

# Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

## ***Şişecam Laminated Glass***

- ***“Sisecam Ultra Clear laminated glass”***

- **Products Identification Code (Width):**

33.1 33.2 44.1 44.2 55.1 55.2 66.1 66.2 88.1 88.2 88.12

- ***“Sisecam Extra Clear laminated glass”***

- **Products Identification Code (Width):**

33.1 33.2 44.1 44.2 55.1 55.2 66.1 66.2 88.1 88.2 88.12

from

**Şişecam Flat Glass Italy Srl**



|                          |                                                                                           |
|--------------------------|-------------------------------------------------------------------------------------------|
| Programme:               | The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a> |
| Programme operator:      | EPD International AB                                                                      |
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| Scope of the EPD®:       | Global                                                                                    |
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*An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)*

## General information

### Programme information

|                   |                                                                     |
|-------------------|---------------------------------------------------------------------|
| <b>Programme:</b> | The International EPD® System                                       |
| <b>Address:</b>   | EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| <b>Website:</b>   | <a href="http://www.environdec.com">www.environdec.com</a>          |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CEN standard EN 15804 serves as the Core Product Category Rules (PCR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <p>Product category rules (PCR):</p> <p><i>PCR 2019:14 Construction products (EN 15804:A2) (1.11);</i></p> <p><i>c-PCR-009 Flat glass products used in buildings and other construction works (EN 17074) (2021-01-25)</i></p> <p>Other standards:</p> <p><i>EN 17074:2019 Glass in building - Environmental product declaration - Product category rules for flat glass products</i></p> <p><i>ISO 21930:2017 "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services"</i></p> |
| <p>PCR review was conducted by:</p> <p><i>The Technical Committee of the International EPD® System. See <a href="http://www.environdec.com/TC">www.environdec.com/TC</a> for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>.</i></p>                                                                                                                                                                 |
| <p>Independent third-party verification of the declaration and data, according to ISO 14025:2006:</p> <p><input checked="" type="checkbox"/> External certification      <input type="checkbox"/> Internal</p> <p>Covering</p> <p><input type="checkbox"/> EPD process certification   <input checked="" type="checkbox"/> EPD verification</p>                                                                                                                                                                                                                           |
| <p>Third party verifier: <i>SGS Italia S.p.A. Via Caldera, 21, Milan 20153, Italy</i></p> <p>Accredited by: <i>ACCREDIA</i></p> <p>Accreditation number <i>DAP N° 006H</i></p>                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>Procedure for follow-up of data during EPD validity involves third party verifier:</p> <p><input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p>                                                                                                                                                                                                                                                                                                                                                                                                 |

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

## Company information

### Owner of the EPD:

Şişecam Flat Glass Italy S.r.l. Via Jacopo Linussio, 2, 33058 San Giorgio di Nogaro (UD), Italy.  
<https://www.sisecam.com.tr/it/chi-siamo/sisecam-in-italia>

### Contact:

Antonio Santoro: [ASANTORO@sisecam.com](mailto:ASANTORO@sisecam.com)

### Product-related or management system-related certifications

The production site is certified according to ISO 9001; ISO 14001; ISO 50001; ISO 45001. For the placing on the market of the product in the EU/EFTA (with the exception of Switzerland) Regulation (EU) No. 305/2011 /CPR/dated 9 March 2011 applies. The product needs a Declaration of Performance taking into consideration /EN 14449 - Glass in buildings// Product standard / and the /CE –marking/. Şişecam Laminated Glass products are certified according to these standards

### Name and location of production site

Sisecam Flat Glass Italy Srl, Via Jacopo Linussio, 2, 33058 San Giorgio di Nogaro (UD), Italy.

## Description of the organisation

### Trakya Cam Sanayii A.Ş. (Şişecam Flat Glass)

Founded in 1935 by İşbank at the directive of Atatürk, the founder and the first President of the Republic of Turkey, Şişecam is one of the most established industrial enterprises in Turkey with a corporate history spanning more than 85 years. As one of the most powerful industrial conglomerates in the country today, Şişecam has also transformed into a global player in all key areas of the glass industry, as well as in soda and chromium compounds business lines.

Şişecam has undertaken major efforts to become an international success with its ever-growing production power, highly reputable brand image, superior product quality and value-creating sustainable growth approach. It is currently one of the world's leading glass producers with production operations located in 14 countries on four continents and some 22,000 employees. Şişecam records sales in over 150 countries around the globe.

### Şişecam flat glass Italy s.r.l.

With the purchase of the production plant located in San Giorgio di Nogaro in 2016, Şişecam has become the largest European producer of flat glass. Thanks to its capacity and logistics, the plant located in San Giorgio di Nogaro provides important support to the competitive strength of Şişecam in the Western European flat glass market. Nogaro's annual flat glass production capacity is 220 thousand tons, and also has laminated glass production lines.

## Product information

This EPD covers the product “Şişecam laminated glass” (CPC, Version 1.1 - Code 37113) in the two variants produced by Şişecam Flat Glass Italy Srl in San Giorgio di Nogaro’s plant, commercially named:

- “Sisecam Ultra Clear laminated glass”
- “Sisecam Extra Clear laminated glass”

| Laminated Glass – Products ID | Glass Width | PVB thickness | Weight per m2 |
|-------------------------------|-------------|---------------|---------------|
| 33-1                          | 3mm + 3 mm  | 0,38 mm       | 15,40 kg      |
| 33-2                          | 3mm + 3 mm  | 0,76 mm       | 15,80 kg      |
| 44-1                          | 4mm + 4 mm  | 0,38 mm       | 20,40 kg      |
| 44-2                          | 4mm + 4 mm  | 0,76 mm       | 20,80 kg      |
| 55-1                          | 5mm + 5 mm  | 0,38 mm       | 25,40 kg      |
| 55-2                          | 5mm + 5 mm  | 0,76 mm       | 25,80 kg      |
| 66-1                          | 6mm + 6 mm  | 0,38 mm       | 30,40 kg      |
| 66-2                          | 6mm + 6 mm  | 0,76 mm       | 30,80 kg      |
| 88-1                          | 8mm + 8 mm  | 0,38 mm       | 40,40 kg      |
| 88-2                          | 8mm + 8 mm  | 0,76 mm       | 40,80 kg      |
| 88-12                         | 8mm + 8 mm  | 4,56 mm       | 44,79 kg      |

“Ultra Clear Laminated glass” and “Extra Clear Laminated glass” both represent a subset of **Laminated glass**, produced by combining two or more panes of float glass with the special binding agency Polyvinyl Butyral (PVB) interlayer under heat and pressure. The float glasses manufactured by Şişecam in the same Plant is used as raw material for the production of laminated glass. The glass is scrubbed clean to remove any impurities, after which the first sheet of quality float glass is fed along the laminating line. A PVB (Polyvinyl Butyral) interlayer is drawn over the first sheet of glass and a second sheet of glass is then placed on top of the PVB to create a 'sandwich'. This 'sandwich' passes through a specialized press and heating process. Air between PVB and glasses is removed. The laminated sheets are then stacked in a specific configuration for loading into an autoclave at high temperature and pressure.

### Product description:

Şişecam Laminated Glass is produced by combining two or more panes of float glass with special binding agency Polyvinyl Butyral (PVB) interlayers. Float glass is primarily made of raw materials like silica sand, soda ash, dolomite, limestone. In addition, cullets (recycled glasses both internal and outsourced) are also used to produce float glass.

Şişecam Laminated Glass can be incorporated into insulating glass units and it is used extensively in building and housing products. Şişecam Laminated Glass is used in various window types such as curtain walls, ribbon windows, store fronts, punched or architectural windows, overhead glazing, handrails & floors. Laminated glass is usually used with other technologies incorporated in applications such as:

- Curtain walling
- Windows
- Overhead glazing
- Internal partitions
- Balustrades
- Doors

- Interior fittings
- Shower and bath enclosures
- Areas of high pedestrian traffic, museums & art galleries where UV protection is necessary
- Areas where improved acoustic performance is a requirement
- Passageways with busy pedestrian traffic
- Store fronts
- Canopies
- Banks
- Hospitals
- Schools and kindergartens; Facilities and sport centers

## Product identification:

Şişecam Laminated Glass comes in multiple thickness, obtained by combining float glass and PVB of various width. The following table shows the different degree of thickness of Laminated glass manufactured by Şişecam Flat Glass Italy S.r.l. in the San Giorgio di Nogaro plant and their technical data. These data were used to calculate an average product:

| Extra Laminated Name (ID) | Clear Glass | Glass Width - mm - | PVB Width - mm - | Average weight for m2 -kg- | Heat transfer coefficient acc. to EN 673 - W/(m <sup>2</sup> . K) - | Total energy transmittance acc. To EN 410 - % - | Light transmission level acc. To EN 410 - % - | Airborne sound reduction acc. to /EN 12758/ - dB |
|---------------------------|-------------|--------------------|------------------|----------------------------|---------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|
| 33-1                      |             | 3+3                | 0,38             | 15,40                      | 5,7                                                                 | 76 +/- 3                                        | 89 +/- 3                                      | 32 (-1;-3)                                       |
| 33-2                      |             | 3+3                | 0,76             | 15,80                      | 5,7                                                                 | 74 +/- 3                                        | 89 +/- 3                                      | 32 (-1;-4)                                       |
| 44-1                      |             | 4+4                | 0,38             | 20,40                      | 5,7                                                                 | 73 +/- 3                                        | 88 +/- 3                                      | 33 (-1;-2)                                       |
| 44-2                      |             | 4+4                | 0,76             | 20,80                      | 5,7                                                                 | 72 +/- 3                                        | 88 +/- 3                                      | 34 (-1;-3)                                       |
| 55-1                      |             | 5+5                | 0,38             | 25,40                      | 5,6                                                                 | 73 +/- 3                                        | 88 +/- 3                                      | 34 (-1;-3)                                       |
| 55-2                      |             | 5+5                | 0,76             | 25,80                      | 5,6                                                                 | 73 +/- 3                                        | 88 +/- 3                                      | 35 (-1;-3)                                       |
| 66-1                      |             | 6+6                | 0,38             | 30,40                      | 5,5                                                                 | 67 +/- 3                                        | 86 +/- 3                                      | 35 (-1;-2)                                       |
| 66-2                      |             | 6+6                | 0,76             | 30,80                      | 5,5                                                                 | 67 +/- 3                                        | 86 +/- 3                                      | 36 (-1;-3)                                       |
| 88-1                      |             | 8+8                | 0,38             | 40,40                      | 5,4                                                                 | 60 +/- 3                                        | 84 +/- 3                                      | 36 (-1;-2)                                       |
| 88-2                      |             | 8+8                | 0,76             | 40,80                      | 5,4                                                                 | 60 +/- 3                                        | 84 +/- 3                                      | 37 (-1;-3)                                       |
| 88-12                     |             | 8+8                | 4,56             | 44,79                      | 4,9                                                                 | 57 +/- 3                                        | 83 +/- 3                                      | N.A.                                             |

