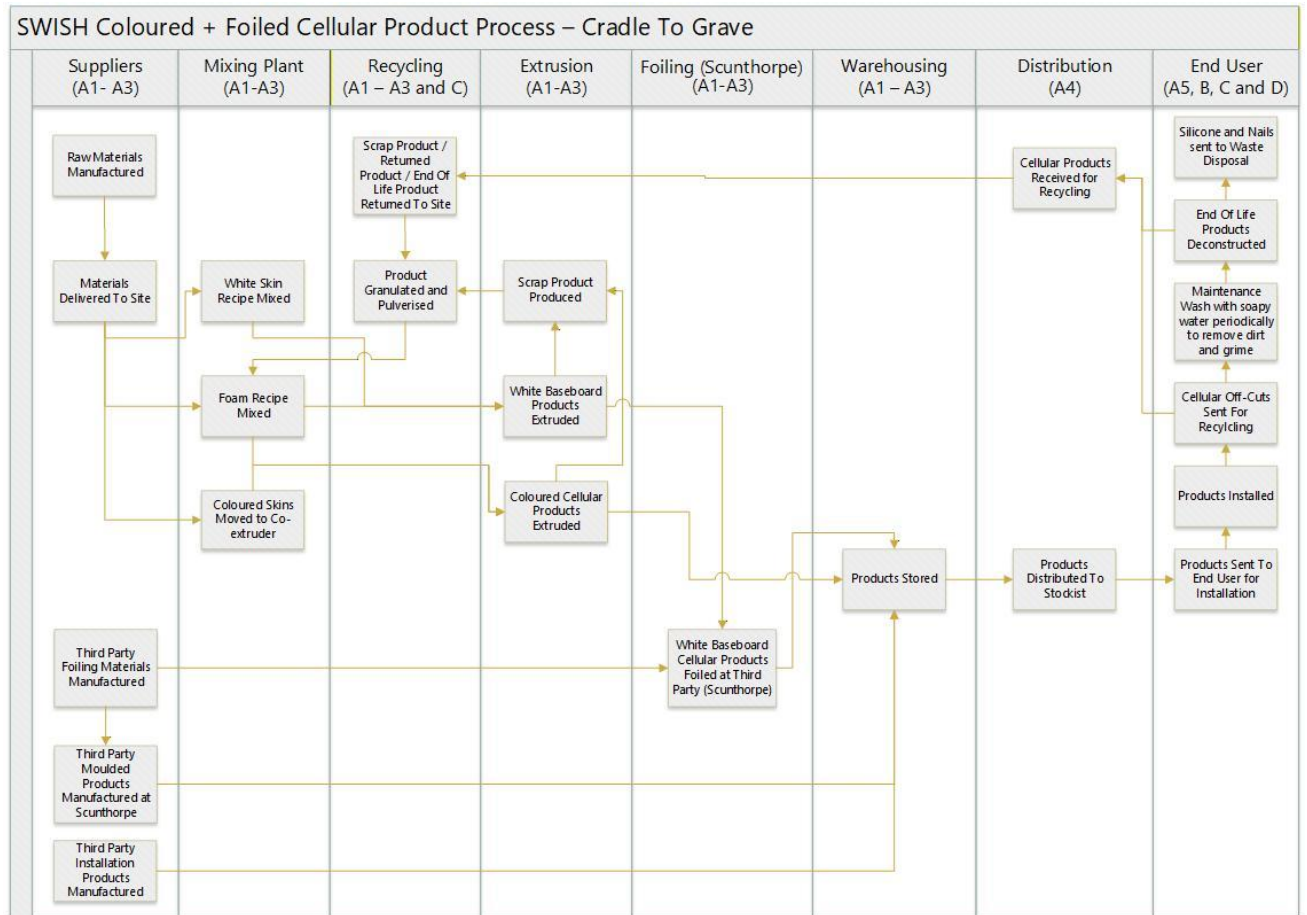
At the mixing stage, PVC compounds for the foam core and outer skin are prepared, including pigments where applicable. Coloured skins are transferred to the co-extrusion line, where cellular profiles and white baseboard products are extruded. Production scrap and returned end-of-life products are granulated and pulverised and reintroduced into the process where appropriate, forming an internal recycling loop.

