**Type III Environmental Product Declaration No. 868/2025**

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# VOX skirting board systems

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**Basic information**

This declaration is the Type III Environmental Product Declaration (EPD) based on EN 15804+A2 and verified according to ISO 14025 by an external auditor. It contains the information on the impacts of the declared construction materials on the environment and their aspects verified by the independent body according to ISO 14025. Basically, comparison or evaluation of EPD data is possible only if all the compared data were created according to EN 15804+A2.

**Life cycle analysis (LCA):** A1-A3, C1-C4 and D modules in accordance with EN 15804+A2
(Cradle-to-Gate with options)
**Product standards:** PN-EN 50085-2-1:2008+A1:2011 (EN 50085-2-1:2006+A1:2011)
**The year of preparing the EPD:** 2025
**Service Life:** 50 years
**PCR:** ITB-PCR A
**Declared unit:** 1 m
**Reasons for performing LCA:** B2B
**Representativeness:** European, 2024

## MANUFACTURER

*Figure 1 A view of production plant located in Czerwonak (Poland).*

Profile VOX is part of the VOX Capital Group, which includes companies and brands from the interior design and home finishing industry. The Group represents two main brands: VOX and Vilo, each with its own unique approach and target audience.

VOX is a well-known brand in the interior and home design sector, established in Poland in 1989. From the beginning, VOX has focused on creating innovative products inspired by its main idea - Human Touch. This people-first approach means working closely with schools, universities, and non-profit organizations to share knowledge and create better products and services that improve everyday life. Understanding people's needs and values is always at the center of what VOX does. The brand is built on strong values - especially freedom, encouraging customers to create spaces that truly reflect who they are.Vilo is a brand designed for customers who want good quality and style at a fair price. It offers affordable, well-designed home finishing solutions.

Both VOX and Vilo offer products like furniture, doors, floors, ceilings, decorative wall panels, and exterior cladding.Profile VOX products are sold in over 60 countries, from Poland and other parts of Europe to markets such as India.

The VOX Capital Group operates four production plants - two in Poland (Czarnków and Czerwonak), one in Romania (Vâlcea), and one in India. These facilities support the company's global operations and help maintain high standards of quality.

## PRODUCTS DESCRIPTION AND APPLICATION

VOX skirting board systems covered by this EPD are manufactured from durable, high-quality materials such as PVC and polymer composites. The profiles are resistant to impact, moisture and UV radiation, ensuring long service life and colour stability. All systems are designed for fast installation, precise wall–floor finishing and easy cable management. Accessories including internal/external corners, connectors and end caps guarantee a complete and aesthetic installation.

All VOX skirting boards are available in a wide range of heights, profiles and decorative finishes, making them compatible with laminate, vinyl and wooden flooring systems. Additional technical specifications and colour options are available on the company website.

## LIFE CYCLE ASSESSMENT (LCA) – general rules applied

### Unit

The declared unit is 1 m of skirting board produced in Czerwonak (Poland) and Vâlcea (Romania). The reference period is the year 2024.

Note: The method of converting the results to the unit of 1 kg is also provided.

### System boundary

The life cycle analysis of the declared products covers “Product Stage” A1-A3, C1-C4 and D modules in accordance with EN 15804+A2 and ITB PCR A, v 1.6 (cradle to gate with options). Energy and water consumption, emissions as well as information on generated wastes were inventoried and were included in the calculation. It can be assumed that the total sum of omitted processes does not exceed 5% of all impact categories. In accordance with EN 15804+A2, machines and facilities (capital goods) required for the production as well as transportation of employees were not included in LCA.

### Allocation

The allocation rules used for this EPD are based on general ITB’s document PCR A, v. 1.6. Input and output data from the production is inventoried and allocated to the production based on the mass of the finished product (where necessary). The declaration covers a family of plastic skirting boards. No loads and benefits beyond the system boundary from energy recovery from the end of life of the product or packaging is included. For the recycled material purchased from the market the economical allocation were used.

### System limits

In the assessment, all available data from production have been considered, i.e. all raw materials/elements used as per assembly process, utilized thermal energy, and electric power consumption. Thus material and energy flows contributing less than 1 % of mass or energy have been considered. It can be assumed that the total sum of neglected processes does not exceed 5 % of energy usage and mass per module A, C or D. Machines and facilities required during production are neglected (Machines and facilities related to raw materials production were included).

### Modules A1 and A2: *Raw materials supply and transport*

PVC resin, the primary material for skirting board production, is sourced from Polish or Hungarian plastic suppliers. Additives include stabilizers, chalk, waxes, modifiers and pigment masterbatches are sourced from specialized chemical suppliers. Packaging materials including protective films, cardboard boxes, stretch film and are supplied by local packaging companies (pallets are not included as used in closed-loop). Raw materials are primarily transported by truck from Polish suppliers, with some specialty additives imported from international suppliers. Module A2 (transport) includes both road and sea freight transport and uses European averages for fuel data. Transportation impacts are calculated based on distance and load capacity.

### Module A3: *Production*

The manufacturing process begins with the reception and quality control of incoming raw materials. The production flow consists of four main unit processes. Mixing is the initial process where PVC resin is precisely weighed and combined with additives including stabilizers, fillers, waxes and modifiers in a high-speed mixer to create a homogeneous dry blend. Alternatively, we prepare PVC compounds through a compounding process that bypasses the mixer. All primary raw materials are

fed directly into a tandem extruder system, where, after the pelletizing head, we obtain a highly filled PVC granulate. Extrusion is the main production process where the PVC compound is continuously plasticized and formed into skirting board profiles through specially designed extrusion dies. The extrudate passes through calibration units maintaining dimensional accuracy while being simultaneously cooled by water systems, after which the continuous profiles are cut to standard lengths. In the case of the skirtings: Esquero, Esquero Duo, Flex, Izzy, and Linela, a wood-like decorative layer is applied during the extrusion line using a flexo printing process. For the Sempla and Espumo collections, the skirtings are painted to enhance aesthetic properties in a separate process, after extrusion. Quality control checks verify dimensional accuracy, color consistency, and mechanical properties before approved products are packaged with protective films, bundled, labeled, and secured on pallets for distribution. Production waste including trimmings and rejected products is collected, ground, and reintroduced into the production process, creating a closed-loop system that minimizes material waste. Water used in the cooling process is treated and recycled in a closed system. The production processes carried out at the manufacturing facility are illustrated in Figure 2.

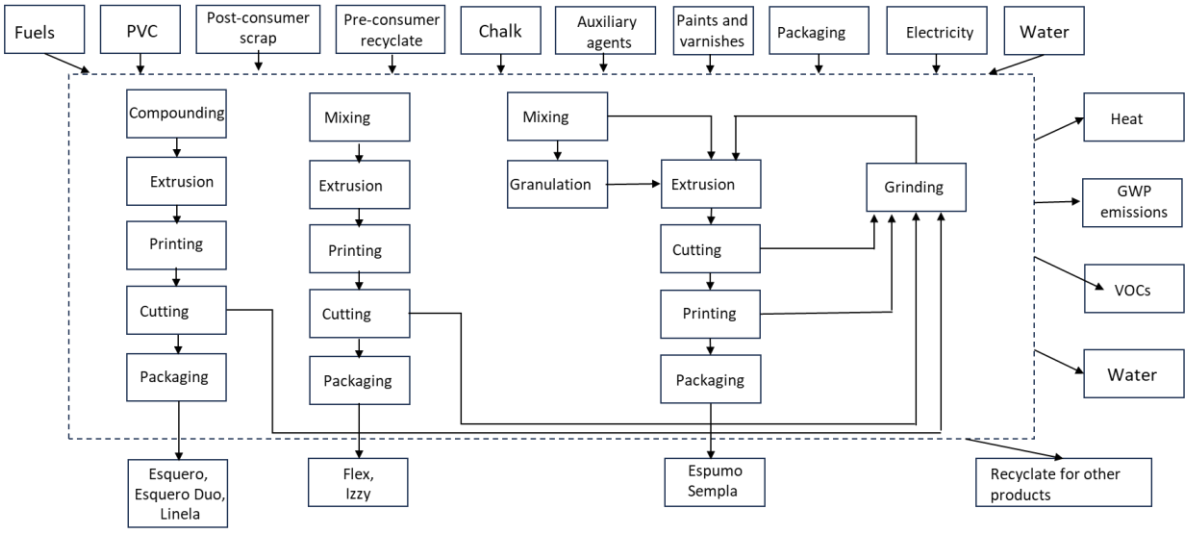


*Figure 2. Diagram of the manufacturing process of both production sites*

### Modules C and D*: End-of-life (EoL)*

The declaration covers PVC skirting boards for various interior applications and it is possible to directly specify the de-construction approach in the C1 module. It is assumed that skirting boards are removed manually without the use of power tools. Following de-construction, the skirting boards are transported to a local waste management facility at a distance of 25 km together with other construction waste. PVC skirting boards are treated as construction waste destined for landfill after removal. Electricity at end-of-life (module C) has been modelled using an average European electricity mix as the location where the product reaches end-of-life is unknown. Module D is equal to zero as no material recovery occurs.

*Table 1. End-of-life scenario for a plastic profiles and elements*

| **Material** | **Waste processing** | | **Landfilling** |
|---|---|---|---|
| | **Material recovery** (reuse, recycling) | **Energy recovery** (incineration) | |
| PVC skirting board | 0% | 0% | 100% |

### Data collection period

The data for manufacture of the declared products refer to period between 01.01.2024 – 31.12.2024 (1 year). The life cycle assessments were prepared for Poland and Europe as reference area.

### Data quality

The data selected for LCA originate from questionnaires and were verified during data audit. No data collected is older than five years and no generic datasets used are older than 5 years. The representativeness, completeness, reliability, and consistency is judged as good. The background data for the processes come from the (Ecoinvent v.3.9.1, PVC dataset was adjusted for Polish/Romanian electricity mix to improve results quality) database and specific suppliers (PCF report of calcium carbonate). Specific (LCI) data quality analysis was a part of the input data verification. For insignificant amount of resources the averaged, less representative datasets were used (packaging).

### Assumptions and estimates

The impacts of the representative products were aggregated using weighted average.

### Calculation rules

LCA was performed using openLCA tool developed in accordance with EN15804+A2. Environmental impact was calculated in alignment with EF3.1 method. Emission of greenhouse gases was calculated using the IPCC 2021 GWP method with a 100-year horizon. Emission of acidifying substances, emission of substances to water contributing to oxygen depletion, emission of gases that contribute to the creation of ground-level ozone, abiotic depletion, and ozone depletion emissions where all calculated with the EF 3.1 baseline method. No mass balance approach was used. The biogenic carbon content in product is marginal.

### Additional information

Polish electricity emission factor used in the calculation is equal to 0.10 $CO_2$e/kWh (company purchased Guarantees of Origin that cover 100% of the production in Poland, the emissions are related to lifecycle emissions of solar electricity generation according to Ecoinvent ) and 0.375 kg $CO_2$e/kWh (based on Romanian Residual mix according to Ecoinvent v3.9.1). As a general rule, no particular environmental or health protection measures other than those specified by law are necessary.