| Ultra Laminated Name (ID) | Clear Glass | Glass Width - mm - | PVB Width - mm - | Average weight for m2 -kg- | Heat transfer coefficient acc. to EN 673 - W/(m <sup>2</sup> . K) - | Total energy transmittance acc. To EN 410 - % - | Light transmission level acc. To EN 410 - % - | Airborne sound reduction acc. to /EN 12758/ - dB |
|---------------------------|-------------|--------------------|------------------|----------------------------|---------------------------------------------------------------------|-------------------------------------------------|-----------------------------------------------|--------------------------------------------------|
| 33-1                      |             | 3+3                | 0,38             | 15,40                      | 5,7                                                                 | 84 +/- 3                                        | 90 +/- 3                                      | 32 (-1;-3)                                       |
| 33-2                      |             | 3+3                | 0,76             | 15,80                      | 5,7                                                                 | 82 +/- 3                                        | 90 +/- 3                                      | 33 (-1;-4)                                       |
| 44-1                      |             | 4+4                | 0,38             | 20,40                      | 5,7                                                                 | 83 +/- 3                                        | 90 +/- 3                                      | 33 (-1;-2)                                       |
| 44-2                      |             | 4+4                | 0,76             | 20,80                      | 5,7                                                                 | 82 +/- 3                                        | 90 +/- 3                                      | 34 (-1;-3)                                       |
| 55-1                      |             | 5+5                | 0,38             | 25,40                      | 5,6                                                                 | 83 +/- 3                                        | 90 +/- 3                                      | 34 (-1;-3)                                       |
| 55-2                      |             | 5+5                | 0,76             | 25,80                      | 5,6                                                                 | 81 +/- 3                                        | 90 +/- 3                                      | 35 (-1;-3)                                       |
| 66-1                      |             | 6+6                | 0,38             | 30,40                      | 5,5                                                                 | 82 +/- 3                                        | 90 +/- 3                                      | 35 (-1;-2)                                       |
| 66-2                      |             | 6+6                | 0,76             | 30,80                      | 5,5                                                                 | 81 +/- 3                                        | 90 +/- 3                                      | 36 (-1;-3)                                       |
| 88-1                      |             | 8+8                | 0,38             | 40,40                      | 5,4                                                                 | 77 +/- 3                                        | 89 +/- 3                                      | 36 (-1;-2)                                       |
| 88-2                      |             | 8+8                | 0,76             | 40,80                      | 5,4                                                                 | 74 +/- 3                                        | 89 +/- 3                                      | 37 (-1;-3)                                       |

## LCA information

### Declared unit:

The declared unit is 1 m<sup>2</sup> of Laminated glass sold by Şişecam with weight and width as per table below.

| Laminated Glass – Products ID (Width) | Glass Width | PVB thickness | Weight per m <sup>2</sup> |
|---------------------------------------|-------------|---------------|---------------------------|
| 33-1                                  | 3mm + 3 mm  | 0,38 mm       | 15,40 kg                  |
| 33-2                                  | 3mm + 3 mm  | 0,76 mm       | 15,80 kg                  |
| 44-1                                  | 4mm + 4 mm  | 0,38 mm       | 20,40 kg                  |
| 44-2                                  | 4mm + 4 mm  | 0,76 mm       | 20,80 kg                  |
| 55-1                                  | 5mm + 5 mm  | 0,38 mm       | 25,40 kg                  |
| 55-2                                  | 5mm + 5 mm  | 0,76 mm       | 25,80 kg                  |
| 66-1                                  | 6mm + 6 mm  | 0,38 mm       | 30,40 kg                  |
| 66-2                                  | 6mm + 6 mm  | 0,76 mm       | 30,80 kg                  |
| 88-1                                  | 8mm + 8 mm  | 0,38 mm       | 40,40 kg                  |
| 88-2                                  | 8mm + 8 mm  | 0,76 mm       | 40,80 kg                  |
| 88-12                                 | 8mm + 8 mm  | 4,56 mm       | 44,79 kg                  |

### Reference service life

Not applicable

### Time representativeness

The period covered by the data used for the LCA calculation comprise of the first six months of the year 2021. Such timeframe was chosen due to production data anomalies for 2020, caused by the Covid -19 pandemic outburst, and the outdatedness of data relating to previous years. Operations at Nogaro's plant in the first semester of 2021 has been evaluated as representative for a Business-as-usual scenario.

### Database(s) and LCA software used

SimaPro 9.2.0.2, one of the most popular LCA software, was used to reach the results reported in this document. Ecoinvent 3.7.1. was the database used.

### Description of system boundaries

Type of the EPD: "Cradle to gate with modules C1-C4 and module D (A1-A3 + C + D)", which includes, therefore, the production of laminated glass, from the extraction and/or production of raw materials to the "gate" of the production plant (A1-3), the end of life (C) and the benefits and loads beyond the system boundary (D).

The life cycle analysis comprises of:

- Module A1: extraction and production of raw materials; production of secondary raw materials (e.g. recycling processes). Energy inputs related to the production process also belongs to this Module, as per PCR;
- Module A2: transport of raw materials and production auxiliaries to the plant;
- Module A3: Production processes. Here, material flows impacts accounted for belongs to the processes related to the production of Float and Laminated clear glass:
  - Mixing and weighing of raw materials
  - Melting

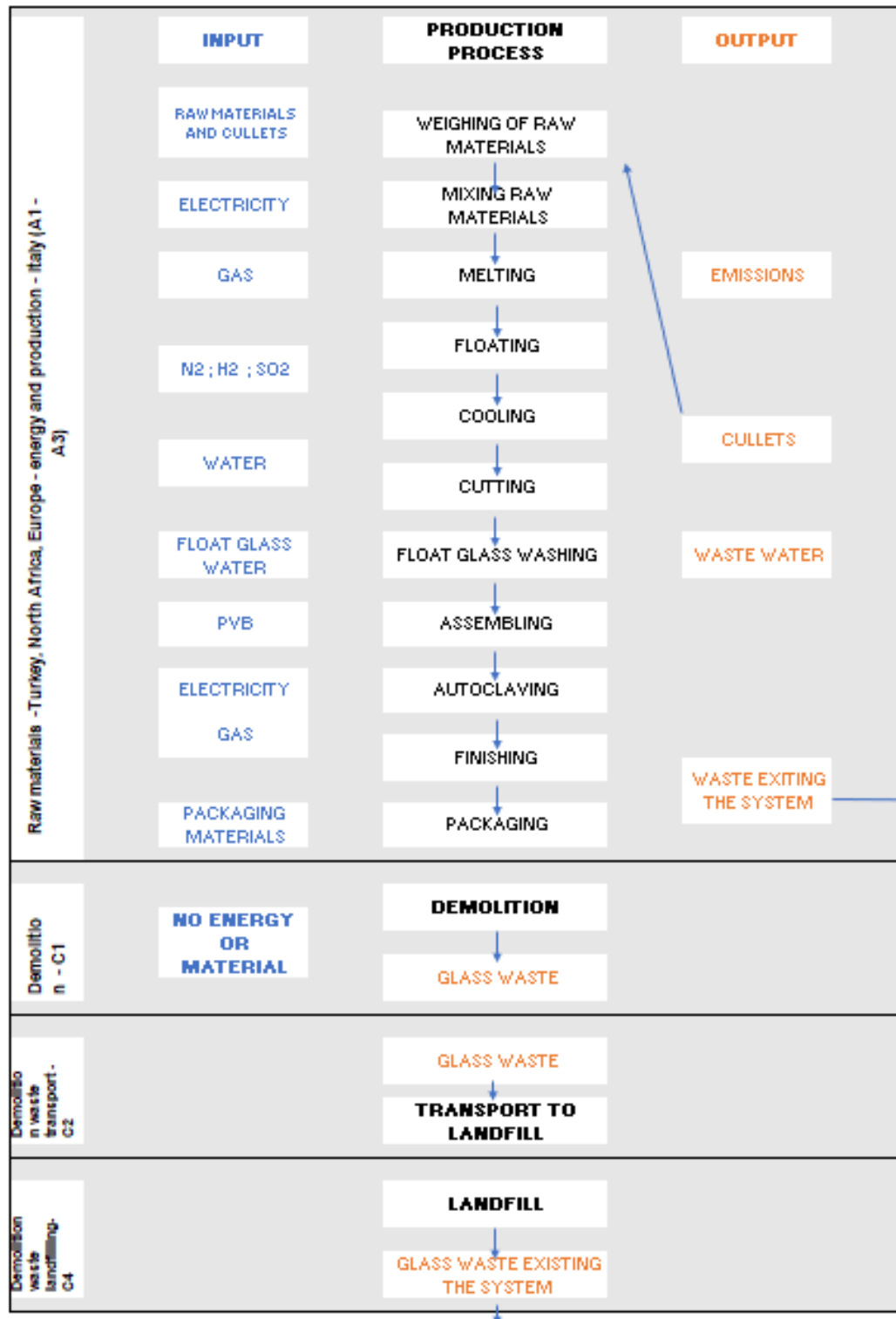
- Float bath
  - Cooling and cutting
  - Washing the glass
  - Assembling the laminated glass
  - Autoclaving
  - Finishing
  - Packaging
- Module C1: Deconstruction, including dismantling or demolition, of the product from the building, including initial on-site sorting of materials. For the system under study, the impacts of this module are set to zero since there is no energy or mass flow involved. Manpower and some tools are sufficient;
- Module C2: Transport of demolition waste for treatment, e.g. to a recycling centre, and transport of the waste to final disposal;
- Module C3: Treatment of waste materials for re-use, recycling and recovery;
- Module C4: Waste disposal, including physical pre-treatment and management of the disposal site.