Finished white cellular and baseboard profiles may be foiled by a third-party specialist, Scunthorpe Manufacturing Facility, using applied films to achieve coloured, textured, or woodgrain effects. These foiled and coloured profiles are then stored and distributed to stockists before being supplied to end users for installation.

A range of profile designs and sizes are produced to enable variation in finished components for roofline and cladding applications. In addition to the main extruded profiles, the system includes ancillary mouldings (such as joints, corners, and finishing trims), which are manufactured from PVC via injection moulding by third-party suppliers. These ancillary components are supplied in matching colours or with applied films to ensure visual consistency with the main profiles.

Cellular PVC profiles are manufactured in accordance with BS 7619: 2021 Extruded cellular unplasticized white PVC (PVC-UE) profiles – Specification and BS EN 13245-2:2008 Plastics Unplasticized poly (vinyl chloride) (PVC-U) profiles for building applications Part 2: PVC-U profiles and PVC-UE profiles for internal and external wall and ceiling finishes.

Process flow diagram



Construction Installation

Roofline profiles are measured, cut to suit depth/width and length and generally nailed to sound timber substructures; roof rafters, joists etc. Additional timber framework can be used to ensure that the profiles are installed line and level and have sufficient mechanical fixings to support and minimise risk of movement. All profiles require an expansion and contraction allowance at board ends; these are subsequently covered with appropriate joint and corner mouldings. Suitable domestic PVC gutter systems may then be installed directly to thick, replacement fascias. Cover boards require a sound existing timber backing or newly introduced ply backing board.

All interlocking cladding systems are fixed to treated timber battens (min 25mm x 38mm). A range of extruded PVC rigid trims are fixed at the base of the installation, perimeters, corners and window openings. Cladding generally starts with the first plank locating on the base starter trim and nailing in its nailing groove at recommended centres. Subsequent planks are slotted onto the previous plank (covering the nails) and then nailed themselves. Once cladding is complete, appropriate finishing trims (2-part trims) can be completed.

Window trims and skirtings/architraves are simple profiles for finishing window and door installations to create a clean finish to plater/walls. These are cut to length and stuck in place with a suitable adhesive.

Use information

Once installed, minimal maintenance is required over the lifetime of the installation - general cleaning with warm soapy water is sufficient to keep profiles free from environmental grime. Therefore, the impacts from cleaning are negligible and the water quantity is not included in the LCA analysis.



End of Life

The study period used for the LCA is 35 years, which corresponds to the product's service life of 35 years. Therefore, once the product reaches its end of life, it can be replaced with a new one. The waste product will be sent to the waste processing facility for waste processing. At the point of deconstruction this will be achieved by manual labour - careful removal with crowbar/claw hammer to minimise disruption to the underlying building structure. It's assumed as 100% of the product recovered from the deconstruction facility.



Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1 kg of coloured + foiled cellular PVC profile

System boundary

This is a Cradle-to-Gate with Options EPD, reporting the upstream processing stages A1 to A3, construction stages A4-A5, Use stage B1-B5, end-of-life stages C1-C4 and D in accordance with EN 15804:2012+A2:2019 and BRE 2025 Product Category Rules (PN 514 Rev 3.2).

Data sources, quality and allocation

The datasets are derived from Ecoinvent v3.8, and the LCA tool used was BRE LINA A2. The LCA analysis is conducted for the 1 kg of coloured + foiled cellular PVC profile, and it includes the total amount of PVC profiles and ancillary mouldings used to manufacture the Coloured + foiled cellular PVC profile over the period of one year (from 01/01/2024 to 31/12/2024).