## LIFE CYCLE ASSESSMENT (LCA) – Results

### Declared unit

The declaration refers to declared unit (DU) – 1 m of skirting boards manufactured by Profile VOX sp. z o. o. The following life cycle modules (Table 1) were included in the analysis. The following Tables 3-52 show the environmental impacts of the life cycle of selected modules for product types (A1-A3+C1-C4+D).

*Table 2 System boundaries for the environmental characteristic of the product.*

| **Environmental assessment information (MD – Module Declared, MND – Module Not Declared, INA – Indicator Not Assessed)** | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Product stage | | | Construction process | | Use stage | | | | | | | End of life | | | | Benefits and loads beyond the system boundary |
| Raw material supply | Transport | Manufacturing | Transport to construction site | Construction-installation process | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction demolition | Transport | Waste processing | Disposal | Reuse-recovery-recycling potential |
| **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| **MD** | **MD** | **MD** | **MND** | **MND** | **MND** | **MND** | **MND** | **MND** | **MND** | **NMD** | **MND** | **MD** | **MD** | **MD** | **MD** | **MD** |

If it is necessary to convert environmental impacts from the declared unit of 1 m to 1 kg, the conversion factors presented in the Table below can be used.

| Product | Unit | Value | Conversion factor kg/m |
|---|---|---|---|
| Flex | kg | 0.336 | |
| Flex | m | 2.5 | 0.13 |
| Izzy | kg | 0.4512 | |
| Izzy | m | 2.5 | 0.18 |
| Sempla 65 | kg | 1.2 | |
| Sempla 65 | m | 2.4 | 0.50 |
| Sempla 80 | kg | 1.32 | |
| Sempla 80 | m | 2.4 | 0.55 |
| Sempla 65 Oval | kg | 1.08 | |
| Sempla 65 Oval | m | 2.4 | 0.45 |
| Sempla 80 Oval | kg | 1.1 | |
| Sempla 80 Oval | m | 2.4 | 0.46 |
| Espumo 65 1xx | kg | 1.2 | |
| Espumo 65 1xx | m | 2.4 | 0.50 |
| Espumo 80B 3xx | kg | 1.2 | |
| Espumo 80B 3xx | m | 2.4 | 0.50 |
| Espumo 100 4xx | kg | 1.68 | |
| Espumo 100 4xx | m | 2.4 | 0.70 |
| Espumo 80 2xx | kg | 1.44 | |
| Espumo 80 2xx | m | 2.4 | 0.60 |
| Espumo 120 5xx | kg | 1.752 | |
| Espumo 120 5xx | m | 2.4 | 0.73 |
| Linela LPC | kg | 0.522 | |
| Linela LPC | m | 2 | 0.26 |
| Esquero | kg | 0.612 | |
| Esquero | m | 2.5 | 0.24 |
| Esquero Duo | kg | 0.569 | |
| Esquero Duo | m | 2.5 | 0.23 |

*Table 3 Life cycle assessment (LCA) results for Espumo 65 1xx – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 8.65E-01 | 2.39E-02 | 4.03E-02 | 9.30E-01 | 0.00E+00 | 2.92E-03 | 0.00E+00 | 3.60E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 8.64E-01 | 2.39E-02 | 4.01E-02 | 9.29E-01 | 0.00E+00 | 2.92E-03 | 0.00E+00 | 3.59E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.22E-04 | 1.50E-05 | 1.38E-04 | 3.02E-05 | 0.00E+00 | 2.17E-06 | 0.00E+00 | 6.33E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 9.69E-04 | 1.32E-05 | 8.25E-05 | 1.06E-03 | 0.00E+00 | 1.34E-06 | 0.00E+00 | 1.14E-06 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 4.01E-07 | 5.07E-10 | 2.90E-09 | 4.04E-07 | 0.00E+00 | 6.37E-11 | 0.00E+00 | 1.47E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 5.10E-03 | 1.62E-04 | 2.67E-04 | 5.53E-03 | 0.00E+00 | -3.34E-05 | 0.00E+00 | 3.34E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 3.31E-04 | 1.65E-06 | 2.02E-05 | 3.53E-04 | 0.00E+00 | 2.02E-07 | 0.00E+00 | 3.44E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 7.89E-04 | 4.10E-05 | 4.80E-05 | 8.78E-04 | 0.00E+00 | 1.50E-06 | 0.00E+00 | 1.96E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.24E-02 | 4.43E-04 | 5.13E-04 | 1.33E-02 | 0.00E+00 | 1.52E-05 | 0.00E+00 | 1.48E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 2.84E-03 | 1.61E-04 | 4.39E-04 | 3.44E-03 | 0.00E+00 | 9.43E-06 | 0.00E+00 | 6.44E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 1.14E-05 | 6.99E-08 | 1.69E-06 | 1.31E-05 | 0.00E+00 | 9.62E-09 | 0.00E+00 | 1.03E-08 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 2.22E+01 | 3.47E-01 | 5.00E-01 | 2.30E+01 | 0.00E+00 | 4.15E-02 | 0.00E+00 | 1.17E-01 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 5.10E-01 | 1.70E-03 | 5.98E-02 | 5.72E-01 | 0.00E+00 | 2.00E-04 | 0.00E+00 | 9.71E-04 | 0.00E+00 |

*Table 4 Life cycle assessment (LCA) results for Espumo 65 1xx – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 4.11E-08 | 6.25E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 1.10E-01 | 2.20E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 6.05E-10 | 1.73E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 1.65E-08 | 6.38E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 5 Life cycle assessment (LCA) results for Espumo 65 1xx - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 1.22E+00 | 5.22E-03 | 1.64E+00 | 2.87E+00 | 0.00E+00 | 7.19E-04 | 0.00E+00 | 4.95E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 1.22E+00 | 5.22E-03 | 1.64E+00 | 2.87E+00 | 0.00E+00 | 7.19E-04 | 0.00E+00 | 4.95E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 2.04E+01 | 3.16E-01 | 4.83E-01 | 2.12E+01 | 0.00E+00 | 3.79E-02 | 0.00E+00 | 1.07E-01 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 1.78E+00 | 3.01E-02 | 1.68E-02 | 1.83E+00 | 0.00E+00 | 3.60E-03 | 0.00E+00 | 1.04E-02 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 2.22E+01 | 3.47E-01 | 5.00E-01 | 2.30E+01 | 0.00E+00 | 4.15E-02 | 0.00E+00 | 1.17E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 7.74E-02 | 3.70E-04 | 2.58E-03 | 8.04E-02 | 0.00E+00 | 5.03E-05 | 0.00E+00 | 2.45E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 3.00E-02 | 9.67E-05 | 8.55E-04 | 3.10E-02 | 0.00E+00 | 1.63E-05 | 0.00E+00 | 1.11E-04 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 4.66E-02 | 3.00E-04 | 1.20E-03 | 4.81E-02 | 0.00E+00 | 6.95E-05 | 0.00E+00 | 1.11E-04 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 6 Life cycle assessment (LCA) results for Espumo 65 1xx – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 3.98E-02 | 3.30E-04 | 3.72E-03 | 4.38E-02 | 0.00E+00 | 3.44E-05 | 0.00E+00 | 1.27E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 6.10E-02 | 2.08E-02 | 4.24E-03 | 8.60E-02 | 0.00E+00 | 1.67E-03 | 0.00E+00 | 5.00E-01 | 0.00E+00 |
| Radioactive waste | kg | 2.75E-05 | 1.10E-07 | 8.00E-07 | 2.84E-05 | 0.00E+00 | 1.63E-08 | 0.00E+00 | 6.49E-08 | 0.00E+00 |
| Components for re-use | kg | 1.11E-23 | -9.15E-24 | 1.63E-23 | 1.83E-23 | 0.00E+00 | -2.04E-24 | 0.00E+00 | 5.84E-24 | 0.00E+00 |
| Materials for recycling | kg | 5.63E-02 | 3.28E-04 | 2.14E-03 | 5.87E-02 | 0.00E+00 | 4.49E-05 | 0.00E+00 | 2.20E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 7 Life cycle assessment (LCA) results for Espumo 80 2xx – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 1.04E+00 | 2.87E-02 | 4.84E-02 | 1.12E+00 | 0.00E+00 | 3.51E-03 | 0.00E+00 | 4.32E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 1.04E+00 | 2.87E-02 | 4.82E-02 | 1.11E+00 | 0.00E+00 | 3.50E-03 | 0.00E+00 | 4.31E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.47E-04 | 1.79E-05 | 1.65E-04 | 3.63E-05 | 0.00E+00 | 2.60E-06 | 0.00E+00 | 7.60E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 1.16E-03 | 1.58E-05 | 9.90E-05 | 1.28E-03 | 0.00E+00 | 1.61E-06 | 0.00E+00 | 1.36E-06 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 4.81E-07 | 6.08E-10 | 3.48E-09 | 4.85E-07 | 0.00E+00 | 7.64E-11 | 0.00E+00 | 1.77E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 6.12E-03 | 1.94E-04 | 3.20E-04 | 6.64E-03 | 0.00E+00 | -4.01E-05 | 0.00E+00 | 4.01E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 3.97E-04 | 1.98E-06 | 2.43E-05 | 4.23E-04 | 0.00E+00 | 2.42E-07 | 0.00E+00 | 4.12E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 9.47E-04 | 4.91E-05 | 5.76E-05 | 1.05E-03 | 0.00E+00 | 1.80E-06 | 0.00E+00 | 2.35E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.48E-02 | 5.31E-04 | 6.16E-04 | 1.60E-02 | 0.00E+00 | 1.82E-05 | 0.00E+00 | 1.78E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 3.41E-03 | 1.93E-04 | 5.27E-04 | 4.13E-03 | 0.00E+00 | 1.13E-05 | 0.00E+00 | 7.73E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 1.37E-05 | 8.39E-08 | 2.03E-06 | 1.58E-05 | 0.00E+00 | 1.15E-08 | 0.00E+00 | 1.23E-08 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 2.66E+01 | 4.16E-01 | 5.99E-01 | 2.76E+01 | 0.00E+00 | 4.98E-02 | 0.00E+00 | 1.41E-01 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 6.12E-01 | 2.04E-03 | 7.17E-02 | 6.86E-01 | 0.00E+00 | 2.40E-04 | 0.00E+00 | 1.16E-03 | 0.00E+00 |