Regarding module C3 and C4, a worst-case scenario, where 100% of the deconstruction waste is sent to landfill, was followed.

- Module D: Benefits and loads beyond the system boundary

Regarding module D, the scenario followed is the one suggested by EN 17074, where 30% of waste from deconstruction and demolition goes to recycling.

## System diagram:



## Other relevant information

### Name and contact information of LCA practitioner

This LCA study was carried out with the help of a consultancy agency, Silaq, located in Via Vittor Pisani, 8, 20124 Milano (MI); +39 02 250 34; [info@silaq.it](mailto:info@silaq.it).

### Data quality and Background data

All the data related to production processes are manufacturer's average or specific data. All relevant background datasets were taken from the Ecoinvent database (version 3.7.1) within SimaPro software. Only one proxy data was used, representing emulsified fuel.

### Allocation

Data were allocated between float glass and laminated glass (both produced at the San Giorgio di Nogaro plant) concerning:

- CO<sub>2</sub> emissions related to natural gas consumption. CO<sub>2</sub> emissions were allocated based on natural gas consumption, monitored separately for float and laminated glass;
- waste produced by the production process that cannot be uniquely attributed to float glass or laminated glass. Waste has been allocated based on gross square metres produced of float glass and laminated glass.
- Wastewater, allocated based on the amount of water used by the respective production process.
- Lucite (polymethyl methacrylate), which is spread on the glass sheets before packaging. This substance prevents them from sticking to each other and shattering when separated. Lucite has been allocated based on square meters shipped of float glass and laminated glass.
- Waste generated from packaging, allocated based on square meters shipped of float and laminated glass;
- End-of-life transportation of waste generated during the manufacturing and packaging processes, allocated based on gross tons produced for the former, and square meters sold for the latter.

Among the different thicknesses of Şişecam Laminated Glass analysed in this study, the following allocations were, then, made:

- CO<sub>2</sub> emissions from natural gas (natural gas use attributable to each laminated glass width).
- Water withdrawal for laminated glass production (gross square meters produced)
- Waste and Transportation common waste to floor and laminate, including antifreeze (gross square meters produced)
- Waste and Transport glass waste (gross tons produced)
- Waste and Transport PVB waste (kg of PVB used)
- Water Emulsion (gross square meters produced)
- Water-gasoline emulsion (gross square meters produced)
- Packaging including transport (tons sold)
- Lucite (square meters sold)
- Packaging waste and relative transport to landfill (square meters sold)

For raw materials, raw material transport and energy consumption, width-specific data were used.

### Cut off:

No cut-off has been made

#### Content declaration

The product covered by this EPD does not contain Substances of Very High Concern (SVHC) as defined by article 59 (10) of Regulation (CE) n° 1907/2006 (dated 2021-07-08), also known as the REACH candidate list, at a concentration at or above 0.1% in weight.

## Modules declared, geographical scope, share of specific data (in GWP-GHG Indicator) and data variation:

|                      | Product stage       |           |               | Construction process stage |                           | Use stage |             |        |             |               |                        |                       | End of life stage          |              |                  |              | Resource recovery stage            |
|----------------------|---------------------|-----------|---------------|----------------------------|---------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|--------------|------------------|--------------|------------------------------------|
|                      | Raw material supply | Transport | Manufacturing | Transport                  | Construction installation | Use       | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport    | Waste processing | Disposal     | Reuse-Recovery-Recycling-potential |
| Module               | A1                  | A2        | A3            | A4                         | A5                        | B1        | B2          | B3     | B4          | B5            | B6                     | B7                    | C1                         | C2           | C3               | C4           | D                                  |
| Modules declared     | X                   | X         | X             | ND                         | ND                        | ND        | ND          | ND     | ND          | ND            | ND                     | ND                    | X                          | X            | X                | X            | X                                  |
| Geography            | 1                   | 1         | 2             | -                          | -                         | -         | -           | -      | -           | -             | -                      | -                     | 3                          | 3            | 3                | 3            | 3                                  |
| Specific data used   | > 90%               |           |               |                            |                           | -         | -           | -      | -           | -             | -                      | -                     | -                          | -            | -                | -            | -                                  |
| Variation – products | Relevant*           |           |               |                            |                           | -         | -           | -      | -           | -             | -                      | -                     | Relevant*                  | Relevant*    | Relevant*        | Relevant*    | Relevant*                          |
| Variation – sites    | Not relevant        |           |               |                            |                           | -         | -           | -      | -           | -             | -                      | -                     | Not relevant               | Not relevant | Not relevant     | Not relevant | Not relevant                       |

ND= not declared

1=Turkey; North Africa (Tunisia and Egypt); Europe (Italy, Germany, Austria, Bosnia Herzegovina)

2=Italy

3=Worldwide

\* Impacts for each indicator were calculated for every single width and reported in chapter “Environmental Information”

## Content information

| Product components           | Maximum %          | Minimum % | Post-consumer material % | Renewable material % |
|------------------------------|--------------------|-----------|--------------------------|----------------------|
| Clear float glass            | 99,01%             | 89,31%    | 0                        | 0                    |
| PVB                          | 10,69%             | 0,99%     | 0                        | 0                    |
| Clear float glass components | Maximum %          | Minimum % | Post-consumer material % | Renewable material % |
| • Silica Sand                | 53,25%             | 51,83%    | 0                        | 0                    |
| • Soda Ash                   | 16,26%             | 15,87%    | 0                        | 0                    |
| • Dolomite                   | 11,72%             | 11,44%    | 0                        | 0                    |
| • Limestone                  | 5,51%              | 5,39%     | 0                        | 0                    |
| • Feldspar                   | 1,39%              | 1,34%     | 0                        | 0                    |
| • Sodium Sulphate            | 0,63%              | 0,62%     | 0                        | 0                    |
| • Charcoal                   | 0,02359%           | 0,02258%  | 0                        | 0                    |
| • Ferric oxide               | 0,00285%           | 0,00000%  | 0                        | 0                    |
| • Cobalt                     | 0,00001%           | 0,00000%  | 0                        | 0                    |
| • Cullet                     | 13,44%             | 11,20%    | 0                        | 0                    |
| Packaging materials          | Average Weight, kg | Weight-%  |                          |                      |
| Wood                         | 1,02E-01           | 93,506%   |                          |                      |
| Steel                        | 7,05E-03           | 6,49%     |                          |                      |
| TOTAL                        | 1,09E-01           | 100%      |                          |                      |

## Environmental Information

**Disclaimer:** the column "Total w/o D" (total without D) is the sum of modules A1; A2; A3; C1; C2; C3; C4. Module D is excluded.