PVC profiles are generally extruded at the Swish production facility located in Tamworth, through the continuous extrusion of coloured, co-extruded cellular profiles. These profiles are produced using an inward foaming process, in which the PVC formulation includes a blowing agent to create a foam core, combined with a secondary-coloured rigid skin to form a homogeneous profile. A variety of designs and sizes are produced to allow for different applications, such as roofline and cladding products.

Allocation method:

Swish production facility: Coloured cellular PVC profiles are produced at this facility. In addition to coloured cellular PVC, other products are also manufactured on site. Therefore, the allocation of electricity, fuel, waste, water consumption, and discharges is required. This allocation has been carried out in accordance with BRE PCR PN514 and EN 15804, based on mass production quantities.

At the Swish production facility, PVC products are extruded and coloured. Some profiles are then sent to the Scunthorpe manufacturing facility for third-party foiling, where a white profile is laminated with a foil layer that is glued onto the skinned surface. The systems also include ancillary mouldings (e.g. joints, corners, and finishing trims), which are manufactured via PVC injection moulding by a third-party supplier. During the data collection period, over 90% of the extruded products are transferred to the Scunthorpe manufacturing facility for the additional foiling process, while the remaining 10% are coloured profiles that are sent directly to the customer site for installation.

Transportation from the Swish facility to the third-party foiling company in Scunthorpe has been included in the analysis, along with the energy and material quantities used during the foiling process. Foiling energy is calculated using the machine electricity consumption (kWh) multiplied by the hours of use, while extrusion energy is calculated using a kWh per tonne value multiplied by the associated production tonnage.

Site wide values for energy, water and wastewater have been taken from bills. Figures for the raw materials, ancillary materials and packaging were from actual usages. During the production process, post-consumer PVC is used as a raw material input. However, there is no available dataset for recycled PVC in the backend database. As a result, the dataset for recycled polyethylene was used as a proxy. Upon the data review, it was noted that the mass balance is within the range in both the data collection forms.

Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e. raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN 15804:2012+A2:2019.



| ISO14044 guidance. Quality Level | Geographical representativeness | Technical representativeness | Time representativeness |
|----------------------------------|---------------------------------|---|---|
| Very Good | Data from area under study. | Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology). | Less than 3 years difference between the reference year according to the documentation, and the time period for which data are representative |

Specific European and the UK datasets have been selected from the ecoinvent LCI for this LCA. Both the manufacturing sites are based in the UK, and they use the national grid electricity, LPG gas for production and heavy fuel oil (Diesel) for space heating of production areas, therefore the location-based approach has been used for the LCA analysis following BRE requirement and electricity dataset has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of electricity for the UK consumption mix is 0.239 kgCO₂e/kWh, for using the 1 kg of LPG is 0.606 kgCO₂eq/kg, and for using 1 kWh of Diesel is 0.331 kgCO₂e/kg. The quality level of time representativeness is also Very Good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 5 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken.

Cut-off criteria

All raw materials and energy inputs to the manufacturing process have been included in the LCA, except for direct emissions to air, water, and soil, which are not measured at the manufacturing sites. Similarly, during the foiling process, direct emissions to air, water, and soil are not measured at the Scunthorpe Manufacturing Facility.

The inventory data from the Swish production plant includes all data related to raw materials, packaging materials, and consumable items. The inventory data from Scunthorpe Manufacturing Facility includes only the energy used for the foiling of Swish profiles and it doesn't include the extrusion energy used by the Scunthorpe Manufacturing Facility for the extrusion of PVC profiles as it's not a part of the scope of this assessment; other process data such as ancillary material consumption, packaging, waste, and non-production waste emissions at the Scunthorpe Manufacturing facility are not included.