*Table 8 Life cycle assessment (LCA) results for Espumo 80 2xx – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A5 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 4.94E-08 | 7.50E-10 | INA |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 1.32E-01 | 2.64E-04 | 0 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 7.26E-10 | 2.07E-12 | 0 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 1.98E-08 | 7.66E-11 | 0 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 9 Life cycle assessment (LCA) results for Espumo 80 2xx - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 1.46E+00 | 6.26E-03 | 1.97E+00 | 3.44E+00 | 0.00E+00 | 8.63E-04 | 0.00E+00 | 5.94E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 1.46E+00 | 6.26E-03 | 1.97E+00 | 3.44E+00 | 0.00E+00 | 8.63E-04 | 0.00E+00 | 5.94E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 2.45E+01 | 3.80E-01 | 5.79E-01 | 2.54E+01 | 0.00E+00 | 4.54E-02 | 0.00E+00 | 1.28E-01 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 2.14E+00 | 3.62E-02 | 2.02E-02 | 2.19E+00 | 0.00E+00 | 4.32E-03 | 0.00E+00 | 1.25E-02 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 2.66E+01 | 4.16E-01 | 5.99E-01 | 2.76E+01 | 0.00E+00 | 4.98E-02 | 0.00E+00 | 1.41E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 9.29E-02 | 4.44E-04 | 3.09E-03 | 9.65E-02 | 0.00E+00 | 6.04E-05 | 0.00E+00 | 2.94E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 3.60E-02 | 1.16E-04 | 1.03E-03 | 3.72E-02 | 0.00E+00 | 1.95E-05 | 0.00E+00 | 1.33E-04 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 5.59E-02 | 3.60E-04 | 1.43E-03 | 5.77E-02 | 0.00E+00 | 8.34E-05 | 0.00E+00 | 1.33E-04 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 10 Life cycle assessment (LCA) results for Espumo 80 2xx – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | Kg | 4.77E-02 | 3.96E-04 | 4.47E-03 | 5.26E-02 | 0.00E+00 | 4.13E-05 | 0.00E+00 | 1.53E-04 | 0.00E+00 |
| Non-hazardous waste | Kg | 7.32E-02 | 2.49E-02 | 5.09E-03 | 1.03E-01 | 0.00E+00 | 2.00E-03 | 0.00E+00 | 6.01E-01 | 0.00E+00 |
| Radioactive waste | Kg | 3.30E-05 | 1.32E-07 | 9.60E-07 | 3.41E-05 | 0.00E+00 | 1.96E-08 | 0.00E+00 | 7.79E-08 | 0.00E+00 |
| Components for re-use | Kg | 1.34E-23 | -1.10E-23 | 1.95E-23 | 2.19E-23 | 0.00E+00 | -2.45E-24 | 0.00E+00 | 7.00E-24 | 0.00E+00 |
| Materials for recycling | Kg | 6.75E-02 | 3.94E-04 | 2.57E-03 | 7.05E-02 | 0.00E+00 | 5.39E-05 | 0.00E+00 | 2.64E-04 | 0.00E+00 |
| Materials for energy recovery | Kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 11 Life cycle assessment (LCA) results for Espumo 100 4xx – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 1.21E+00 | 3.35E-02 | 5.65E-02 | 1.30E+00 | 0.00E+00 | 4.09E-03 | 0.00E+00 | 5.04E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 1.21E+00 | 3.35E-02 | 5.62E-02 | 1.30E+00 | 0.00E+00 | 4.09E-03 | 0.00E+00 | 5.03E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.71E-04 | 2.09E-05 | 1.93E-04 | 4.23E-05 | 0.00E+00 | 3.03E-06 | 0.00E+00 | 8.87E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 1.36E-03 | 1.85E-05 | 1.15E-04 | 1.49E-03 | 0.00E+00 | 1.88E-06 | 0.00E+00 | 1.59E-06 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 5.61E-07 | 7.10E-10 | 4.06E-09 | 5.66E-07 | 0.00E+00 | 8.92E-11 | 0.00E+00 | 2.06E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 7.14E-03 | 2.26E-04 | 3.74E-04 | 7.74E-03 | 0.00E+00 | -4.68E-05 | 0.00E+00 | 4.68E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 4.63E-04 | 2.31E-06 | 2.83E-05 | 4.94E-04 | 0.00E+00 | 2.83E-07 | 0.00E+00 | 4.81E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 1.11E-03 | 5.73E-05 | 6.71E-05 | 1.23E-03 | 0.00E+00 | 2.10E-06 | 0.00E+00 | 2.74E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.73E-02 | 6.20E-04 | 7.19E-04 | 1.87E-02 | 0.00E+00 | 2.12E-05 | 0.00E+00 | 2.08E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 3.97E-03 | 2.25E-04 | 6.15E-04 | 4.81E-03 | 0.00E+00 | 1.32E-05 | 0.00E+00 | 9.02E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 1.59E-05 | 9.79E-08 | 2.37E-06 | 1.84E-05 | 0.00E+00 | 1.35E-08 | 0.00E+00 | 1.44E-08 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 3.11E+01 | 4.85E-01 | 6.99E-01 | 3.22E+01 | 0.00E+00 | 5.81E-02 | 0.00E+00 | 1.64E-01 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 7.14E-01 | 2.38E-03 | 8.37E-02 | 8.00E-01 | 0.00E+00 | 2.80E-04 | 0.00E+00 | 1.36E-03 | 0.00E+00 |

*Table 12 Life cycle assessment (LCA) results for Espumo 100 4xx – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 5.77E-08 | 8.75E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 1.54E-01 | 3.08E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 8.47E-10 | 2.42E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 2.31E-08 | 8.94E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 13 Life cycle assessment (LCA) results for Espumo 100 4xx - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 1.71E+00 | 7.30E-03 | 2.30E+00 | 4.01E+00 | 0.00E+00 | 1.01E-03 | 0.00E+00 | 6.93E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 1.71E+00 | 7.30E-03 | 2.30E+00 | 4.01E+00 | 0.00E+00 | 1.01E-03 | 0.00E+00 | 6.93E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 2.86E+01 | 4.43E-01 | 6.76E-01 | 2.97E+01 | 0.00E+00 | 5.30E-02 | 0.00E+00 | 1.50E-01 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 2.49E+00 | 4.22E-02 | 2.36E-02 | 2.56E+00 | 0.00E+00 | 5.04E-03 | 0.00E+00 | 1.46E-02 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 3.11E+01 | 4.85E-01 | 6.99E-01 | 3.22E+01 | 0.00E+00 | 5.81E-02 | 0.00E+00 | 1.64E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 1.08E-01 | 5.18E-04 | 3.61E-03 | 1.13E-01 | 0.00E+00 | 7.04E-05 | 0.00E+00 | 3.43E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 4.20E-02 | 1.35E-04 | 1.20E-03 | 4.33E-02 | 0.00E+00 | 2.28E-05 | 0.00E+00 | 1.55E-04 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 6.52E-02 | 4.20E-04 | 1.67E-03 | 6.73E-02 | 0.00E+00 | 9.73E-05 | 0.00E+00 | 1.55E-04 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 14 Life cycle assessment (LCA) results for Espumo 100 4xx – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 5.57E-02 | 4.62E-04 | 5.21E-03 | 6.14E-02 | 0.00E+00 | 4.82E-05 | 0.00E+00 | -1.78E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 8.54E-02 | 2.91E-02 | 5.94E-03 | 1.20E-01 | 0.00E+00 | 2.33E-03 | 0.00E+00 | -7.01E-01 | 0.00E+00 |
| Radioactive waste | kg | 3.86E-05 | 1.54E-07 | 1.12E-06 | 3.98E-05 | 0.00E+00 | 2.29E-08 | 0.00E+00 | -9.09E-08 | 0.00E+00 |
| Components for re-use | kg | 1.56E-23 | -1.28E-23 | 2.28E-23 | 2.56E-23 | 0.00E+00 | -2.86E-24 | 0.00E+00 | 8.17E-24 | 0.00E+00 |
| Materials for recycling | kg | 7.88E-02 | 4.60E-04 | 3.00E-03 | 8.22E-02 | 0.00E+00 | 6.29E-05 | 0.00E+00 | -3.09E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 15 Life cycle assessment (LCA) results for Espumo 120 5xx – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 1.30E+00 | 3.59E-02 | 6.05E-02 | 1.39E+00 | 0,00E+00 | 4.38E-03 | 0,00E+00 | -5.40E-02 | 0,00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 1.30E+00 | 3.59E-02 | 6.02E-02 | 1.39E+00 | 0,00E+00 | 4.38E-03 | 0,00E+00 | -5.39E-02 | 0,00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.84E-04 | 2.24E-05 | 2.06E-04 | 4.54E-05 | 0,00E+00 | 3.25E-06 | 0,00E+00 | -9.50E-05 | 0,00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 1.45E-03 | 1.98E-05 | 1.24E-04 | 1.60E-03 | 0,00E+00 | 2.01E-06 | 0,00E+00 | -1.71E-06 | 0,00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 6.01E-07 | 7.61E-10 | 4.35E-09 | 6.06E-07 | 0,00E+00 | 9.55E-11 | 0,00E+00 | -2.21E-10 | 0,00E+00 |
| Soil and water acidification potential | eq. mol H+ | 7.65E-03 | 2.43E-04 | 4.00E-04 | 8.30E-03 | 0,00E+00 | -5.01E-05 | 0,00E+00 | -5.01E-05 | 0,00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 4.96E-04 | 2.48E-06 | 3.03E-05 | 5.29E-04 | 0,00E+00 | 3.03E-07 | 0,00E+00 | -5.16E-07 | 0,00E+00 |
| Eutrophication potential - seawater | eq. kg N | 1.18E-03 | 6.14E-05 | 7.19E-05 | 1.32E-03 | 0,00E+00 | 2.25E-06 | 0,00E+00 | -2.94E-04 | 0,00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.86E-02 | 6.64E-04 | 7.70E-04 | 2.00E-02 | 0,00E+00 | 2.28E-05 | 0,00E+00 | -2.23E-04 | 0,00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 4.26E-03 | 2.41E-04 | 6.59E-04 | 5.16E-03 | 0,00E+00 | 1.41E-05 | 0,00E+00 | -9.66E-05 | 0,00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 1.71E-05 | 1.05E-07 | 2.54E-06 | 1.97E-05 | 0,00E+00 | 1.44E-08 | 0,00E+00 | -1.54E-08 | 0,00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 3.33E+01 | 5.20E-01 | 7.49E-01 | 3.45E+01 | 0,00E+00 | 6.22E-02 | 0,00E+00 | -1.76E-01 | 0,00E+00 |
| Water deprivation potential | eq. $m^3$ | 7.65E-01 | 2.55E-03 | 8.96E-02 | 8.58E-01 | 0,00E+00 | 3.00E-04 | 0,00E+00 | -1.46E-03 | 0,00E+00 |