### Potential environmental impact – mandatory Indicators according to EN 15804

| Results per declared unit |                        |       |             |          |          |           |          |    |          |    |          |           |
|---------------------------|------------------------|-------|-------------|----------|----------|-----------|----------|----|----------|----|----------|-----------|
| Indicator                 | Unit                   | Width | Total w/o D | A1       | A2       | A3        | A1-A3    | C1 | C2       | C3 | C4       | D         |
| GWP-fossil                | kg CO <sub>2</sub> eq. | 33.1  | 1,95E+01    | 1,49E+01 | 8,63E-01 | 3,34E+00  | 1,91E+01 | 0  | 2,18E-01 | 0  | 2,18E-01 | -1,05E+00 |
|                           |                        | 33.2  | 2,08E+01    | 1,61E+01 | 9,84E-01 | 3,34E+00  | 2,04E+01 | 0  | 2,23E-01 | 0  | 2,18E-01 | -1,05E+00 |
|                           |                        | 44.1  | 2,36E+01    | 1,79E+01 | 1,00E+00 | 4,15E+00  | 2,30E+01 | 0  | 2,88E-01 | 0  | 2,90E-01 | -1,40E+00 |
|                           |                        | 44.2  | 2,50E+01    | 1,91E+01 | 1,12E+00 | 4,16E+00  | 2,44E+01 | 0  | 2,94E-01 | 0  | 2,90E-01 | -1,40E+00 |
|                           |                        | 55.1  | 2,92E+01    | 2,20E+01 | 1,22E+00 | 5,29E+00  | 2,85E+01 | 0  | 3,59E-01 | 0  | 3,63E-01 | -1,74E+00 |
|                           |                        | 55.2  | 3,06E+01    | 2,32E+01 | 1,34E+00 | 5,28E+00  | 2,98E+01 | 0  | 3,65E-01 | 0  | 3,63E-01 | -1,74E+00 |
|                           |                        | 66.1  | 3,51E+01    | 2,65E+01 | 1,48E+00 | 6,33E+00  | 3,43E+01 | 0  | 4,30E-01 | 0  | 4,36E-01 | -2,10E+00 |
|                           |                        | 66.2  | 3,60E+01    | 2,73E+01 | 1,58E+00 | 6,25E+00  | 3,52E+01 | 0  | 4,35E-01 | 0  | 4,36E-01 | -2,10E+00 |
|                           |                        | 88.1  | 4,66E+01    | 3,49E+01 | 1,84E+00 | 8,68E+00  | 4,54E+01 | 0  | 5,71E-01 | 0  | 5,81E-01 | -2,80E+00 |
|                           |                        | 88.2  | 4,72E+01    | 3,56E+01 | 2,05E+00 | 8,42E+00  | 4,61E+01 | 0  | 5,77E-01 | 0  | 5,81E-01 | -2,80E+00 |
|                           |                        | 88.12 | 6,39E+01    | 5,03E+01 | 3,45E+00 | 8,91E+00  | 6,27E+01 | 0  | 6,33E-01 | 0  | 5,81E-01 | -2,80E+00 |
| Indicator                 | Unit                   | Width | Total w/o D | A1       | A2       | A3        | A1-A3    | C1 | C2       | C3 | C4       | D         |
| GWP-biogenic              | kg CO <sub>2</sub> eq. | 33.1  | 3,37E-01    | 2,52E-01 | 6,64E-04 | -1,21E-01 | 1,32E-01 | 0  | 1,55E-04 | 0  | 2,05E-01 | -2,12E-02 |
|                           |                        | 33.2  | 3,46E-01    | 2,65E-01 | 7,60E-04 | -1,25E-01 | 1,41E-01 | 0  | 1,59E-04 | 0  | 2,05E-01 | -2,12E-02 |
|                           |                        | 44.1  | 3,93E-01    | 2,85E-01 | 7,65E-04 | -1,66E-01 | 1,20E-01 | 0  | 2,05E-04 | 0  | 2,73E-01 | -2,83E-02 |
|                           |                        | 44.2  | 4,03E-01    | 2,98E-01 | 8,62E-04 | -1,70E-01 | 1,29E-01 | 0  | 2,09E-04 | 0  | 2,73E-01 | -2,83E-02 |
|                           |                        | 55.1  | 4,62E-01    | 3,31E-01 | 9,33E-04 | -2,11E-01 | 1,21E-01 | 0  | 2,55E-04 | 0  | 3,41E-01 | -3,54E-02 |
|                           |                        | 55.2  | 4,71E-01    | 3,43E-01 | 1,03E-03 | -2,14E-01 | 1,30E-01 | 0  | 2,59E-04 | 0  | 3,41E-01 | -3,54E-02 |
|                           |                        | 66.1  | 5,39E-01    | 3,84E-01 | 1,13E-03 | -2,56E-01 | 1,29E-01 | 0  | 3,05E-04 | 0  | 4,10E-01 | -4,25E-02 |
|                           |                        | 66.2  | 5,43E-01    | 3,91E-01 | 1,21E-03 | -2,59E-01 | 1,33E-01 | 0  | 3,09E-04 | 0  | 4,10E-01 | -4,25E-02 |
|                           |                        | 88.1  | 6,88E-01    | 4,86E-01 | 1,40E-03 | -3,45E-01 | 1,42E-01 | 0  | 4,05E-04 | 0  | 5,46E-01 | -5,67E-02 |
|                           |                        | 88.2  | 6,90E-01    | 4,91E-01 | 1,57E-03 | -3,49E-01 | 1,43E-01 | 0  | 4,09E-04 | 0  | 5,46E-01 | -5,67E-02 |
|                           |                        | 88.12 | 8,16E-01    | 6,51E-01 | 2,68E-03 | -3,85E-01 | 2,69E-01 | 0  | 4,49E-04 | 0  | 5,46E-01 | -5,67E-02 |
| Indicator                 | Unit                   | Width | Total w/o D | A1       | A2       | A3        | A1-A3    | C1 | C2       | C3 | C4       | D         |
| GWP-luluc                 | kg CO <sub>2</sub> eq. | 33.1  | 3,42E-03    | 3,27E-03 | 7,04E-06 | 1,35E-04  | 3,41E-03 | 0  | 2,88E-06 | 0  | 7,37E-07 | -5,92E-04 |
|                           |                        | 33.2  | 4,25E-03    | 4,10E-03 | 7,95E-06 | 1,38E-04  | 4,25E-03 | 0  | 2,95E-06 | 0  | 7,37E-07 | -5,92E-04 |
|                           |                        | 44.1  | 3,99E-03    | 3,80E-03 | 8,26E-06 | 1,79E-04  | 3,99E-03 | 0  | 3,81E-06 | 0  | 9,83E-07 | -7,90E-04 |
|                           |                        | 44.2  | 4,83E-03    | 4,64E-03 | 9,19E-06 | 1,82E-04  | 4,83E-03 | 0  | 3,88E-06 | 0  | 9,83E-07 | -7,90E-04 |
|                           |                        | 55.1  | 4,83E-03    | 4,59E-03 | 1,02E-05 | 2,22E-04  | 4,83E-03 | 0  | 4,74E-06 | 0  | 1,23E-06 | -9,86E-04 |
|                           |                        | 55.2  | 5,66E-03    | 5,42E-03 | 1,11E-05 | 2,25E-04  | 5,66E-03 | 0  | 4,82E-06 | 0  | 1,23E-06 | -9,86E-04 |
|                           |                        | 66.1  | 5,62E-03    | 5,33E-03 | 1,23E-05 | 2,67E-04  | 5,61E-03 | 0  | 5,68E-06 | 0  | 1,47E-06 | -1,19E-03 |
|                           |                        | 66.2  | 6,39E-03    | 6,10E-03 | 1,30E-05 | 2,69E-04  | 6,38E-03 | 0  | 5,75E-06 | 0  | 1,47E-06 | -1,19E-03 |
|                           |                        | 88.1  | 7,28E-03    | 6,90E-03 | 1,53E-05 | 3,56E-04  | 7,27E-03 | 0  | 7,54E-06 | 0  | 1,97E-06 | -1,58E-03 |
|                           |                        | 88.2  | 8,01E-03    | 7,63E-03 | 1,69E-05 | 3,57E-04  | 8,00E-03 | 0  | 7,62E-06 | 0  | 1,97E-06 | -1,58E-03 |
|                           |                        | 88.12 | 1,72E-02    | 1,67E-02 | 2,76E-05 | 3,90E-04  | 1,71E-02 | 0  | 8,36E-06 | 0  | 1,97E-06 | -1,58E-03 |
| Indicator                 | Unit                   | Width | Total w/o D | A1       | A2       | A3        | A1-A3    | C1 | C2       | C3 | C4       | D         |
| GWP-total                 | kg CO <sub>2</sub> eq. | 33.1  | 1,98E+01    | 1,51E+01 | 8,64E-01 | 3,22E+00  | 1,92E+01 | 0  | 2,18E-01 | 0  | 4,23E-01 | -1,07E+00 |
|                           |                        | 33.2  | 2,12E+01    | 1,63E+01 | 9,85E-01 | 3,21E+00  | 2,05E+01 | 0  | 2,24E-01 | 0  | 4,23E-01 | -1,07E+00 |
|                           |                        | 44.1  | 2,40E+01    | 1,81E+01 | 1,00E+00 | 3,99E+00  | 2,31E+01 | 0  | 2,89E-01 | 0  | 5,64E-01 | -1,43E+00 |
|                           |                        | 44.2  | 2,54E+01    | 1,94E+01 | 1,12E+00 | 3,99E+00  | 2,45E+01 | 0  | 2,94E-01 | 0  | 5,64E-01 | -1,43E+00 |
|                           |                        | 55.1  | 2,97E+01    | 2,23E+01 | 1,22E+00 | 5,07E+00  | 2,86E+01 | 0  | 3,59E-01 | 0  | 7,04E-01 | -1,78E+00 |
|                           |                        | 55.2  | 3,10E+01    | 2,35E+01 | 1,34E+00 | 5,07E+00  | 3,00E+01 | 0  | 3,65E-01 | 0  | 7,04E-01 | -1,78E+00 |
|                           |                        | 66.1  | 3,57E+01    | 2,69E+01 | 1,48E+00 | 6,07E+00  | 3,44E+01 | 0  | 4,30E-01 | 0  | 8,45E-01 | -2,14E+00 |
|                           |                        | 66.2  | 3,66E+01    | 2,77E+01 | 1,59E+00 | 5,99E+00  | 3,53E+01 | 0  | 4,36E-01 | 0  | 8,45E-01 | -2,14E+00 |
|                           |                        | 88.1  | 4,73E+01    | 3,54E+01 | 1,84E+00 | 8,34E+00  | 4,56E+01 | 0  | 5,72E-01 | 0  | 1,13E+00 | -2,85E+00 |