B2 – Maintenance, Once installed, minimal maintenance is required over the lifetime of the installation - general cleaning with warm soapy water is sufficient to keep profiles free from environmental grime. Therefore, the impacts from cleaning are negligible and the water quantity is not included in the LCA analysis.



LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing environmental impacts | | | GWP-total | GWP-fossil | GWP-biogenic | GWP-luluc | ODP | AP | EP-freshwater |
|---|--------------------------------------|------|-----------------------|-----------------------|-----------------------|-----------------------|-------------|-----------------------|--|
| | | | kg CO ₂ eq | kg CO ₂ eq | kg CO ₂ eq | kg CO ₂ eq | kg CFC11 eq | mol H ⁺ eq | kg (PO ₄) ³⁻ eq |
| Product stage | Raw material supply | A1 | 2.06E+00 | 1.88E+00 | 9.43E-02 | 8.80E-02 | 9.75E-07 | 8.53E-03 | 1.04E-03 |
| | Transport | A2 | 7.99E-02 | 7.98E-02 | 6.82E-05 | 3.14E-05 | 1.85E-08 | 3.24E-04 | 5.15E-06 |
| | Manufacturing | A3 | 3.33E-01 | 3.33E-01 | 5.10E-04 | 3.22E-04 | 4.46E-08 | 1.25E-03 | 7.47E-05 |
| | Total (Consumption grid) | A1-3 | 2.48E+00 | 2.29E+00 | 9.49E-02 | 8.83E-02 | 1.04E-06 | 1.01E-02 | 1.12E-03 |
| Construction process stage | Transport | A4 | 1.66E-02 | 1.66E-02 | 1.42E-05 | 6.53E-06 | 3.85E-09 | 6.75E-05 | 1.07E-06 |
| | Construction | A5 | 2.89E-01 | 2.74E-01 | 8.24E-03 | 6.98E-03 | 8.96E-08 | 1.31E-03 | 1.19E-04 |
| Use stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 1.66E-02 | 1.66E-02 | 1.42E-05 | 6.53E-06 | 3.85E-09 | 6.75E-05 | 1.07E-06 |
| | Waste processing | C3 | 3.03E+00 | 3.03E+00 | 6.81E-05 | 9.92E-06 | 2.45E-09 | 3.96E-04 | 3.74E-06 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | -5.76E-01 | -5.68E-01 | -7.42E-03 | -6.01E-04 | -4.01E-08 | -3.30E-03 | -3.13E-04 |

GWP-total = Global warming potential, total;
 GWP-fossil = Global warming potential, fossil;
 GWP-biogenic = Global warming potential, biogenic;
 GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer;
 AP = Acidification potential, accumulated exceedance; and
 EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment



LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Parameters describing environmental impacts | | | EP-marine | EP-terrestrial | POCP | ADP-mineral&metals | ADP-fossil | WDP | PM |
|---|--------------------------------------|------|-----------|----------------|-------------|--------------------|-------------------------|----------------------------------|-------------------|
| | | | kg N eq | mol N eq | kg NMVOC eq | kg Sb eq | MJ, net calorific value | m ³ world eq deprived | disease incidence |
| Product stage | Raw material supply | A1 | 1.77E-03 | 1.45E-02 | 5.96E-03 | 3.21E-05 | 4.81E+01 | 1.49E+00 | 6.59E-08 |
| | Transport | A2 | 9.77E-05 | 1.07E-03 | 3.27E-04 | 2.77E-07 | 1.21E+00 | 5.43E-03 | 6.88E-09 |
| | Manufacturing | A3 | 2.90E-04 | 3.04E-03 | 9.50E-04 | 3.49E-06 | 7.59E+00 | 1.26E-01 | 1.33E-08 |
| | Total (Consumption grid) | A1-3 | 2.16E-03 | 1.87E-02 | 7.23E-03 | 3.59E-05 | 5.69E+01 | 1.62E+00 | 8.61E-08 |
| Construction process stage | Transport | A4 | 2.03E-05 | 2.22E-04 | 6.80E-05 | 5.78E-08 | 2.51E-01 | 1.13E-03 | 1.43E-09 |
| | Construction | A5 | 3.06E-04 | 2.46E-03 | 8.86E-04 | 5.11E-06 | 5.54E+00 | 1.71E-01 | 1.40E-08 |
| Use stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 2.03E-05 | 2.22E-04 | 6.80E-05 | 5.78E-08 | 2.51E-01 | 1.13E-03 | 1.43E-09 |
| | Waste processing | C3 | 1.98E-04 | 2.02E-03 | 4.87E-04 | 8.81E-08 | 2.84E-01 | 1.19E-02 | 1.73E-09 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | -4.82E-04 | -4.78E-03 | -1.34E-03 | -3.35E-07 | -8.97E+00 | -2.39E-01 | -2.31E-08 |