*Table 16 Life cycle assessment (LCA) results for Espumo 120 5xx – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A5 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 6.18E-08 | 9.38E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 1.65E-01 | 3.30E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 9.07E-10 | 2.59E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 2.47E-08 | 9.58E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 17 Life cycle assessment (LCA) results for Espumo 120 5xx - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 1.83E+00 | 7.82E-03 | 2.46E+00 | 4.30E+00 | 0.00E+00 | 1.08E-03 | 0.00E+00 | 7.42E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 1.83E+00 | 7.82E-03 | 2.46E+00 | 4.30E+00 | 0.00E+00 | 1.08E-03 | 0.00E+00 | 7.42E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 3.06E+01 | 4.75E-01 | 7.24E-01 | 3.18E+01 | 0.00E+00 | 5.68E-02 | 0.00E+00 | 1.60E-01 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 2.67E+00 | 4.52E-02 | 2.53E-02 | 2.74E+00 | 0.00E+00 | 5.40E-03 | 0.00E+00 | 1.56E-02 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 3.33E+01 | 5.20E-01 | 7.49E-01 | 3.45E+01 | 0.00E+00 | 6.22E-02 | 0.00E+00 | 1.76E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 1.16E-01 | 5.55E-04 | 3.87E-03 | 1.21E-01 | 0.00E+00 | 7.55E-05 | 0.00E+00 | 3.67E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 4.50E-02 | 1.45E-04 | 1.28E-03 | 4.64E-02 | 0.00E+00 | 2.44E-05 | 0.00E+00 | 1.67E-04 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 6.99E-02 | 4.50E-04 | 1.79E-03 | 7.21E-02 | 0.00E+00 | 1.04E-04 | 0.00E+00 | 1.66E-04 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | 1.83E+00 | 7.82E-03 | 2.46E+00 | 4.30E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 18 Life cycle assessment (LCA) results for Espumo 120 5xx – waste categories (DU: 1 kg)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 5.97E-02 | 4.95E-04 | 5.59E-03 | 6.58E-02 | 0.00E+00 | 5.16E-05 | 0.00E+00 | 1.91E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 9.15E-02 | 3.12E-02 | 6.37E-03 | 1.29E-01 | 0.00E+00 | 2.50E-03 | 0.00E+00 | 7.51E-01 | 0.00E+00 |
| Radioactive waste | kg | 4.13E-05 | 1.65E-07 | 1.20E-06 | 4.27E-05 | 0.00E+00 | 2.45E-08 | 0.00E+00 | 9.74E-08 | 0.00E+00 |
| Components for re-use | kg | 1.67E-03 | -1.37E-03 | 2.44E-03 | 2.74E-03 | 0.00E+00 | 3.06E-04 | 0.00E+00 | 8.75E-04 | 0.00E+00 |
| Materials for recycling | kg | 8.44E-02 | 4.92E-04 | 3.22E-03 | 8.81E-02 | 0.00E+00 | 6.74E-05 | 0.00E+00 | 3.31E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 19 Life cycle assessment (LCA) results for Sempla 65 Oval – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 1.80E-01 | 3.50E-02 | 2.92E-02 | 2.45E-01 | 0.00E+00 | 2.45E-03 | 0.00E+00 | 3.02E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 1.85E-01 | 3.50E-02 | 2.91E-02 | 2.49E-01 | 0.00E+00 | 2.45E-03 | 0.00E+00 | 3.02E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -5.22E-03 | 2.55E-05 | 9.97E-05 | -5.10E-03 | 0.00E+00 | 1.82E-06 | 0.00E+00 | 5.32E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 4.37E-04 | 1.80E-05 | 5.98E-05 | 5.15E-04 | 0.00E+00 | 1.13E-06 | 0.00E+00 | 9.55E-07 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 6.72E-08 | 7.77E-10 | 2.10E-09 | 7.01E-08 | 0.00E+00 | 5.35E-11 | 0.00E+00 | 1.24E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 8.58E-04 | 1.31E-04 | 1.94E-04 | 1.18E-03 | 0.00E+00 | -2.81E-05 | 0.00E+00 | 2.81E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 7.19E-05 | 2.56E-06 | 1.47E-05 | 8.91E-05 | 0.00E+00 | 1.70E-07 | 0.00E+00 | 2.89E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 1.95E-04 | 3.42E-05 | 3.51E-05 | 2.64E-04 | 0.00E+00 | 1.26E-06 | 0.00E+00 | 1.65E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.67E-03 | 3.61E-04 | 3.76E-04 | 2.41E-03 | 0.00E+00 | 1.27E-05 | 0.00E+00 | 1.25E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 6.51E-04 | 1.68E-04 | 3.49E-04 | 1.17E-03 | 0.00E+00 | 7.92E-06 | 0.00E+00 | 5.41E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 2.07E-06 | 1.04E-07 | 1.23E-06 | 3.40E-06 | 0.00E+00 | 8.08E-09 | 0.00E+00 | 8.63E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 4.59E+00 | 5.25E-01 | 3.62E-01 | 5.48E+00 | 0.00E+00 | 3.48E-02 | 0.00E+00 | 9.85E-02 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.13E-01 | 2.68E-03 | 4.33E-02 | 1.59E-01 | 0.00E+00 | 1.68E-04 | 0.00E+00 | 8.15E-04 | 0.00E+00 |

*Table 20 Life cycle assessment (LCA) results for Sempla 65 Oval – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | Disease Incidence | 1.29E-08 | 5.25E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 2.40E-02 | 1.85E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 1.67E-10 | 1.45E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 4.33E-09 | 5.36E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 21 Life cycle assessment (LCA) results for Sempla 65 Oval - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 3.74E-01 | 7.92E-03 | 1.19E+00 | 1.57E+00 | 0.00E+00 | 6.04E-04 | 0.00E+00 | 4.16E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 3.74E-01 | 7.92E-03 | 1.19E+00 | 1.57E+00 | 0.00E+00 | 6.04E-04 | 0.00E+00 | 4.16E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.23E+00 | 4.79E-01 | 3.50E-01 | 5.06E+00 | 0.00E+00 | 3.18E-02 | 0.00E+00 | 8.97E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 3.66E-01 | 4.55E-02 | 1.22E-02 | 4.24E-01 | 0.00E+00 | 3.02E-03 | 0.00E+00 | 8.73E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 4.60E+00 | 5.25E-01 | 3.62E-01 | 5.48E+00 | 0.00E+00 | 3.48E-02 | 0.00E+00 | 9.85E-02 | 0.00E+00 |
| Consumption of secondary materials | Kg | 2.77E-02 | 5.52E-04 | 1.87E-03 | 3.01E-02 | 0.00E+00 | 4.23E-05 | 0.00E+00 | 2.06E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 5.80E-03 | 1.41E-04 | 6.20E-04 | 6.56E-03 | 0.00E+00 | 1.37E-05 | 0.00E+00 | 9.32E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 9.10E-03 | 3.73E-04 | 8.66E-04 | 1.03E-02 | 0.00E+00 | 5.84E-05 | 0.00E+00 | 9.32E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 22 Life cycle assessment (LCA) results for Sempla 65 Oval – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.10E-02 | 4.97E-04 | 2.70E-03 | 1.42E-02 | 0.00E+00 | 2.89E-05 | 0.00E+00 | 1.07E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 1.50E-02 | 3.98E-02 | 3.08E-03 | 5.79E-02 | 0.00E+00 | 1.40E-03 | 0.00E+00 | 4.20E-01 | 0.00E+00 |
| Radioactive waste | kg | 5.42E-06 | 1.67E-07 | 5.80E-07 | 6.17E-06 | 0.00E+00 | 1.37E-08 | 0.00E+00 | 5.46E-08 | 0.00E+00 |
| Components for re-use | kg | 3.50E-03 | 1.21E-03 | 1.18E-23 | 3.47E-03 | 0.00E+00 | 1.72E-04 | 0.00E+00 | 4.90E-04 | 0.00E+00 |
| Materials for recycling | kg | 1.30E-02 | 4.81E-04 | 1.55E-03 | 1.51E-02 | 0.00E+00 | 3.77E-05 | 0.00E+00 | 1.85E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 23 Life cycle assessment (LCA) results for Sempla 65 – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 1.93E-01 | 3.75E-02 | 3.13E-02 | 2.62E-01 | 2.63E-03 | 0.00E+00 | 3.24E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 1.98E-01 | 3.75E-02 | 3.12E-02 | 2.67E-01 | 2.63E-03 | 0.00E+00 | 3.23E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -5.60E-03 | 2.73E-05 | 1.07E-04 | -5.46E-03 | 1.95E-06 | 0.00E+00 | 5.70E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 4.68E-04 | 1.93E-05 | 6.40E-05 | 5.51E-04 | 1.21E-06 | 0.00E+00 | 1.02E-06 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 7.20E-08 | 8.32E-10 | 2.25E-09 | 7.51E-08 | 5.73E-11 | 0.00E+00 | 1.32E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 9.19E-04 | 1.41E-04 | 2.08E-04 | 1.27E-03 | -3.01E-05 | 0.00E+00 | 3.01E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 7.70E-05 | 2.75E-06 | 1.57E-05 | 9.54E-05 | 1.82E-07 | 0.00E+00 | 3.09E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 2.08E-04 | 3.67E-05 | 3.76E-05 | 2.83E-04 | 1.35E-06 | 0.00E+00 | 1.76E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.79E-03 | 3.87E-04 | 4.03E-04 | 2.58E-03 | 1.37E-05 | 0.00E+00 | 1.34E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 6.98E-04 | 1.80E-04 | 3.74E-04 | 1.25E-03 | 8.49E-06 | 0.00E+00 | 5.80E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 2.22E-06 | 1.12E-07 | 1.31E-06 | 3.64E-06 | 8.66E-09 | 0.00E+00 | 9.25E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 4.92E+00 | 5.62E-01 | 3.88E-01 | 5.87E+00 | 3.73E-02 | 0.00E+00 | 1.05E-01 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.21E-01 | 2.87E-03 | 4.64E-02 | 1.70E-01 | 1.80E-04 | 0.00E+00 | 8.74E-04 | 0.00E+00 |