|               |                                      |       |             |          |          |          |          |    |          |    |          |           |
|---------------|--------------------------------------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
|               |                                      | 88.2  | 4,79E+01    | 3,61E+01 | 2,06E+00 | 8,08E+00 | 4,62E+01 | 0  | 5,77E-01 | 0  | 1,13E+00 | -2,85E+00 |
|               |                                      | 88.12 | 6,47E+01    | 5,10E+01 | 3,46E+00 | 8,53E+00 | 6,30E+01 | 0  | 6,34E-01 | 0  | 1,13E+00 | -2,85E+00 |
| Indicator     | Unit                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| ODP           | kg CFC 11 eq.                        | 33.1  | 3,16E-06    | 2,85E-06 | 1,97E-07 | 4,86E-08 | 3,10E-06 | 0  | 4,91E-08 | 0  | 1,03E-08 | -5,27E-08 |
|               |                                      | 33.2  | 3,78E-06    | 3,45E-06 | 2,25E-07 | 4,88E-08 | 3,72E-06 | 0  | 5,04E-08 | 0  | 1,03E-08 | -5,27E-08 |
|               |                                      | 44.1  | 3,72E-06    | 3,35E-06 | 2,28E-07 | 6,37E-08 | 3,64E-06 | 0  | 6,50E-08 | 0  | 1,38E-08 | -7,03E-08 |
|               |                                      | 44.2  | 4,35E-06    | 3,95E-06 | 2,56E-07 | 6,41E-08 | 4,27E-06 | 0  | 6,63E-08 | 0  | 1,38E-08 | -7,03E-08 |
|               |                                      | 55.1  | 4,49E-06    | 4,04E-06 | 2,78E-07 | 7,97E-08 | 4,39E-06 | 0  | 8,10E-08 | 0  | 1,72E-08 | -8,78E-08 |
|               |                                      | 55.2  | 5,11E-06    | 4,63E-06 | 3,06E-07 | 7,99E-08 | 5,02E-06 | 0  | 8,23E-08 | 0  | 1,72E-08 | -8,78E-08 |
|               |                                      | 66.1  | 5,36E-06    | 4,81E-06 | 3,37E-07 | 9,64E-08 | 5,24E-06 | 0  | 9,69E-08 | 0  | 2,07E-08 | -1,06E-07 |
|               |                                      | 66.2  | 5,92E-06    | 5,34E-06 | 3,61E-07 | 9,55E-08 | 5,80E-06 | 0  | 9,82E-08 | 0  | 2,07E-08 | -1,06E-07 |
|               |                                      | 88.1  | 6,94E-06    | 6,21E-06 | 4,18E-07 | 1,58E-07 | 6,79E-06 | 0  | 1,29E-07 | 0  | 2,76E-08 | -1,41E-07 |
|               |                                      | 88.2  | 7,47E-06    | 6,71E-06 | 4,68E-07 | 1,28E-07 | 7,31E-06 | 0  | 1,30E-07 | 0  | 2,76E-08 | -1,41E-07 |
|               |                                      | 88.12 | 1,44E-05    | 1,33E-05 | 7,91E-07 | 1,38E-07 | 1,43E-05 | 0  | 1,43E-07 | 0  | 2,76E-08 | -1,41E-07 |
| Indicator     | Unit                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| AP            | mol H <sup>+</sup> eq.               | 33.1  | 6,96E-02    | 3,67E-02 | 8,34E-03 | 2,27E-02 | 6,77E-02 | 0  | 7,67E-04 | 0  | 1,16E-03 | -4,94E-03 |
|               |                                      | 33.2  | 7,50E-02    | 4,17E-02 | 8,75E-03 | 2,26E-02 | 7,31E-02 | 0  | 7,87E-04 | 0  | 1,16E-03 | -4,94E-03 |
|               |                                      | 44.1  | 8,62E-02    | 4,31E-02 | 1,08E-02 | 2,98E-02 | 8,36E-02 | 0  | 1,02E-03 | 0  | 1,55E-03 | -6,60E-03 |
|               |                                      | 44.2  | 9,17E-02    | 4,81E-02 | 1,12E-02 | 2,98E-02 | 8,91E-02 | 0  | 1,04E-03 | 0  | 1,55E-03 | -6,60E-03 |
|               |                                      | 55.1  | 1,06E-01    | 5,23E-02 | 1,38E-02 | 3,72E-02 | 1,03E-01 | 0  | 1,27E-03 | 0  | 1,94E-03 | -8,24E-03 |
|               |                                      | 55.2  | 1,12E-01    | 5,72E-02 | 1,42E-02 | 3,72E-02 | 1,09E-01 | 0  | 1,29E-03 | 0  | 1,94E-03 | -8,24E-03 |
|               |                                      | 66.1  | 1,27E-01    | 6,16E-02 | 1,63E-02 | 4,51E-02 | 1,23E-01 | 0  | 1,51E-03 | 0  | 2,33E-03 | -9,90E-03 |
|               |                                      | 66.2  | 1,31E-01    | 6,58E-02 | 1,65E-02 | 4,45E-02 | 1,27E-01 | 0  | 1,53E-03 | 0  | 2,33E-03 | -9,90E-03 |
|               |                                      | 88.1  | 1,68E-01    | 8,02E-02 | 2,13E-02 | 6,12E-02 | 1,63E-01 | 0  | 2,01E-03 | 0  | 3,10E-03 | -1,32E-02 |
|               |                                      | 88.2  | 1,71E-01    | 8,40E-02 | 2,18E-02 | 5,98E-02 | 1,66E-01 | 0  | 2,03E-03 | 0  | 3,10E-03 | -1,32E-02 |
|               |                                      | 88.12 | 2,37E-01    | 1,41E-01 | 2,75E-02 | 6,32E-02 | 2,32E-01 | 0  | 2,23E-03 | 0  | 3,10E-03 | -1,32E-02 |
| Indicator     | Unit                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| EP-freshwater | kg PO <sub>4</sub> <sup>3-</sup> eq. | 33.1  | 6,46E-04    | 6,32E-04 | 1,47E-06 | 1,15E-05 | 6,45E-04 | 0  | 1,55E-06 | 0  | 2,31E-07 | -1,06E-04 |
|               |                                      | 33.2  | 7,60E-04    | 7,45E-04 | 1,68E-06 | 1,16E-05 | 7,59E-04 | 0  | 1,59E-06 | 0  | 2,31E-07 | -1,06E-04 |
|               |                                      | 44.1  | 7,52E-04    | 7,33E-04 | 1,72E-06 | 1,46E-05 | 7,49E-04 | 0  | 2,05E-06 | 0  | 3,08E-07 | -1,41E-04 |
|               |                                      | 44.2  | 8,66E-04    | 8,47E-04 | 1,92E-06 | 1,48E-05 | 8,64E-04 | 0  | 2,09E-06 | 0  | 3,08E-07 | -1,41E-04 |
|               |                                      | 55.1  | 9,05E-04    | 8,82E-04 | 2,10E-06 | 1,79E-05 | 9,02E-04 | 0  | 2,56E-06 | 0  | 3,85E-07 | -1,76E-04 |
|               |                                      | 55.2  | 1,02E-03    | 9,95E-04 | 2,30E-06 | 1,80E-05 | 1,02E-03 | 0  | 2,60E-06 | 0  | 3,85E-07 | -1,76E-04 |
|               |                                      | 66.1  | 1,05E-03    | 1,03E-03 | 2,54E-06 | 2,12E-05 | 1,05E-03 | 0  | 3,06E-06 | 0  | 4,62E-07 | -2,12E-04 |
|               |                                      | 66.2  | 1,16E-03    | 1,13E-03 | 2,71E-06 | 2,12E-05 | 1,15E-03 | 0  | 3,10E-06 | 0  | 4,62E-07 | -2,12E-04 |
|               |                                      | 88.1  | 1,37E-03    | 1,33E-03 | 3,16E-06 | 2,81E-05 | 1,36E-03 | 0  | 4,07E-06 | 0  | 6,16E-07 | -2,82E-04 |
|               |                                      | 88.2  | 1,46E-03    | 1,42E-03 | 3,52E-06 | 2,78E-05 | 1,45E-03 | 0  | 4,11E-06 | 0  | 6,16E-07 | -2,82E-04 |
|               |                                      | 88.12 | 2,73E-03    | 2,69E-03 | 5,86E-06 | 2,98E-05 | 2,73E-03 | 0  | 4,51E-06 | 0  | 6,16E-07 | -2,82E-04 |
| Indicator     | Unit                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| EP-freshwater | kg P eq.                             | 33.1  | 2,11E-04    | 2,06E-04 | 4,80E-07 | 3,73E-06 | 2,10E-04 | 0  | 5,05E-07 | 0  | 7,53E-08 | -3,44E-05 |
|               |                                      | 33.2  | 2,48E-04    | 2,43E-04 | 5,46E-07 | 3,77E-06 | 2,47E-04 | 0  | 5,18E-07 | 0  | 7,53E-08 | -3,44E-05 |
|               |                                      | 44.1  | 2,45E-04    | 2,39E-04 | 5,59E-07 | 4,76E-06 | 2,44E-04 | 0  | 6,69E-07 | 0  | 1,00E-07 | -4,59E-05 |
|               |                                      | 44.2  | 2,82E-04    | 2,76E-04 | 6,25E-07 | 4,81E-06 | 2,81E-04 | 0  | 6,82E-07 | 0  | 1,00E-07 | -4,59E-05 |
|               |                                      | 55.1  | 2,95E-04    | 2,87E-04 | 6,85E-07 | 5,82E-06 | 2,94E-04 | 0  | 8,33E-07 | 0  | 1,25E-07 | -5,73E-05 |
|               |                                      | 55.2  | 3,32E-04    | 3,24E-04 | 7,50E-07 | 5,86E-06 | 3,31E-04 | 0  | 8,46E-07 | 0  | 1,25E-07 | -5,73E-05 |
|               |                                      | 66.1  | 3,44E-04    | 3,35E-04 | 8,29E-07 | 6,91E-06 | 3,42E-04 | 0  | 9,97E-07 | 0  | 1,51E-07 | -6,89E-05 |
|               |                                      | 66.2  | 3,76E-04    | 3,67E-04 | 8,84E-07 | 6,91E-06 | 3,75E-04 | 0  | 1,01E-06 | 0  | 1,51E-07 | -6,89E-05 |
|               |                                      | 88.1  | 4,45E-04    | 4,33E-04 | 1,03E-06 | 9,15E-06 | 4,43E-04 | 0  | 1,33E-06 | 0  | 2,01E-07 | -9,19E-05 |
|               |                                      | 88.2  | 4,75E-04    | 4,64E-04 | 1,15E-06 | 9,05E-06 | 4,74E-04 | 0  | 1,34E-06 | 0  | 2,01E-07 | -9,19E-05 |
|               |                                      | 88.12 | 8,90E-04    | 8,76E-04 | 1,91E-06 | 9,72E-06 | 8,88E-04 | 0  | 1,47E-06 | 0  | 2,01E-07 | -9,19E-05 |
| Indicator     | Unit                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| EP-marine     | kg N eq.                             | 33.1  | 8,37E-02    | 1,49E-02 | 2,23E-03 | 6,58E-02 | 8,29E-02 | 0  | 2,43E-04 | 0  | 5,73E-04 | -3,17E-03 |
|               |                                      | 33.2  | 8,46E-02    | 1,58E-02 | 2,36E-03 | 6,56E-02 | 8,38E-02 | 0  | 2,49E-04 | 0  | 5,73E-04 | -3,17E-03 |