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
 EP-terrestrial = Eutrophication potential, accumulated exceedance;
 POCP = Formation potential of tropospheric ozone;
 ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer;
 WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and
 PM = Particulate matter.



LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| | | | Parameters describing environmental impacts | | | | |
|---|--------------------------------------|------|---|-----------|-----------|-----------|---------------|
| | | | IRP | ETP-fw | HTP-c | HTP-nc | SQP |
| | | | kBq U ²³⁵ eq | CTUe | CTUh | CTUh | dimensionless |
| Product stage | Raw material supply | A1 | 2.74E-01 | 3.50E+01 | 1.45E-09 | 3.98E-08 | 8.95E+00 |
| | Transport | A2 | 6.20E-03 | 9.41E-01 | 3.05E-11 | 9.87E-10 | 8.29E-01 |
| | Manufacturing | A3 | 1.44E-01 | 5.78E+00 | 1.34E-09 | 4.08E-09 | 2.24E+00 |
| | Total (Consumption grid) | A1-3 | 4.24E-01 | 4.18E+01 | 2.83E-09 | 4.49E-08 | 1.20E+01 |
| Construction process stage | Transport | A4 | 1.29E-03 | 1.96E-01 | 6.35E-12 | 2.06E-10 | 1.73E-01 |
| | Construction | A5 | 4.02E-02 | 6.04E+00 | 2.07E-09 | 5.69E-09 | 1.45E+00 |
| Use Stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 1.29E-03 | 1.96E-01 | 6.35E-12 | 2.06E-10 | 1.73E-01 |
| | Waste processing | C3 | 5.51E-04 | 7.24E-01 | 1.09E-10 | 4.10E-09 | 8.79E-02 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | -1.45E-01 | -8.21E+00 | -1.35E-10 | -4.23E-09 | -2.73E+00 |

IRP = Potential human exposure efficiency relative to U235;
 ETP-fw = Potential comparative toxic unit for ecosystems;
 HTP-c = Potential comparative toxic unit for humans;

HTP-nc = Potential comparative toxic unit for humans; and
 SQP = Potential soil quality index.



LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| | | | Parameters describing resource use, primary energy | | | | | |
|---|--------------------------------------|------|--|----------|-----------|-----------|----------|-----------|
| | | | PERE | PERM | PERT | PENRE | PENRM | PENRT |
| | | | MJ | MJ | MJ | MJ | MJ | MJ |
| Product stage | Raw material supply | A1 | 2.47E+00 | 6.00E-01 | 3.07E+00 | 2.69E+01 | 2.10E+01 | 4.78E+01 |
| | Transport | A2 | 1.70E-02 | 0.00E+00 | 1.70E-02 | 1.18E+00 | 0.00E+00 | 1.18E+00 |
| | Manufacturing | A3 | 1.18E+00 | 1.38E-02 | 1.20E+00 | 6.56E+00 | 2.15E+00 | 8.71E+00 |
| | Total (Consumption grid) | A1-3 | 3.67E+00 | 6.14E-01 | 4.29E+00 | 3.46E+01 | 2.31E+01 | 5.77E+01 |
| Construction process stage | Transport | A4 | 3.54E-03 | 0.00E+00 | 3.54E-03 | 2.47E-01 | 0.00E+00 | 2.47E-01 |
| | Construction | A5 | 5.09E-01 | 4.79E-02 | 5.57E-01 | 3.11E+00 | 2.48E+00 | 5.59E+00 |
| Use stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 3.54E-03 | 0.00E+00 | 3.54E-03 | 2.47E-01 | 0.00E+00 | 2.47E-01 |
| | Waste processing | C3 | 6.35E-03 | 0.00E+00 | 6.35E-03 | -4.22E+01 | 4.25E+01 | 2.83E-01 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | -1.32E+00 | 0.00E+00 | -1.32E+00 | -9.01E+00 | 0.00E+00 | -9.01E+00 |