*Table 24 Life cycle assessment (LCA) results for Sempla 65 – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A5 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.38E-08 | 5.63E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 2.58E-02 | 1.98E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 1.78E-10 | 1.55E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 4.63E-09 | 5.75E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 25 Life cycle assessment (LCA) results for Sempla 65 - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.01E-01 | 8.49E-03 | 1.28E+00 | 1.68E+00 | 0.00E+00 | 6.47E-04 | 0.00E+00 | 4.45E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 4.01E-01 | 8.49E-03 | 1.28E+00 | 1.68E+00 | 0.00E+00 | 6.47E-04 | 0.00E+00 | 4.45E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.53E+00 | 5.14E-01 | 3.75E-01 | 5.42E+00 | 0.00E+00 | 3.41E-02 | 0.00E+00 | 9.61E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 3.92E-01 | 4.88E-02 | 1.31E-02 | 4.54E-01 | 0.00E+00 | 3.24E-03 | 0.00E+00 | 9.35E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 4.92E+00 | 5.62E-01 | 3.88E-01 | 5.87E+00 | 0.00E+00 | 3.73E-02 | 0.00E+00 | 1.05E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 2.97E-02 | 5.91E-04 | 2.00E-03 | 3.23E-02 | 0.00E+00 | 4.53E-05 | 0.00E+00 | 2.20E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 6.21E-03 | 1.51E-04 | 6.64E-04 | 7.03E-03 | 0.00E+00 | 1.46E-05 | 0.00E+00 | 9.99E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 9.75E-03 | 3.99E-04 | 9.28E-04 | 1.11E-02 | 0.00E+00 | 6.26E-05 | 0.00E+00 | 9.98E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 26 Life cycle assessment (LCA) results for Sempla 65 – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.18E-02 | 5.32E-04 | 2.89E-03 | 1.52E-02 | 0.00E+00 | 3.10E-05 | 0.00E+00 | 1.15E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 1.61E-02 | 4.27E-02 | 3.30E-03 | 6.20E-02 | 0.00E+00 | 1.50E-03 | 0.00E+00 | 4.50E-01 | 0.00E+00 |
| Radioactive waste | kg | 5.81E-06 | 1.79E-07 | 6.21E-07 | 6.61E-06 | 0.00E+00 | 1.47E-08 | 0.00E+00 | 5.85E-08 | 0.00E+00 |
| Components for re-use | kg | 3.75E-23 | -1.30E-23 | 1.26E-23 | 3.72E-23 | 0.00E+00 | -1.84E-24 | 0.00E+00 | 5.25E-24 | 0.00E+00 |
| Materials for recycling | kg | 1.40E-02 | 5.16E-04 | 1.66E-03 | 1.61E-02 | 0.00E+00 | 4.04E-05 | 0.00E+00 | 1.98E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 27 Life cycle assessment (LCA) results for Sempla 80 Oval – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 1.98E-01 | 3.84E-02 | 3.20E-02 | 2.68E-01 | 0.00E+00 | 2.69E-03 | 0.00E+00 | 3.31E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 2.03E-01 | 3.83E-02 | 3.19E-02 | 2.73E-01 | 0.00E+00 | 2.69E-03 | 0.00E+00 | 3.30E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -5.72E-03 | 2.79E-05 | 1.09E-04 | -5.58E-03 | 0.00E+00 | 1.99E-06 | 0.00E+00 | 5.83E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 4.78E-04 | 1.97E-05 | 6.55E-05 | 5.64E-04 | 0.00E+00 | 1.23E-06 | 0.00E+00 | 1.05E-06 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 7.36E-08 | 8.51E-10 | 2.30E-09 | 7.68E-08 | 0.00E+00 | 5.86E-11 | 0.00E+00 | 1.35E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 9.40E-04 | 1.44E-04 | 2.13E-04 | 1.30E-03 | 0.00E+00 | -3.07E-05 | 0.00E+00 | 3.07E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 7.87E-05 | 2.81E-06 | 1.61E-05 | 9.76E-05 | 0.00E+00 | 1.86E-07 | 0.00E+00 | 3.16E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 2.13E-04 | 3.75E-05 | 3.84E-05 | 2.89E-04 | 0.00E+00 | 1.38E-06 | 0.00E+00 | 1.80E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 1.83E-03 | 3.96E-04 | 4.12E-04 | 2.64E-03 | 0.00E+00 | 1.40E-05 | 0.00E+00 | 1.37E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 7.13E-04 | 1.84E-04 | 3.82E-04 | 1.28E-03 | 0.00E+00 | 8.68E-06 | 0.00E+00 | 5.93E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 2.27E-06 | 1.14E-07 | 1.34E-06 | 3.72E-06 | 0.00E+00 | 8.85E-09 | 0.00E+00 | 9.45E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 5.03E+00 | 5.75E-01 | 3.97E-01 | 6.00E+00 | 0.00E+00 | 3.82E-02 | 0.00E+00 | 1.08E-01 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.23E-01 | 2.94E-03 | 4.74E-02 | 1.74E-01 | 0.00E+00 | 1.84E-04 | 0.00E+00 | 8.93E-04 | 0.00E+00 |

*Table 28 Life cycle assessment (LCA) results for Sempla 80 Oval – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.41E-08 | 5.75E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 2.63E-02 | 2.03E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 1.82E-10 | 1.59E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 4.74E-09 | 5.87E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 29 Life cycle assessment (LCA) results for Sempla 80 Oval - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.09E-01 | 8.68E-03 | 1.30E+00 | 1.72E+00 | 0.00E+00 | 6.61E-04 | 0.00E+00 | 4.55E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 4.09E-01 | 8.68E-03 | 1.30E+00 | 1.72E+00 | 0.00E+00 | 6.61E-04 | 0.00E+00 | 4.55E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.63E+00 | 5.25E-01 | 3.83E-01 | 5.54E+00 | 0.00E+00 | 3.48E-02 | 0.00E+00 | 9.83E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 4.01E-01 | 4.98E-02 | 1.34E-02 | 4.64E-01 | 0.00E+00 | 3.31E-03 | 0.00E+00 | 9.56E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 5.03E+00 | 5.75E-01 | 3.97E-01 | 6.00E+00 | 0.00E+00 | 3.82E-02 | 0.00E+00 | 1.08E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 3.03E-02 | 6.04E-04 | 2.05E-03 | 3.30E-02 | 0.00E+00 | 4.63E-05 | 0.00E+00 | 2.25E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 6.35E-03 | 1.55E-04 | 6.79E-04 | 7.19E-03 | 0.00E+00 | 1.50E-05 | 0.00E+00 | 1.02E-04 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 9.96E-03 | 4.08E-04 | 9.49E-04 | 1.13E-02 | 0.00E+00 | 6.40E-05 | 0.00E+00 | 1.02E-04 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 30 Life cycle assessment (LCA) results for Sempla 80 Oval – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.20E-02 | 5.44E-04 | 2.96E-03 | 1.55E-02 | 0.00E+00 | 3.16E-05 | 0.00E+00 | 1.17E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 1.64E-02 | 4.36E-02 | 3.37E-03 | 6.34E-02 | 0.00E+00 | 1.53E-03 | 0.00E+00 | 4.60E-01 | 0.00E+00 |
| Radioactive waste | kg | 5.94E-06 | 1.83E-07 | 6.35E-07 | 6.76E-06 | 0.00E+00 | 1.50E-08 | 0.00E+00 | 5.98E-08 | 0.00E+00 |
| Components for re-use | kg | 3.83E-23 | -1.32E-23 | 1.29E-23 | 3.80E-23 | 0.00E+00 | -1.88E-24 | 0.00E+00 | 5.37E-24 | 0.00E+00 |
| Materials for recycling | kg | 1.43E-02 | 5.27E-04 | 1.70E-03 | 1.65E-02 | 0.00E+00 | 4.13E-05 | 0.00E+00 | 2.03E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 31 Life cycle assessment (LCA) results for Sempla 80 – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 2.36E-01 | 4.59E-02 | 3.83E-02 | 3.20E-01 | 0.00E+00 | 3.21E-03 | 0.00E+00 | 3.96E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 2.42E-01 | 4.58E-02 | 3.81E-02 | 3.26E-01 | 0.00E+00 | 3.21E-03 | 0.00E+00 | 3.95E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -6.84E-03 | 3.34E-05 | 1.31E-04 | -6.68E-03 | 0.00E+00 | 2.38E-06 | 0.00E+00 | 6.97E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 5.72E-04 | 2.36E-05 | 7.83E-05 | 6.74E-04 | 0.00E+00 | 1.48E-06 | 0.00E+00 | 1.25E-06 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 8.80E-08 | 1.02E-09 | 2.75E-09 | 9.18E-08 | 0.00E+00 | 7.01E-11 | 0.00E+00 | 1.62E-10 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 1.12E-03 | 1.72E-04 | 2.54E-04 | 1.55E-03 | 0.00E+00 | -3.68E-05 | 0.00E+00 | 3.68E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 9.41E-05 | 3.36E-06 | 1.92E-05 | 1.17E-04 | 0.00E+00 | 2.22E-07 | 0.00E+00 | 3.78E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 2.55E-04 | 4.48E-05 | 4.60E-05 | 3.46E-04 | 0.00E+00 | 1.65E-06 | 0.00E+00 | 2.16E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 2.19E-03 | 4.73E-04 | 4.92E-04 | 3.16E-03 | 0.00E+00 | 1.67E-05 | 0.00E+00 | 1.63E-04 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 8.53E-04 | 2.20E-04 | 4.57E-04 | 1.53E-03 | 0.00E+00 | 1.04E-05 | 0.00E+00 | 7.09E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 2.71E-06 | 1.37E-07 | 1.60E-06 | 4.45E-06 | 0.00E+00 | 1.06E-08 | 0.00E+00 | 1.13E-08 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 6.02E+00 | 6.87E-01 | 4.74E-01 | 7.18E+00 | 0.00E+00 | 4.56E-02 | 0.00E+00 | 1.29E-01 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.48E-01 | 3.51E-03 | 5.67E-02 | 2.08E-01 | 0.00E+00 | 2.20E-04 | 0.00E+00 | 1.07E-03 | 0.00E+00 |