|                                    |              |       |             |          |          |          |          |    |          |    |          |           |
|------------------------------------|--------------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
|                                    |              | 44.1  | 1,08E-01    | 1,79E-02 | 2,85E-03 | 8,64E-02 | 1,07E-01 | 0  | 3,21E-04 | 0  | 7,65E-04 | -4,23E-03 |
|                                    |              | 44.2  | 1,09E-01    | 1,89E-02 | 2,98E-03 | 8,64E-02 | 1,08E-01 | 0  | 3,28E-04 | 0  | 7,65E-04 | -4,23E-03 |
|                                    |              | 55.1  | 1,35E-01    | 2,24E-02 | 3,62E-03 | 1,08E-01 | 1,34E-01 | 0  | 4,00E-04 | 0  | 9,56E-04 | -5,28E-03 |
|                                    |              | 55.2  | 1,36E-01    | 2,34E-02 | 3,75E-03 | 1,08E-01 | 1,35E-01 | 0  | 4,06E-04 | 0  | 9,56E-04 | -5,28E-03 |
|                                    |              | 66.1  | 1,64E-01    | 2,66E-02 | 4,30E-03 | 1,31E-01 | 1,62E-01 | 0  | 4,79E-04 | 0  | 1,15E-03 | -6,35E-03 |
|                                    |              | 66.2  | 1,63E-01    | 2,73E-02 | 4,38E-03 | 1,29E-01 | 1,61E-01 | 0  | 4,85E-04 | 0  | 1,15E-03 | -6,35E-03 |
|                                    |              | 88.1  | 2,20E-01    | 3,55E-02 | 5,60E-03 | 1,77E-01 | 2,18E-01 | 0  | 6,36E-04 | 0  | 1,53E-03 | -8,47E-03 |
|                                    |              | 88.2  | 2,17E-01    | 3,59E-02 | 5,78E-03 | 1,74E-01 | 2,15E-01 | 0  | 6,43E-04 | 0  | 1,53E-03 | -8,47E-03 |
|                                    |              | 88.12 | 2,41E-01    | 4,82E-02 | 7,53E-03 | 1,83E-01 | 2,39E-01 | 0  | 7,05E-04 | 0  | 1,53E-03 | -8,47E-03 |
| Indicator                          | Unit         | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| EP-terrestrial                     | mol N eq.    | 33.1  | 3,64E-01    | 7,82E-02 | 2,47E-02 | 2,52E-01 | 3,55E-01 | 0  | 2,67E-03 | 0  | 6,28E-03 | -1,17E-02 |
|                                    |              | 33.2  | 3,76E-01    | 8,86E-02 | 2,62E-02 | 2,52E-01 | 3,67E-01 | 0  | 2,74E-03 | 0  | 6,28E-03 | -1,17E-02 |
|                                    |              | 44.1  | 4,67E-01    | 9,22E-02 | 3,15E-02 | 3,32E-01 | 4,55E-01 | 0  | 3,54E-03 | 0  | 8,38E-03 | -1,56E-02 |
|                                    |              | 44.2  | 4,80E-01    | 1,03E-01 | 3,30E-02 | 3,32E-01 | 4,68E-01 | 0  | 3,61E-03 | 0  | 8,38E-03 | -1,56E-02 |
|                                    |              | 55.1  | 5,83E-01    | 1,13E-01 | 4,02E-02 | 4,15E-01 | 5,68E-01 | 0  | 4,41E-03 | 0  | 1,05E-02 | -1,95E-02 |
|                                    |              | 55.2  | 5,94E-01    | 1,23E-01 | 4,16E-02 | 4,15E-01 | 5,79E-01 | 0  | 4,48E-03 | 0  | 1,05E-02 | -1,95E-02 |
|                                    |              | 66.1  | 7,01E-01    | 1,33E-01 | 4,77E-02 | 5,03E-01 | 6,83E-01 | 0  | 5,27E-03 | 0  | 1,26E-02 | -2,35E-02 |
|                                    |              | 66.2  | 7,04E-01    | 1,41E-01 | 4,86E-02 | 4,96E-01 | 6,86E-01 | 0  | 5,34E-03 | 0  | 1,26E-02 | -2,35E-02 |
|                                    |              | 88.1  | 9,38E-01    | 1,74E-01 | 6,21E-02 | 6,79E-01 | 9,15E-01 | 0  | 7,01E-03 | 0  | 1,68E-02 | -3,13E-02 |
|                                    |              | 88.2  | 9,36E-01    | 1,81E-01 | 6,41E-02 | 6,67E-01 | 9,12E-01 | 0  | 7,08E-03 | 0  | 1,68E-02 | -3,13E-02 |
|                                    |              | 88.12 | 1,11E+00    | 3,01E-01 | 8,34E-02 | 7,04E-01 | 1,09E+00 | 0  | 7,77E-03 | 0  | 1,68E-02 | -3,13E-02 |
| Indicator                          | Unit         | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| POCP                               | kg NMVOC eq. | 33.1  | 2,11E-01    | 2,18E-02 | 6,44E-03 | 1,77E-01 | 2,05E-01 | 0  | 7,27E-04 | 0  | 5,01E-03 | -2,48E-03 |
|                                    |              | 33.2  | 2,14E-01    | 2,52E-02 | 6,84E-03 | 1,76E-01 | 2,08E-01 | 0  | 7,46E-04 | 0  | 5,01E-03 | -2,48E-03 |
|                                    |              | 44.1  | 2,73E-01    | 2,56E-02 | 8,19E-03 | 2,32E-01 | 2,66E-01 | 0  | 9,63E-04 | 0  | 6,68E-03 | -3,31E-03 |
|                                    |              | 44.2  | 2,77E-01    | 2,90E-02 | 8,60E-03 | 2,32E-01 | 2,70E-01 | 0  | 9,82E-04 | 0  | 6,68E-03 | -3,31E-03 |
|                                    |              | 55.1  | 3,41E-01    | 3,10E-02 | 1,04E-02 | 2,90E-01 | 3,32E-01 | 0  | 1,20E-03 | 0  | 8,36E-03 | -4,13E-03 |
|                                    |              | 55.2  | 3,45E-01    | 3,44E-02 | 1,08E-02 | 2,90E-01 | 3,35E-01 | 0  | 1,22E-03 | 0  | 8,36E-03 | -4,13E-03 |
|                                    |              | 66.1  | 4,12E-01    | 3,66E-02 | 1,24E-02 | 3,52E-01 | 4,01E-01 | 0  | 1,44E-03 | 0  | 1,00E-02 | -4,96E-03 |
|                                    |              | 66.2  | 4,11E-01    | 3,96E-02 | 1,26E-02 | 3,47E-01 | 3,99E-01 | 0  | 1,45E-03 | 0  | 1,00E-02 | -4,96E-03 |
|                                    |              | 88.1  | 5,53E-01    | 4,77E-02 | 1,61E-02 | 4,74E-01 | 5,38E-01 | 0  | 1,91E-03 | 0  | 1,34E-02 | -6,62E-03 |
|                                    |              | 88.2  | 5,49E-01    | 5,03E-02 | 1,66E-02 | 4,66E-01 | 5,33E-01 | 0  | 1,93E-03 | 0  | 1,34E-02 | -6,62E-03 |
|                                    |              | 88.12 | 6,19E-01    | 8,87E-02 | 2,19E-02 | 4,93E-01 | 6,03E-01 | 0  | 2,11E-03 | 0  | 1,34E-02 | -6,62E-03 |
| Indicator                          | Unit         | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| ADP-minerals & metals <sup>1</sup> | kg Sb eq.    | 33.1  | 2,77E-05    | 7,77E-07 | 3,08E-08 | 2,68E-05 | 2,77E-05 | 0  | 1,27E-08 | 0  | 2,51E-09 | -1,40E-07 |
|                                    |              | 33.2  | 2,79E-05    | 1,02E-06 | 3,59E-08 | 2,68E-05 | 2,78E-05 | 0  | 1,31E-08 | 0  | 2,51E-09 | -1,40E-07 |
|                                    |              | 44.1  | 3,62E-05    | 9,02E-07 | 3,45E-08 | 3,53E-05 | 3,62E-05 | 0  | 1,69E-08 | 0  | 3,34E-09 | -1,90E-07 |
|                                    |              | 44.2  | 3,65E-05    | 1,15E-06 | 3,97E-08 | 3,53E-05 | 3,65E-05 | 0  | 1,72E-08 | 0  | 3,34E-09 | -1,90E-07 |
|                                    |              | 55.1  | 4,53E-05    | 1,08E-06 | 4,16E-08 | 4,41E-05 | 4,53E-05 | 0  | 2,10E-08 | 0  | 4,18E-09 | -2,36E-07 |
|                                    |              | 55.2  | 4,55E-05    | 1,32E-06 | 4,67E-08 | 4,41E-05 | 4,55E-05 | 0  | 2,13E-08 | 0  | 4,18E-09 | -2,36E-07 |
|                                    |              | 66.1  | 5,48E-05    | 1,26E-06 | 5,07E-08 | 5,35E-05 | 5,48E-05 | 0  | 2,51E-08 | 0  | 5,01E-09 | -2,87E-07 |
|                                    |              | 66.2  | 5,44E-05    | 1,48E-06 | 5,52E-08 | 5,28E-05 | 5,43E-05 | 0  | 2,54E-08 | 0  | 5,01E-09 | -2,87E-07 |
|                                    |              | 88.1  | 7,38E-05    | 1,60E-06 | 6,18E-08 | 7,20E-05 | 7,37E-05 | 0  | 3,34E-08 | 0  | 6,68E-09 | -3,79E-07 |
|                                    |              | 88.2  | 7,28E-05    | 1,82E-06 | 7,11E-08 | 7,09E-05 | 7,28E-05 | 0  | 3,37E-08 | 0  | 6,68E-09 | -3,79E-07 |
|                                    |              | 88.12 | 7,95E-05    | 4,46E-06 | 1,30E-07 | 7,49E-05 | 7,95E-05 | 0  | 3,70E-08 | 0  | 6,68E-09 | -3,79E-07 |
| Indicator                          | Unit         | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| ADP-fossil <sup>1</sup>            | MJ           | 33.1  | 2,47E+02    | 2,26E+02 | 1,20E+01 | 5,40E+00 | 2,44E+02 | 0  | 3,06E+00 | 0  | 6,41E-01 | -1,20E+01 |
|                                    |              | 33.2  | 2,76E+02    | 2,53E+02 | 1,37E+01 | 5,42E+00 | 2,72E+02 | 0  | 3,14E+00 | 0  | 6,41E-01 | -1,20E+01 |
|                                    |              | 44.1  | 2,96E+02    | 2,70E+02 | 1,39E+01 | 7,08E+00 | 2,91E+02 | 0  | 4,05E+00 | 0  | 8,55E-01 | -1,60E+01 |
|                                    |              | 44.2  | 3,25E+02    | 2,97E+02 | 1,56E+01 | 7,11E+00 | 3,20E+02 | 0  | 4,13E+00 | 0  | 8,55E-01 | -1,60E+01 |
|                                    |              | 55.1  | 3,62E+02    | 3,30E+02 | 1,70E+01 | 8,84E+00 | 3,56E+02 | 0  | 5,04E+00 | 0  | 1,07E+00 | -1,99E+01 |
|                                    |              | 55.2  | 3,90E+02    | 3,56E+02 | 1,87E+01 | 8,86E+00 | 3,84E+02 | 0  | 5,12E+00 | 0  | 1,07E+00 | -1,99E+01 |
|                                    |              | 66.1  | 4,34E+02    | 3,96E+02 | 2,06E+01 | 1,07E+01 | 4,27E+02 | 0  | 6,04E+00 | 0  | 1,28E+00 | -2,40E+01 |