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
 PERM = Use of renewable primary energy resources used as raw materials;
 PERT = Total use of renewable primary energy resources;

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
 PENRM = Use of non-renewable primary energy resources used as raw materials;
 PENRT = Total use of non-renewable primary energy resource



LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| | | | Parameters describing resource use, secondary materials and fuels, use of water | | | |
|---|--------------------------------------|------|---|---------------------------|---------------------------|----------------|
| | | | SM | RSF | NRSF | FW |
| | | | kg | MJ net calorific value | MJ net calorific value | m ³ |
| Product stage | Raw material supply | A1 | 3.15E-02 | 0.00E+00 | 0.00E+00 | 3.56E-02 |
| | Transport | A2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.35E-04 |
| | Manufacturing | A3 | 7.08E-03 | 3.34E-06 | 0.00E+00 | 3.75E-03 |
| | Total (Consumption grid) | A1-3 | 3.86E-02 | 3.34E-06 | 0.00E+00 | 3.95E-02 |
| Construction process stage | Transport | A4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.80E-05 |
| | Construction | A5 | 1.22E-02 | 2.61E-07 | 0.00E+00 | 4.30E-03 |
| Use stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.80E-05 |
| | Waste processing | C3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 2.80E-04 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | 0.00E+00 | 0.00E+00 | 0.00E+00 | -5.94E-03 |

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water



LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| Other environmental information describing waste categories | | | HWD | NHWD | RWD |
|---|--------------------------------------|------|-----------|-----------|-----------|
| | | | kg | kg | kg |
| Product stage | Raw material supply | A1 | 1.29E-01 | 2.85E+00 | 9.52E-05 |
| | Transport | A2 | 1.33E-03 | 2.36E-02 | 8.16E-06 |
| | Manufacturing | A3 | 6.62E-02 | 3.45E-01 | 4.03E-05 |
| | Total (Consumption grid) | A1-3 | 1.97E-01 | 3.22E+00 | 1.44E-04 |
| Construction process stage | Transport | A4 | 2.77E-04 | 4.92E-03 | 1.70E-06 |
| | Construction | A5 | 9.43E-02 | 4.25E-01 | 1.39E-05 |
| Use stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 2.77E-04 | 4.92E-03 | 1.70E-06 |
| | Waste processing | C3 | 2.18E-02 | 1.04E+00 | 4.43E-07 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | -3.68E-02 | -1.95E+00 | -4.40E-05 |

HWD = Hazardous waste disposed;
 NHWD = Non-hazardous waste disposed;
 RWD = Radioactive waste disposed



LCA Results (continued)