*Table 32 Life cycle assessment (LCA) results for Sempla 80 – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.68E-08 | 6.88E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 3.15E-02 | 2.42E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 2.18E-10 | 1.90E-12 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 5.66E-09 | 7.02E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 33 Life cycle assessment (LCA) results for Sempla 80 - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.90E-01 | 1.04E-02 | 1.56E+00 | 2.06E+00 | 0.00E+00 | 7.91E-04 | 0.00E+00 | 5.44E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 4.90E-01 | 1.04E-02 | 1.56E+00 | 2.06E+00 | 0.00E+00 | 7.91E-04 | 0.00E+00 | 5.44E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 5.54E+00 | 6.28E-01 | 4.58E-01 | 6.62E+00 | 0.00E+00 | 4.17E-02 | 0.00E+00 | 1.17E-01 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 4.80E-01 | 5.96E-02 | 1.60E-02 | 5.55E-01 | 0.00E+00 | 3.96E-03 | 0.00E+00 | 1.14E-02 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 6.02E+00 | 6.87E-01 | 4.74E-01 | 7.18E+00 | 0.00E+00 | 4.56E-02 | 0.00E+00 | 1.29E-01 | 0.00E+00 |
| Consumption of secondary materials | kg | 3.63E-02 | 7.23E-04 | 2.45E-03 | 3.94E-02 | 0.00E+00 | 5.53E-05 | 0.00E+00 | 2.69E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 7.59E-03 | 1.85E-04 | 8.12E-04 | 8.59E-03 | 0.00E+00 | 1.79E-05 | 0.00E+00 | 1.22E-04 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 1.19E-02 | 4.88E-04 | 1.13E-03 | 1.35E-02 | 0.00E+00 | 7.65E-05 | 0.00E+00 | 1.22E-04 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 32 Life cycle assessment (LCA) results for Sempla 80 – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.44E-02 | 6.51E-04 | 3.54E-03 | 1.86E-02 | 0.00E+00 | 3.78E-05 | 0.00E+00 | 1.40E-04 | 0.00E+00 |
| Non-hazardous waste | kg | 1.97E-02 | 5.21E-02 | 4.03E-03 | 7.58E-02 | 0.00E+00 | 1.83E-03 | 0.00E+00 | 5.50E-01 | 0.00E+00 |
| Radioactive waste | kg | 7.10E-06 | 2.18E-07 | 7.60E-07 | 8.08E-06 | 0.00E+00 | 1.80E-08 | 0.00E+00 | 7.14E-08 | 0.00E+00 |
| Components for re-use | kg | 4.58E-03 | -1.58E-03 | 1.55E-03 | 4.54E-03 | 0.00E+00 | 2.25E-04 | 0.00E+00 | 6.42E-04 | 0.00E+00 |
| Materials for recycling | kg | 1.71E-02 | 6.30E-04 | 2.03E-03 | 1.97E-02 | 0.00E+00 | 4.94E-05 | 0.00E+00 | 2.42E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 33 Life cycle assessment (LCA) results for Esquero – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 3.20E-01 | 2.04E-02 | 1.71E-02 | 3.58E-01 | 0.00E+00 | 0.2448 | 0.00E+00 | 1.76E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 3.22E-01 | 2.04E-02 | 1.70E-02 | 3.59E-01 | 0.00E+00 | 1.43E-03 | 0.00E+00 | 1.76E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.87E-03 | 1.49E-05 | 5.84E-05 | -1.80E-03 | 0.00E+00 | 1.43E-03 | 0.00E+00 | 3.10E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 4.32E-04 | 1.05E-05 | 3.50E-05 | 4.78E-04 | 0.00E+00 | 1.06E-06 | 0.00E+00 | 5.57E-07 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 1.52E-07 | 4.53E-10 | 1.23E-09 | 1.53E-07 | 0.00E+00 | 6.57E-07 | 0.00E+00 | 7.21E-11 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 1.55E-03 | 7.65E-05 | 1.14E-04 | 1.74E-03 | 0.00E+00 | 3.12E-11 | 0.00E+00 | 1.64E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 1.20E-04 | 1.49E-06 | 8.59E-06 | 1.30E-04 | 0.00E+00 | -1.64E-05 | 0.00E+00 | 1.68E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 3.07E-04 | 2.00E-05 | 2.06E-05 | 3.47E-04 | 0.00E+00 | 9.89E-08 | 0.00E+00 | 9.59E-05 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 2.90E-03 | 2.10E-04 | 2.20E-04 | 3.33E-03 | 0.00E+00 | 7.34E-07 | 0.00E+00 | 7.27E-05 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 2.42E-03 | 9.80E-05 | 7.74E-05 | 2.60E-03 | 0.00E+00 | 7.43E-06 | 0.00E+00 | 3.15E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 4.81E-06 | 6.09E-08 | 7.18E-07 | 5.59E-06 | 0.00E+00 | 4.62E-06 | 0.00E+00 | 5.03E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 8.30E+00 | 3.06E-01 | 2.12E-01 | 8.82E+00 | 0.00E+00 | 4.71E-09 | 0.00E+00 | 5.74E-02 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.88E-01 | 1.56E-03 | 2.54E-02 | 2.15E-01 | 0.00E+00 | 2.03E-02 | 0.00E+00 | 4.75E-04 | 0.00E+00 |

*Table 34 Life cycle assessment (LCA) results for Esquero – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A5 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.55E-08 | 3.06E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 4.01E-02 | 1.08E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 2.42E-10 | 8.45E-13 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 6.61E-09 | 3.13E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 35 Life cycle assessment (LCA) results for Esquero - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.91E-01 | 4.62E-03 | 6.98E-01 | 1.19E+00 | 0.00E+00 | 3.52E-04 | 0.00E+00 | 2.42E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 4.91E-01 | 4.62E-03 | 6.98E-01 | 1.19E+00 | 0.00E+00 | 3.52E-04 | 0.00E+00 | 2.42E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 7.65E+00 | 2.79E-01 | 2.05E-01 | 8.14E+00 | 0.00E+00 | 1.85E-02 | 0.00E+00 | 5.23E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 6.49E-01 | 2.65E-02 | 7.15E-03 | 6.82E-01 | 0.00E+00 | 1.76E-03 | 0.00E+00 | 5.09E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 8.30E+00 | 3.06E-01 | 2.12E-01 | 8.82E+00 | 0.00E+00 | 2.03E-02 | 0.00E+00 | 5.74E-02 | 0.00E+00 |
| Consumption of secondary materials | kg | 3.17E-02 | 3.22E-04 | 1.09E-03 | 3.31E-02 | 0.00E+00 | 2.46E-05 | 0.00E+00 | 1.20E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 1.06E-02 | 8.23E-05 | 3.63E-04 | 1.11E-02 | 0.00E+00 | 7.96E-06 | 0.00E+00 | 5.43E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 1.63E-02 | 2.17E-04 | 5.07E-04 | 1.70E-02 | 0.00E+00 | 3.40E-05 | 0.00E+00 | 5.43E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 36 Life cycle assessment (LCA) results for Esquero – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.29E-02 | 2.90E-04 | 1.58E-03 | 1.48E-02 | 0.00E+00 | 1.68E-05 | 0.00E+00 | 6.23E-05 | 0.00E+00 |
| Non-hazardous waste | kg | 2.43E-02 | 2.32E-02 | 1.80E-03 | 4.93E-02 | 0.00E+00 | 8.17E-04 | 0.00E+00 | 2.45E-01 | 0.00E+00 |
| Radioactive waste | kg | 9.90E-06 | 9.72E-08 | 3.40E-07 | 1.03E-05 | 0.00E+00 | 8.00E-09 | 0.00E+00 | 3.18E-08 | 0.00E+00 |
| Components for re-use | kg | 1.26E-02 | -7.05E-04 | 6.91E-04 | 1.26E-02 | 0.00E+00 | -1.00E-04 | 0.00E+00 | 2.86E-04 | 0.00E+00 |
| Materials for recycling | kg | 2.09E-02 | 2.80E-04 | 9.10E-04 | 2.21E-02 | 0.00E+00 | 2.20E-05 | 0.00E+00 | 1.08E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 37 Life cycle assessment (LCA) results for Esquero Duo – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 2.97E-01 | 1.90E-02 | 1.59E-02 | 3.32E-01 | 0.00E+00 | 0.2276 | 0.00E+00 | 0.2276 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 2.98E-01 | 1.90E-02 | 1.58E-02 | 3.33E-01 | 0.00E+00 | 1.33E-03 | 0.00E+00 | 1.64E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.44E-03 | 1.38E-05 | 5.43E-05 | -1.38E-03 | 0.00E+00 | 1.33E-03 | 0.00E+00 | 1.63E-02 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 3.82E-04 | 9.75E-06 | 3.26E-05 | 4.24E-04 | 0.00E+00 | 9.86E-07 | 0.00E+00 | 2.88E-05 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 1.41E-07 | 4.21E-10 | 1.14E-09 | 1.42E-07 | 0.00E+00 | 6.11E-07 | 0.00E+00 | 5.18E-07 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 1.44E-03 | 7.11E-05 | 1.06E-04 | 1.61E-03 | 0.00E+00 | 2.90E-11 | 0.00E+00 | 6.70E-11 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 1.11E-04 | 1.39E-06 | 7.98E-06 | 1.20E-04 | 0.00E+00 | 1.52E-05 | 0.00E+00 | 1.52E-05 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 2.82E-04 | 1.85E-05 | 1.91E-05 | 3.20E-04 | 0.00E+00 | 9.20E-08 | 0.00E+00 | 1.56E-07 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 2.68E-03 | 1.96E-04 | 2.05E-04 | 3.08E-03 | 0.00E+00 | 6.82E-07 | 0.00E+00 | 8.92E-05 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 2.25E-03 | 9.11E-05 | 7.20E-05 | 2.41E-03 | 0.00E+00 | 6.91E-06 | 0.00E+00 | 6.76E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 4.47E-06 | 5.66E-08 | 6.67E-07 | 5.19E-06 | 0.00E+00 | 4.29E-06 | 0.00E+00 | 2.93E-05 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 7.70E+00 | 2.84E-01 | 1.97E-01 | 8.19E+00 | 0.00E+00 | 4.38E-09 | 0.00E+00 | 4.68E-09 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.74E-01 | 1.45E-03 | 2.36E-02 | 1.99E-01 | 0.00E+00 | 1.89E-02 | 0.00E+00 | 5.34E-02 | 0.00E+00 |