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |             |          |           |          |          |    |          |    |           |           |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|----------|-----------|----------|----------|----|----------|----|-----------|-----------|
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 66.2  | 4,58E+02    | 4,18E+02 | 2,20E+01  | 1,06E+01 | 4,50E+02 | 0  | 6,11E+00 | 0  | 1,28E+00  | -2,40E+01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88.1  | 5,70E+02    | 5,18E+02 | 2,55E+01  | 1,61E+01 | 5,60E+02 | 0  | 8,02E+00 | 0  | 1,71E+00  | -3,20E+01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88.2  | 5,90E+02    | 5,37E+02 | 2,86E+01  | 1,42E+01 | 5,80E+02 | 0  | 8,10E+00 | 0  | 1,71E+00  | -3,20E+01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88.12 | 9,23E+02    | 8,49E+02 | 4,84E+01  | 1,52E+01 | 9,13E+02 | 0  | 8,89E+00 | 0  | 1,71E+00  | -3,20E+01 |
| Indicator        | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Width | Total w/o D | A1       | A2        | A3       | A1-A3    | C1 | C2       | C3 | C4        | D         |
| WDP <sup>1</sup> | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 33.1  | 4,37E+00    | 4,40E+00 | -2,60E-03 | 7,22E-03 | 4,40E+00 | 0  | 1,02E-03 | 0  | -3,31E-02 | -7,36E-01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 33.2  | 5,26E+00    | 5,29E+00 | -2,96E-03 | 7,63E-03 | 5,30E+00 | 0  | 1,05E-03 | 0  | -3,31E-02 | -7,36E-01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 44.1  | 5,09E+00    | 5,09E+00 | -3,02E-03 | 4,87E-02 | 5,13E+00 | 0  | 1,35E-03 | 0  | -4,42E-02 | -9,83E-01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 44.2  | 5,99E+00    | 5,98E+00 | -3,39E-03 | 4,91E-02 | 6,03E+00 | 0  | 1,38E-03 | 0  | -4,42E-02 | -9,83E-01 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 55.1  | 6,13E+00    | 6,10E+00 | -3,70E-03 | 9,00E-02 | 6,19E+00 | 0  | 1,69E-03 | 0  | -5,52E-02 | -1,23E+00 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 55.2  | 7,02E+00    | 6,99E+00 | -4,06E-03 | 9,03E-02 | 7,07E+00 | 0  | 1,71E-03 | 0  | -5,52E-02 | -1,23E+00 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 66.1  | 7,15E+00    | 7,09E+00 | -4,47E-03 | 1,32E-01 | 7,21E+00 | 0  | 2,02E-03 | 0  | -6,62E-02 | -1,48E+00 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 66.2  | 7,95E+00    | 7,89E+00 | -4,78E-03 | 1,31E-01 | 8,01E+00 | 0  | 2,04E-03 | 0  | -6,62E-02 | -1,48E+00 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88.1  | 9,27E+00    | 9,14E+00 | -5,56E-03 | 2,17E-01 | 9,35E+00 | 0  | 2,68E-03 | 0  | -8,83E-02 | -1,97E+00 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88.2  | 1,00E+01    | 9,90E+00 | -6,20E-03 | 2,15E-01 | 1,01E+01 | 0  | 2,71E-03 | 0  | -8,83E-02 | -1,97E+00 |
|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 88.12 | 1,99E+01    | 1,98E+01 | -1,04E-02 | 2,28E-01 | 2,00E+01 | 0  | 2,97E-03 | 0  | -8,83E-02 | -1,97E+00 |
| Acronyms         | GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption |       |             |          |           |          |          |    |          |    |           |           |
| Disclaimer       | 1: the results of this environmental impact Indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the Indicator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |       |             |          |           |          |          |    |          |    |           |           |

## Potential environmental impact – additional mandatory and voluntary Indicators

| Results per declared unit            |                        |       |             |          |          |          |          |    |          |    |          |           |
|--------------------------------------|------------------------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
| Indicator                            | Unit                   | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| GWP-GHG                              | kg CO <sub>2</sub> eq. | 33.1  | 1,90E+01    | 1,45E+01 | 8,58E-01 | 3,13E+00 | 1,85E+01 | 0  | 2,16E-01 | 0  | 2,85E-01 | -1,02E+00 |
|                                      |                        | 33.2  | 2,03E+01    | 1,57E+01 | 9,78E-01 | 3,12E+00 | 1,98E+01 | 0  | 2,22E-01 | 0  | 2,85E-01 | -1,02E+00 |
|                                      |                        | 44.1  | 2,30E+01    | 1,75E+01 | 9,95E-01 | 3,87E+00 | 2,23E+01 | 0  | 2,87E-01 | 0  | 3,80E-01 | -1,36E+00 |
|                                      |                        | 44.2  | 2,43E+01    | 1,87E+01 | 1,12E+00 | 3,88E+00 | 2,37E+01 | 0  | 2,92E-01 | 0  | 3,80E-01 | -1,36E+00 |
|                                      |                        | 55.1  | 2,85E+01    | 2,15E+01 | 1,22E+00 | 4,94E+00 | 2,77E+01 | 0  | 3,57E-01 | 0  | 4,75E-01 | -1,70E+00 |
|                                      |                        | 55.2  | 2,98E+01    | 2,27E+01 | 1,34E+00 | 4,93E+00 | 2,90E+01 | 0  | 3,62E-01 | 0  | 4,75E-01 | -1,70E+00 |
|                                      |                        | 66.1  | 3,43E+01    | 2,59E+01 | 1,47E+00 | 5,90E+00 | 3,33E+01 | 0  | 4,27E-01 | 0  | 5,70E-01 | -2,04E+00 |
|                                      |                        | 66.2  | 3,52E+01    | 2,67E+01 | 1,57E+00 | 5,83E+00 | 3,42E+01 | 0  | 4,33E-01 | 0  | 5,70E-01 | -2,04E+00 |
|                                      |                        | 88.1  | 4,54E+01    | 3,41E+01 | 1,83E+00 | 8,11E+00 | 4,41E+01 | 0  | 5,67E-01 | 0  | 7,61E-01 | -2,73E+00 |
|                                      |                        | 88.2  | 4,60E+01    | 3,48E+01 | 2,04E+00 | 7,86E+00 | 4,47E+01 | 0  | 5,73E-01 | 0  | 7,61E-01 | -2,73E+00 |
|                                      |                        | 88.12 | 6,23E+01    | 4,92E+01 | 3,43E+00 | 8,32E+00 | 6,10E+01 | 0  | 6,29E-01 | 0  | 7,61E-01 | -2,73E+00 |
| Indicator                            | Unit                   | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Particulate matter                   | Disease inc.           | 33.1  | 1,35E-06    | 2,57E-07 | 4,93E-08 | 1,02E-06 | 1,32E-06 | 0  | 1,39E-08 | 0  | 1,57E-08 | -5,01E-08 |
|                                      |                        | 33.2  | 1,40E-06    | 2,98E-07 | 5,72E-08 | 1,01E-06 | 1,37E-06 | 0  | 1,42E-08 | 0  | 1,57E-08 | -5,01E-08 |
|                                      |                        | 44.1  | 1,73E-06    | 3,03E-07 | 5,59E-08 | 1,34E-06 | 1,70E-06 | 0  | 1,84E-08 | 0  | 2,10E-08 | -6,68E-08 |
|                                      |                        | 44.2  | 1,79E-06    | 3,45E-07 | 6,38E-08 | 1,34E-06 | 1,75E-06 | 0  | 1,87E-08 | 0  | 2,10E-08 | -6,68E-08 |
|                                      |                        | 55.1  | 2,16E-06    | 3,72E-07 | 6,75E-08 | 1,67E-06 | 2,11E-06 | 0  | 2,29E-08 | 0  | 2,62E-08 | -8,35E-08 |
|                                      |                        | 55.2  | 2,21E-06    | 4,13E-07 | 7,53E-08 | 1,67E-06 | 2,16E-06 | 0  | 2,32E-08 | 0  | 2,62E-08 | -8,35E-08 |
|                                      |                        | 66.1  | 2,60E-06    | 4,36E-07 | 8,23E-08 | 2,03E-06 | 2,54E-06 | 0  | 2,74E-08 | 0  | 3,15E-08 | -1,00E-07 |
|                                      |                        | 66.2  | 2,62E-06    | 4,72E-07 | 8,91E-08 | 2,00E-06 | 2,56E-06 | 0  | 2,77E-08 | 0  | 3,15E-08 | -1,00E-07 |
|                                      |                        | 88.1  | 3,49E-06    | 5,72E-07 | 1,01E-07 | 2,74E-06 | 3,41E-06 | 0  | 3,64E-08 | 0  | 4,20E-08 | -1,34E-07 |
|                                      |                        | 88.2  | 3,48E-06    | 6,05E-07 | 1,15E-07 | 2,69E-06 | 3,41E-06 | 0  | 3,67E-08 | 0  | 4,20E-08 | -1,34E-07 |
|                                      |                        | 88.12 | 4,19E-06    | 1,07E-06 | 2,05E-07 | 2,84E-06 | 4,11E-06 | 0  | 4,03E-08 | 0  | 4,20E-08 | -1,34E-07 |
| Indicator                            | Unit                   | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Ionising radiation <sup>1</sup>      | KBq U-235 eq           | 33.1  | 3,04E-01    | 1,98E-01 | 5,29E-02 | 3,74E-02 | 2,88E-01 | 0  | 1,32E-02 | 0  | 2,78E-03 | -2,73E-02 |
|                                      |                        | 33.2  | 3,45E-01    | 2,31E-01 | 6,05E-02 | 3,74E-02 | 3,29E-01 | 0  | 1,35E-02 | 0  | 2,78E-03 | -2,73E-02 |
|                                      |                        | 44.1  | 3,58E-01    | 2,27E-01 | 6,12E-02 | 4,90E-02 | 3,37E-01 | 0  | 1,74E-02 | 0  | 3,70E-03 | -3,64E-02 |
|                                      |                        | 44.2  | 4,00E-01    | 2,60E-01 | 6,88E-02 | 4,92E-02 | 3,78E-01 | 0  | 1,78E-02 | 0  | 3,70E-03 | -3,64E-02 |
|                                      |                        | 55.1  | 4,32E-01    | 2,69E-01 | 7,48E-02 | 6,13E-02 | 4,06E-01 | 0  | 2,17E-02 | 0  | 4,63E-03 | -4,54E-02 |
|                                      |                        | 55.2  | 4,73E-01    | 3,02E-01 | 8,23E-02 | 6,14E-02 | 4,46E-01 | 0  | 2,20E-02 | 0  | 4,63E-03 | -4,54E-02 |
|                                      |                        | 66.1  | 5,09E-01    | 3,13E-01 | 9,06E-02 | 7,43E-02 | 4,78E-01 | 0  | 2,60E-02 | 0  | 5,55E-03 | -5,46E-02 |
|                                      |                        | 66.2  | 5,44E-01    | 3,42E-01 | 9,70E-02 | 7,35E-02 | 5,12E-01 | 0  | 2,63E-02 | 0  | 5,55E-03 | -5,46E-02 |
|                                      |                        | 88.1  | 6,63E-01    | 4,01E-01 | 1,12E-01 | 1,08E-01 | 6,21E-01 | 0  | 3,45E-02 | 0  | 7,40E-03 | -7,28E-02 |
|                                      |                        | 88.2  | 6,94E-01    | 4,28E-01 | 1,26E-01 | 9,85E-02 | 6,52E-01 | 0  | 3,49E-02 | 0  | 7,40E-03 | -7,28E-02 |
|                                      |                        | 88.12 | 1,16E+00    | 7,98E-01 | 2,13E-01 | 1,05E-01 | 1,12E+00 | 0  | 3,83E-02 | 0  | 7,40E-03 | -7,28E-02 |
| Indicator                            | Unit                   | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Land use <sup>2</sup>                | Pt                     | 33.1  | 4,24E+01    | 2,91E+01 | 3,82E-02 | 9,38E+00 | 3,85E+01 | 0  | 1,73E-02 | 0  | 3,83E+00 | -6,91E+00 |
|                                      |                        | 33.2  | 4,33E+01    | 2,98E+01 | 4,36E-02 | 9,62E+00 | 3,95E+01 | 0  | 1,77E-02 | 0  | 3,83E+00 | -6,91E+00 |
|                                      |                        | 44.1  | 5,28E+01    | 3,52E+01 | 4,42E-02 | 1,24E+01 | 4,76E+01 | 0  | 2,29E-02 | 0  | 5,11E+00 | -9,22E+00 |
|                                      |                        | 44.2  | 5,38E+01    | 3,60E+01 | 4,96E-02 | 1,27E+01 | 4,87E+01 | 0  | 2,33E-02 | 0  | 5,11E+00 | -9,22E+00 |
|                                      |                        | 55.1  | 6,62E+01    | 4,43E+01 | 5,39E-02 | 1,55E+01 | 5,98E+01 | 0  | 2,85E-02 | 0  | 6,38E+00 | -1,15E+01 |
|                                      |                        | 55.2  | 6,72E+01    | 4,50E+01 | 5,93E-02 | 1,57E+01 | 6,08E+01 | 0  | 2,89E-02 | 0  | 6,38E+00 | -1,15E+01 |
|                                      |                        | 66.1  | 7,88E+01    | 5,25E+01 | 6,53E-02 | 1,85E+01 | 7,11E+01 | 0  | 3,41E-02 | 0  | 7,66E+00 | -1,38E+01 |
|                                      |                        | 66.2  | 7,91E+01    | 5,26E+01 | 6,99E-02 | 1,87E+01 | 7,14E+01 | 0  | 3,45E-02 | 0  | 7,66E+00 | -1,38E+01 |
|                                      |                        | 88.1  | 1,05E+02    | 7,03E+01 | 8,10E-02 | 2,46E+01 | 9,50E+01 | 0  | 4,53E-02 | 0  | 1,02E+01 | -1,84E+01 |
|                                      |                        | 88.2  | 1,05E+02    | 7,00E+01 | 9,06E-02 | 2,48E+01 | 9,49E+01 | 0  | 4,57E-02 | 0  | 1,02E+01 | -1,84E+01 |
|                                      |                        | 88.12 | 1,20E+02    | 8,21E+01 | 1,54E-01 | 2,73E+01 | 1,09E+02 | 0  | 5,02E-02 | 0  | 1,02E+01 | -1,84E+01 |
| Indicator                            | Unit                   | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Ecotoxicity, freshwater <sup>2</sup> | CTUe                   | 33.1  | 1,53E+02    | 1,33E+02 | 4,61E+00 | 5,39E+00 | 1,43E+02 | 0  | 1,37E+00 | 0  | 8,92E+00 | -2,76E+01 |
|                                      |                        | 33.2  | 1,69E+02    | 1,48E+02 | 5,30E+00 | 5,40E+00 | 1,59E+02 | 0  | 1,40E+00 | 0  | 8,92E+00 | -2,76E+01 |