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

| | | | Other environmental information describing output flows – at end of life | | | | | |
|---|--------------------------------------|------|--|----------|----------|-----------------------|---------------------------|-----------------------------|
| | | | CRU | MFR | MER | EE | Biogenic carbon (product) | Biogenic carbon (packaging) |
| | | | kg | kg | kg | MJ per energy carrier | kg C | kg C |
| Product stage | Raw material supply | A1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | A2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Manufacturing | A3 | 0.00E+00 | 1.73E-02 | 3.45E-03 | 2.67E-03 | 0.00E+00 | 0.00E+00 |
| | Total (Consumption grid) | A1-3 | 0.00E+00 | 1.73E-02 | 3.45E-03 | 2.67E-03 | 0.00E+00 | 0.00E+00 |
| Construction process stage | Transport | A4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Construction | A5 | 0.00E+00 | 1.35E-03 | 2.69E-04 | 2.09E-04 | 0.00E+00 | 0.00E+00 |
| Use stage | Use stage | B1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Maintenance | B2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Repair | B3 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Replacement | B4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Refurbishment | B5 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| End of life | Deconstruction, demolition | C1 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Transport | C2 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Waste processing | C3 | 0.00E+00 | 0.00E+00 | 1.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | Disposal | C4 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Potential benefits and loads beyond the system boundaries | Reuse, recovery, recycling potential | D | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy



Scenarios and additional technical information

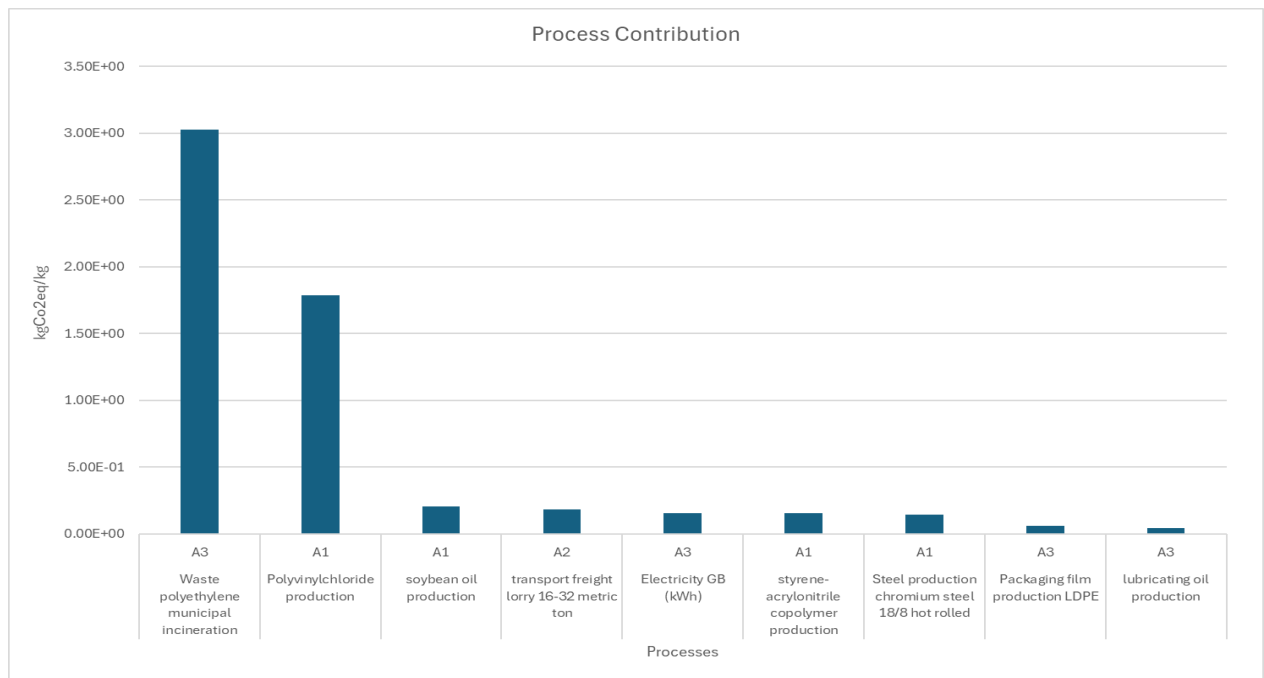
| Scenarios and additional technical information | | | |
|--|--|-------|---------|
| Scenario | Parameter | Units | Results |
| A4 – Transport to the building site | 100km by road has been modelled for module A4 as a typical distance from the fabricator site to the construction unit. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module A4 if required | | |
| | Road transport | km | 100 |
| | Fuel consumption | l/km | 0.227 |
| | Capacity utilisation (incl. empty returns) | % | 26 |
| A5 – Installation in the building | Cellular PVC profiles can be installed to Rooflines (Fascia, Soffit, Bargeboards), as external Cladding and/or as internal Trims (Window boards, skirtings and architraves). During the installation process, these profiles are cut to suit the application and then fixed using conventional carpentry tools. PVC profiles can be cut, drilled, nailed and routed to suit application. | | |
| | Installation wastage rate | % | 7.8 |
| | Nails | kg | 0.016 |
| | Sealant | kg | 0.003 |
| B1 – Use | Once the product is installed, it does not generate any emissions to air, water, or soil. | | |
| B2 – Maintenance | No requirement for ongoing maintenance - occasional cleaning. Water will be used and the quantity is negligible. | | |
| B3 - Repair | Once installed products are generally out of scope of contact and therefore will require no repair. | | |
| B4 - Replacement | No replacement during the service life of the product | | |
| B5 - Refurbishment | No refurbishment during the service life of the product | | |
| Reference service life | 35 years, according to BRE PCR | | |
| C1 – Deconstruction | The study period used for the LCA is 35 years, which corresponds to the product's service life of 35 years. Therefore, once the product reaches its end of life, it can be replaced with a new one. The waste product will be sent to the waste processing facility for waste processing. At the point of deconstruction this will be achieved by manual labour - careful removal with crowbar/claw hammer to minimise disruption to the underlying building structure. It's assumed as 100% of the product recovered from the deconstruction facility | | |
| C2 – Transportation | 100 km by road has been modelled for module C2 as a typical distance from the deconstruction site to waste processing site. The end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required. | | |
| | Road transport by Lorry 16-32 metric ton | km | 100 |
| C3 – waste processing | Ultimate aim is end of life recovery and waste material returned to Production site for granulation/pulverised prior to re-use in new production. However, this is yet to be regularly achieved as many original products installed have not reached their end of life and remain in service. Therefore, industrial average scenario for PVC products is used according to BRE PCR (100% to incineration with energy recovery). | | |