*Table 38 Life cycle assessment (LCA) results for Esquero Duo – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A5 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.43E-08 | 2.85E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 3.72E-02 | 1.00E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 2.24E-10 | 7.86E-13 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 6.14E-09 | 2.91E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 39 Life cycle assessment (LCA) results for Esquero Duo - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 4.47E-01 | 4.29E-03 | 6.49E-01 | 1.10E+00 | 0.00E+00 | 3.27E-04 | 0.00E+00 | 2.25E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 4.47E-01 | 4.29E-03 | 6.49E-01 | 1.10E+00 | 0.00E+00 | 3.27E-04 | 0.00E+00 | 2.25E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 7.10E+00 | 2.60E-01 | 1.91E-01 | 7.55E+00 | 0.00E+00 | 1.72E-02 | 0.00E+00 | 4.86E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 6.03E-01 | 2.47E-02 | 6.65E-03 | 6.34E-01 | 0.00E+00 | 1.64E-03 | 0.00E+00 | 4.73E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 7.70E+00 | 2.84E-01 | 1.97E-01 | 8.19E+00 | 0.00E+00 | 1.89E-02 | 0.00E+00 | 5.34E-02 | 0.00E+00 |
| Consumption of secondary materials | kg | 2.84E-02 | 2.99E-04 | 1.02E-03 | 2.97E-02 | 0.00E+00 | 2.29E-05 | 0.00E+00 | 1.12E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 9.86E-03 | 7.65E-05 | 3.38E-04 | 1.03E-02 | 0.00E+00 | 7.40E-06 | 0.00E+00 | 5.05E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 1.51E-02 | 2.02E-04 | 4.72E-04 | 1.58E-02 | 0.00E+00 | 3.16E-05 | 0.00E+00 | 5.05E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 40 Life cycle assessment (LCA) results for Esquero Duo – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.20E-02 | 2.69E-04 | 1.47E-03 | 1.37E-02 | 0.00E+00 | 1.57E-05 | 0.00E+00 | 5.79E-05 | 0.00E+00 |
| Non-hazardous waste | kg | 2.23E-02 | 2.16E-02 | 1.68E-03 | 4.56E-02 | 0.00E+00 | 7.59E-04 | 0.00E+00 | 2.28E-01 | 0.00E+00 |
| Radioactive waste | kg | 9.18E-06 | 9.04E-08 | 3.16E-07 | 9.58E-06 | 0.00E+00 | 7.43E-09 | 0.00E+00 | 2.96E-08 | 0.00E+00 |
| Components for re-use | kg | 1.15E-02 | -6.55E-04 | 6.43E-04 | 1.15E-02 | 0.00E+00 | 9.29E-05 | 0.00E+00 | 2.66E-04 | 0.00E+00 |
| Materials for recycling | kg | 1.92E-02 | 2.61E-04 | 8.46E-04 | 2.03E-02 | 0.00E+00 | 2.04E-05 | 0.00E+00 | 1.00E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 41 Life cycle assessment (LCA) results for Linela – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 3.40E-01 | 2.18E-02 | 1.83E-02 | 3.80E-01 | 0.00E+00 | 1.53E-03 | 0.00E+00 | 1.88E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 3.41E-01 | 2.17E-02 | 1.82E-02 | 3.81E-01 | 0.00E+00 | 1.52E-03 | 0.00E+00 | 1.87E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -1.37E-03 | 1.58E-05 | 6.23E-05 | -1.29E-03 | 0.00E+00 | 1.13E-06 | 0.00E+00 | 3.31E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 4.22E-04 | 1.12E-05 | 3.73E-05 | 4.70E-04 | 0.00E+00 | 7.00E-07 | 0.00E+00 | 5.94E-07 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 1.61E-07 | 4.83E-10 | 1.31E-09 | 1.63E-07 | 0.00E+00 | 3.33E-11 | 0.00E+00 | 7.68E-11 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 1.64E-03 | 8.16E-05 | 1.21E-04 | 1.85E-03 | 0.00E+00 | -1.74E-05 | 0.00E+00 | 1.74E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 1.27E-04 | 1.59E-06 | 9.16E-06 | 1.38E-04 | 0.00E+00 | 1.05E-07 | 0.00E+00 | 1.79E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 3.21E-04 | 2.13E-05 | 2.19E-05 | 3.64E-04 | 0.00E+00 | 7.82E-07 | 0.00E+00 | 1.02E-04 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 3.06E-03 | 2.24E-04 | 2.35E-04 | 3.52E-03 | 0.00E+00 | 7.92E-06 | 0.00E+00 | 7.75E-05 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 2.57E-03 | 1.04E-04 | 8.26E-05 | 2.76E-03 | 0.00E+00 | 4.92E-06 | 0.00E+00 | 3.36E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 5.12E-06 | 6.49E-08 | 7.65E-07 | 5.95E-06 | 0.00E+00 | 5.02E-09 | 0.00E+00 | 5.36E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 8.82E+00 | 3.26E-01 | 2.26E-01 | 9.38E+00 | 0.00E+00 | 2.16E-02 | 0.00E+00 | 6.12E-02 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 1.99E-01 | 1.67E-03 | 2.70E-02 | 2.28E-01 | 0.00E+00 | 1.04E-04 | 0.00E+00 | 5.07E-04 | 0.00E+00 |

*Table 42 Life cycle assessment (LCA) results for Linela – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.64E-08 | 3.26E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 4.26E-02 | 1.15E-04 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 2.57E-10 | 9.01E-13 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 7.03E-09 | 3.33E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 43 Life cycle assessment (LCA) results for Linela - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 5.04E-01 | 4.92E-03 | 7.44E-01 | 1.25E+00 | 0.00E+00 | 3.75E-04 | 0.00E+00 | 2.58E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 5.04E-01 | 4.92E-03 | 7.44E-01 | 1.25E+00 | 0.00E+00 | 3.75E-04 | 0.00E+00 | 2.58E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 8.13E+00 | 2.98E-01 | 2.19E-01 | 8.65E+00 | 0.00E+00 | 1.98E-02 | 0.00E+00 | 5.58E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 6.91E-01 | 2.83E-02 | 7.63E-03 | 7.27E-01 | 0.00E+00 | 1.88E-03 | 0.00E+00 | 5.43E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 8.82E+00 | 3.26E-01 | 2.26E-01 | 9.38E+00 | 0.00E+00 | 2.16E-02 | 0.00E+00 | 6.12E-02 | 0.00E+00 |
| Consumption of secondary materials | kg | 3.17E-02 | 3.43E-04 | 1.17E-03 | 3.32E-02 | 0.00E+00 | 2.63E-05 | 0.00E+00 | 1.28E-04 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 1.13E-02 | 8.77E-05 | 3.87E-04 | 1.18E-02 | 0.00E+00 | 8.49E-06 | 0.00E+00 | 5.79E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 1.73E-02 | 2.32E-04 | 5.41E-04 | 1.81E-02 | 0.00E+00 | 3.63E-05 | 0.00E+00 | 5.79E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 44 Life cycle assessment (LCA) results for Linela – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.37E-02 | 3.09E-04 | 1.69E-03 | 1.57E-02 | 0.00E+00 | 1.80E-05 | 0.00E+00 | 6.64E-05 | 0.00E+00 |
| Non-hazardous waste | kg | 2.54E-02 | 2.47E-02 | 1.92E-03 | 5.20E-02 | 0.00E+00 | 8.71E-04 | 0.00E+00 | 2.61E-01 | 0.00E+00 |
| Radioactive waste | kg | 1.05E-05 | 1.04E-07 | 3.62E-07 | 1.10E-05 | 0.00E+00 | 8.52E-09 | 0.00E+00 | 3.39E-08 | 0.00E+00 |
| Components for re-use | kg | 1.30E-02 | -7.51E-04 | 7.37E-04 | 1.30E-02 | 0.00E+00 | 1.07E-04 | 0.00E+00 | 3.05E-04 | 0.00E+00 |
| Materials for recycling | kg | 2.19E-02 | 2.99E-04 | 9.70E-04 | 2.31E-02 | 0.00E+00 | 2.34E-05 | 0.00E+00 | 1.15E-04 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 45 Life cycle assessment (LCA) results for Izzy – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 5.69E-01 | 1.98E-02 | 2.86E-02 | 6.18E-01 | 0.00E+00 | 1.10E-03 | 0.00E+00 | 1.35E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 5.61E-01 | 1.98E-02 | 2.86E-02 | 6.10E-01 | 0.00E+00 | 1.10E-03 | 0.00E+00 | 1.35E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -9.39E-05 | 1.41E-05 | -2.80E-05 | -1.08E-04 | 0.00E+00 | 8.14E-07 | 0.00E+00 | 2.38E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 8.29E-03 | 1.01E-05 | 3.96E-06 | 8.30E-03 | 0.00E+00 | 5.04E-07 | 0.00E+00 | 4.28E-07 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 3.16E-07 | 4.39E-10 | 3.23E-10 | 3.17E-07 | 0.00E+00 | 2.40E-11 | 0.00E+00 | 5.53E-11 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 2.36E-03 | 8.08E-05 | 2.02E-04 | 2.64E-03 | 0.00E+00 | -1.26E-05 | 0.00E+00 | 1.26E-05 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 2.68E-04 | 1.43E-06 | 8.34E-06 | 2.78E-04 | 0.00E+00 | 7.60E-08 | 0.00E+00 | 1.29E-07 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 4.87E-04 | 2.11E-05 | 3.14E-05 | 5.39E-04 | 0.00E+00 | 5.64E-07 | 0.00E+00 | 7.37E-05 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 4.41E-03 | 2.23E-04 | 3.24E-04 | 4.95E-03 | 0.00E+00 | 5.71E-06 | 0.00E+00 | 5.58E-05 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 2.87E-03 | 1.00E-04 | 1.00E-04 | 3.07E-03 | 0.00E+00 | 3.55E-06 | 0.00E+00 | 2.42E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 8.26E-06 | 5.70E-08 | 6.45E-08 | 8.38E-06 | 0.00E+00 | 3.62E-09 | 0.00E+00 | 3.86E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 1.51E+01 | 2.97E-01 | 6.22E-01 | 1.60E+01 | 0.00E+00 | 1.56E-02 | 0.00E+00 | 4.41E-02 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 3.46E-01 | 1.50E-03 | 2.86E-02 | 3.77E-01 | 0.00E+00 | 7.52E-05 | 0.00E+00 | 3.65E-04 | 0.00E+00 |

*Table 46 Life cycle assessment (LCA) results for Izzy – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A5 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 2.20E-08 | 2.35E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 1.17E-01 | 8.28E-05 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 3.71E-10 | 6.49E-13 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 1.04E-08 | 2.40E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 47 Life cycle assessment (LCA) results for Izzy - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 8.94E-01 | 4.36E-03 | 1.51E-01 | 1.05E+00 | 0.00E+00 | 2.70E-04 | 0.00E+00 | 1.86E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 8.94E-01 | 4.36E-03 | 1.51E-01 | 1.05E+00 | 0.00E+00 | 2.70E-04 | 0.00E+00 | 1.86E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 1.39E+01 | 2.71E-01 | 6.13E-01 | 1.48E+01 | 0.00E+00 | 1.42E-02 | 0.00E+00 | 4.02E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 1.21E+00 | 2.58E-02 | 9.65E-03 | 1.24E+00 | 0.00E+00 | 1.35E-03 | 0.00E+00 | 3.91E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 1.51E+01 | 2.97E-01 | 6.22E-01 | 1.60E+01 | 0.00E+00 | 1.56E-02 | 0.00E+00 | 4.41E-02 | 0.00E+00 |
| Consumption of secondary materials | kg | 4.78E-02 | 3.04E-04 | 4.50E-04 | 4.86E-02 | 0.00E+00 | 1.89E-05 | 0.00E+00 | 9.21E-05 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 2.09E-02 | 7.57E-05 | 1.96E-04 | 2.12E-02 | 0.00E+00 | 6.12E-06 | 0.00E+00 | 4.17E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 2.89E-02 | 1.85E-04 | 2.63E-04 | 2.93E-02 | 0.00E+00 | 2.61E-05 | 0.00E+00 | 4.17E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 48 Life cycle assessment (LCA) results for Izzy – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 2.24E-02 | 2.81E-04 | 1.20E-03 | 2.39E-02 | 0.00E+00 | 1.29E-05 | 0.00E+00 | 4.79E-05 | 0.00E+00 |
| Non-hazardous waste | kg | 6.08E-02 | 2.31E-02 | 1.50E-03 | 8.54E-02 | 0.00E+00 | 6.27E-04 | 0.00E+00 | 1.88E-01 | 0.00E+00 |
| Radioactive waste | kg | 2.36E-05 | 9.12E-08 | 7.56E-06 | 3.12E-05 | 0.00E+00 | 6.14E-09 | 0.00E+00 | 2.44E-08 | 0.00E+00 |
| Components for re-use | kg | 5.99E-02 | 6.26E-04 | 6.10E-02 | 1.70E-03 | 0.00E+00 | 7.68E-05 | 0.00E+00 | 2.19E-04 | 0.00E+00 |
| Materials for recycling | kg | 3.84E-02 | 2.64E-04 | 4.24E-04 | 3.91E-02 | 0.00E+00 | 1.69E-05 | 0.00E+00 | 8.29E-05 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