Scenarios and additional technical information

| Scenario | Parameter | Units | Results |
|---------------|--|-------|---------|
| | PVC waste to incineration | kg | 1 |
| C4 – Disposal | 100% of the waste will be incinerated and no waste left to landfill | | |
| Module D | The benefits of Module D include the energy credits from waste incineration of plastic for energy generation at the end-of-life. At the end of life, 100% of the product will be incinerated for energy recovery. Since the product is sold across Europe and the UK, the dataset used to calculate the avoided impacts of heat generation and electricity consumption in a future system was "Heat average Europe". | | |
| | Benefits of incinerating PVC waste | kg | 1 |

Interpretation of results

The bulk of the environmental impacts and primary energy demand are attributed to the manufacturing phase, covered by information modules A1-A3 of EN15804:2012+A2:2019. The bar chart titled below displays the carbon footprint (in kgCO₂eq) of various processes, in the production of PVC Cellular profiles. The chart shows that waste polyethylene municipal incineration (A3) and polyvinylchloride production (A1) are the dominant contributors to CO₂ emissions, making them the most impactful processes in terms of climate impact. All other processes, including soybean oil production, freight transport, electricity generation, styrene-acrylonitrile copolymer production, and steel production, contribute far less, while packaging film LDPE production and lubricating oil production have the lowest impact, close to zero. This highlights that addressing emissions from incineration and PVC production would be most effective in reducing overall environmental burden.





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