*Table 49 Life cycle assessment (LCA) results for Flex – environmental impacts (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Global Warming Potential | eq. kg $CO_2$ | 4.24E-01 | 1.47E-02 | 2.13E-02 | 4.60E-01 | 0.00E+00 | 8.18E-04 | 0.00E+00 | 1.01E-02 | 0.00E+00 |
| Greenhouse potential - fossil | eq. kg $CO_2$ | 4.18E-01 | 1.47E-02 | 2.13E-02 | 4.54E-01 | 0.00E+00 | 8.17E-04 | 0.00E+00 | 1.01E-02 | 0.00E+00 |
| Greenhouse potential - biogenic | eq. kg $CO_2$ | -6.99E-05 | 1.05E-05 | -2.09E-05 | -8.03E-05 | 0.00E+00 | 6.06E-07 | 0.00E+00 | 1.77E-05 | 0.00E+00 |
| Global warming potential - land use and land use change | eq. kg $CO_2$ | 6.17E-03 | 7.55E-06 | 2.95E-06 | 6.18E-03 | 0.00E+00 | 3.76E-07 | 0.00E+00 | 3.18E-07 | 0.00E+00 |
| Stratospheric ozone depletion potential | eq. kg CFC 11 | 2.36E-07 | 3.27E-10 | 2.41E-10 | 2.36E-07 | 0.00E+00 | 1.78E-11 | 0.00E+00 | 4.12E-11 | 0.00E+00 |
| Soil and water acidification potential | eq. mol H+ | 1.76E-03 | 6.01E-05 | 1.50E-04 | 1.97E-03 | 0.00E+00 | -9.35E-06 | 0.00E+00 | 9.35E-06 | 0.00E+00 |
| Eutrophication potential - freshwater | eq. kg P | 2.00E-04 | 1.06E-06 | 6.21E-06 | 2.07E-04 | 0.00E+00 | 5.66E-08 | 0.00E+00 | 9.62E-08 | 0.00E+00 |
| Eutrophication potential - seawater | eq. kg N | 3.63E-04 | 1.57E-05 | 2.34E-05 | 4.02E-04 | 0.00E+00 | 4.20E-07 | 0.00E+00 | 5.49E-05 | 0.00E+00 |
| Eutrophication potential - terrestrial | eq. mol N | 3.28E-03 | 1.66E-04 | 2.41E-04 | 3.69E-03 | 0.00E+00 | 4.25E-06 | 0.00E+00 | 4.16E-05 | 0.00E+00 |
| Potential for photochemical ozone synthesis | eq. kg NMVOC | 2.14E-03 | 7.45E-05 | 7.47E-05 | 2.29E-03 | 0.00E+00 | 2.64E-06 | 0.00E+00 | 1.80E-05 | 0.00E+00 |
| Potential for depletion of abiotic resources - non-fossil resources | eq. kg Sb | 6.15E-06 | 4.24E-08 | 4.80E-08 | 6.24E-06 | 0.00E+00 | 2.69E-09 | 0.00E+00 | 2.88E-09 | 0.00E+00 |
| Abiotic depletion potential - fossil fuels | MJ | 1.13E+01 | 2.21E-01 | 4.63E-01 | 1.19E+01 | 0.00E+00 | 1.16E-02 | 0.00E+00 | 3.28E-02 | 0.00E+00 |
| Water deprivation potential | eq. $m^3$ | 2.58E-01 | 1.12E-03 | 2.13E-02 | 2.80E-01 | 0.00E+00 | 5.60E-05 | 0.00E+00 | 2.72E-04 | 0.00E+00 |

*Table 50 Life cycle assessment (LCA) results for Flex – additional impacts indicators (DU: 1 m)*

| Indicator | Unit | A1-A3 | C1-C4 | D |
|---|---|---|---|---|
| Particulate matter | disease incidence | 1.64E-08 | 1.75E-10 | 0.00E+00 |
| Potential human exposure efficiency relative to U235 | eg. kBq U235 | 8.71E-02 | 6.17E-05 | 0.00E+00 |
| Potential comparative toxic unit for ecosystems | CTUe | INA | INA | INA |
| Potential comparative toxic unit for humans (cancer effects) | CTUh | 2.76E-10 | 4.83E-13 | 0.00E+00 |
| Potential comparative toxic unit for humans (non-cancer effects) | CTUh | 7.75E-09 | 1.79E-11 | 0.00E+00 |
| Potential soil quality index | dimensionless | INA | INA | INA |

*Table 51 Life cycle assessment (LCA) results for Flex - the resource use (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Consumption of renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 6.66E-01 | 3.25E-03 | 1.12E-01 | 7.81E-01 | 0.00E+00 | 2.01E-04 | 0.00E+00 | 1.39E-03 | 0.00E+00 |
| Consumption of renewable primary energy resources used as raw materials | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Total consumption of renewable primary energy resources | MJ | 6.66E-01 | 3.25E-03 | 1.12E-01 | 7.81E-01 | 0.00E+00 | 2.01E-04 | 0.00E+00 | 1.39E-03 | 0.00E+00 |
| Consumption of non-renewable primary energy - excluding renewable primary energy sources used as raw materials | MJ | 1.04E+01 | 2.02E-01 | 4.56E-01 | 1.10E+01 | 0.00E+00 | 1.06E-02 | 0.00E+00 | 2.99E-02 | 0.00E+00 |
| Consumption of non-renewable primary energy resources used as raw materials | MJ | 8.98E-01 | 1.92E-02 | 7.18E-03 | 9.24E-01 | 0.00E+00 | 1.01E-03 | 0.00E+00 | 2.91E-03 | 0.00E+00 |
| Total consumption of non-renewable primary energy resources | MJ | 1.13E+01 | 2.21E-01 | 4.63E-01 | 1.19E+01 | 0.00E+00 | 1.16E-02 | 0.00E+00 | 3.28E-02 | 0.00E+00 |
| Consumption of secondary materials | kg | 3.56E-02 | 2.26E-04 | 3.35E-04 | 3.62E-02 | 0.00E+00 | 1.41E-05 | 0.00E+00 | 6.86E-05 | 0.00E+00 |
| Consumption of renew. secondary fuels | MJ | 1.56E-02 | 5.64E-05 | 1.46E-04 | 1.58E-02 | 0.00E+00 | 4.55E-06 | 0.00E+00 | 3.11E-05 | 0.00E+00 |
| Consumption of non-renewable secondary fuels | MJ | 2.15E-02 | 1.38E-04 | 1.96E-04 | 2.18E-02 | 0.00E+00 | 1.95E-05 | 0.00E+00 | 3.11E-05 | 0.00E+00 |
| Net consumption of freshwater | $m^3$ | INA | INA | INA | INA | INA | INA | INA | INA | INA |

*Table 52 Life cycle assessment (LCA) results for Flex – waste categories (DU: 1 m)*

| Indicator | Unit | A1 | A2 | A3 | A1-A3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| Hazardous waste | kg | 1.67E-02 | 2.09E-04 | 8.91E-04 | 1.78E-02 | 0.00E+00 | 9.63E-06 | 0.00E+00 | 3.56E-05 | 0.00E+00 |
| Non-hazardous waste | kg | 4.53E-02 | 1.72E-02 | 1.11E-03 | 6.36E-02 | 0.00E+00 | 4.67E-04 | 0.00E+00 | 1.40E-01 | 0.00E+00 |
| Radioactive waste | kg | 1.76E-05 | 6.79E-08 | 5.63E-06 | 2.33E-05 | 0.00E+00 | 4.57E-09 | 0.00E+00 | 1.82E-08 | 0.00E+00 |
| Components for re-use | kg | 4.46E-02 | -4.66E-04 | -4.54E-02 | -1.27E-03 | 0.00E+00 | 5.72E-05 | 0.00E+00 | 1.63E-04 | 0.00E+00 |
| Materials for recycling | kg | 2.86E-02 | 1.97E-04 | 3.15E-04 | 2.91E-02 | 0.00E+00 | 1.26E-05 | 0.00E+00 | 6.17E-05 | 0.00E+00 |
| Materials for energy recovery | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

## Verification

The process of verification of this EPD is in accordance with ISO 14025 and ISO 21930. After verification, this EPD is valid for a 5-year-period. EPD does not have to be recalculated after 5 years, if the underlying data have not changed significantly.

| The basis for LCA analysis was EN 15804+A2 and ITB PCR A |
|---|
| Independent verification corresponding to ISO 14025 (subclause 8.1.3.)<br>☒ external ☐ internal |
| External verification of EPD: PhD. Eng. Halina Prejzner<br>LCI data, audit and verification: Michał Chwedaczuk, M.Sc. Eng.<br>LCA, LCI audit and input data verification: Michał Piasecki, PhD., D.Sc., Eng. |

*Note 1: The declaration owner has the sole ownership, liability, and responsibility for the information provided and contained in EPD. Declarations of construction products may not be comparable if they do not comply with EN 15804+A2. For further information about comparability, see EN 15804+A2 and ISO 14025.*

*Note 2: ITB is a public Research Organization and Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' performance. ITB acts as the independent, third-party verification organization (ISO 17025/17065/17029). ITB-EPD program is recognized and registered member of The European Platform - Association of EPD program operators and ITB-EPD declarations are registered and stored in the international ECO-PORTAL.*

## Normative references


- ITB PCR A General Product Category Rules for Construction Products (v. 1.6, 2023)
- ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines
- ISO 15686-1:2011 Buildings and constructed assets – Service life planning – Part 1: General principles and framework
- ISO 15686-8:2008 Buildings and constructed assets – Service life planning – Part 8: Reference service life and service-life estimation
- EN 15804:2012+A2:2019 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- ISO 14067:2018 Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification
- PN-EN 15942:2012 Sustainability of construction works – Environmental product declarations – Communication format business-to-business
- KOBiZE Wskaźniki emisyjności $CO_2$, $SO_2$, $NO_x$, CO i pyłu całkowitego dla energii elektrycznej. December 2023
- https://ecoinvent.org/


LCA,LCI, input data verification
Michał Piasecki, PhD. D.Sc.
Qualified electronic signature

Head of Thermal Physic, Acoustic and Environment Department
Agnieszka Winkler-Skalna, PhD.
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# CERTIFICATE № 868/2025
# of TYPE III ENVIRONMENTAL DECLARATION

Products:

**VOX skirting board systems**

Manufacturer:

**Profile Vox Sp. z o.o. sp. k.**
ul. Gdyńska 143, 62-004 Czerwonak, Poland

confirms the correctness of the data included in the development of
Type III Environmental Declaration and accordance with the requirements of the standard

**EN 15804+A2**

**Sustainability of construction works.**
**Environmental product declarations.**
**Core rules for the product category of construction products.**

This certificate, issued on 13th November 2025 is valid for 5 years
or until amendment of mentioned Environmental Declaration

Head of the Thermal Physic, Acoustics and Environment Department
Agnieszka Winkler-Skalna, PhD

INSTYTUT TECHNIKI BUDOWLANEJ

Deputy Director for Research and Innovation
Krzysztof Kuczyński, PhD

Warsaw, November 2025