|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 44.1  | 1,84E+02    | 1,58E+02 | 5,30E+00 | 7,02E+00 | 1,70E+02 | 0  | 1,81E+00 | 0  | 1,19E+01 | -3,69E+01 |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 44.2  | 2,01E+02    | 1,74E+02 | 5,99E+00 | 7,05E+00 | 1,87E+02 | 0  | 1,85E+00 | 0  | 1,19E+01 | -3,69E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.1  | 2,28E+02    | 1,96E+02 | 6,45E+00 | 8,73E+00 | 2,11E+02 | 0  | 2,25E+00 | 0  | 1,49E+01 | -4,60E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.2  | 2,45E+02    | 2,12E+02 | 7,13E+00 | 8,74E+00 | 2,27E+02 | 0  | 2,29E+00 | 0  | 1,49E+01 | -4,60E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.1  | 2,70E+02    | 2,31E+02 | 7,83E+00 | 1,05E+01 | 2,49E+02 | 0  | 2,70E+00 | 0  | 1,78E+01 | -5,53E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.2  | 2,83E+02    | 2,44E+02 | 8,41E+00 | 1,04E+01 | 2,62E+02 | 0  | 2,73E+00 | 0  | 1,78E+01 | -5,53E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.1  | 3,57E+02    | 3,06E+02 | 9,67E+00 | 1,48E+01 | 3,30E+02 | 0  | 3,58E+00 | 0  | 2,38E+01 | -7,38E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.2  | 3,69E+02    | 3,17E+02 | 1,09E+01 | 1,39E+01 | 3,41E+02 | 0  | 3,62E+00 | 0  | 2,38E+01 | -7,38E+01 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.12 | 5,60E+02    | 4,99E+02 | 1,87E+01 | 1,48E+01 | 5,32E+02 | 0  | 3,97E+00 | 0  | 2,38E+01 | -7,38E+01 |
| Indicator                                       | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Human toxicity, cancer effects <sup>2</sup>     | CTUh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 33.1  | 3,57E-08    | 2,11E-09 | 8,38E-11 | 5,79E-10 | 2,77E-09 | 0  | 1,84E-11 | 0  | 3,29E-08 | -4,27E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 33.2  | 3,60E-08    | 2,45E-09 | 9,35E-11 | 5,88E-10 | 3,13E-09 | 0  | 1,89E-11 | 0  | 3,29E-08 | -4,27E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 44.1  | 4,72E-08    | 2,52E-09 | 1,00E-10 | 7,11E-10 | 3,33E-09 | 0  | 2,44E-11 | 0  | 4,39E-08 | -5,79E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 44.2  | 4,76E-08    | 2,87E-09 | 1,10E-10 | 7,21E-10 | 3,70E-09 | 0  | 2,49E-11 | 0  | 4,39E-08 | -5,79E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.1  | 5,89E-08    | 3,07E-09 | 1,24E-10 | 8,48E-10 | 4,04E-09 | 0  | 3,04E-11 | 0  | 5,48E-08 | -7,15E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.2  | 5,92E-08    | 3,41E-09 | 1,34E-10 | 8,57E-10 | 4,40E-09 | 0  | 3,08E-11 | 0  | 5,48E-08 | -7,15E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.1  | 7,05E-08    | 3,57E-09 | 1,49E-10 | 9,89E-10 | 4,70E-09 | 0  | 3,63E-11 | 0  | 6,58E-08 | -8,50E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.2  | 7,08E-08    | 3,86E-09 | 1,57E-10 | 9,93E-10 | 5,01E-09 | 0  | 3,68E-11 | 0  | 6,58E-08 | -8,50E-10 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.1  | 9,39E-08    | 4,67E-09 | 1,88E-10 | 1,28E-09 | 6,14E-09 | 0  | 4,83E-11 | 0  | 8,77E-08 | -1,13E-09 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.2  | 9,42E-08    | 4,94E-09 | 2,05E-10 | 1,27E-09 | 6,42E-09 | 0  | 4,88E-11 | 0  | 8,77E-08 | -1,13E-09 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.12 | 9,83E-08    | 8,77E-09 | 3,20E-10 | 1,40E-09 | 1,05E-08 | 0  | 5,36E-11 | 0  | 8,77E-08 | -1,13E-09 |
| Indicator                                       | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Human toxicity, non-cancer effects <sup>2</sup> | CTUh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 33.1  | 1,31E-07    | 5,95E-08 | 7,06E-09 | 9,47E-09 | 7,60E-08 | 0  | 2,05E-09 | 0  | 5,26E-08 | -1,03E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 33.2  | 1,44E-07    | 7,17E-08 | 8,19E-09 | 9,48E-09 | 8,94E-08 | 0  | 2,10E-09 | 0  | 5,26E-08 | -1,03E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 44.1  | 1,61E-07    | 6,94E-08 | 7,98E-09 | 1,04E-08 | 8,78E-08 | 0  | 2,72E-09 | 0  | 7,02E-08 | -1,37E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 44.2  | 1,74E-07    | 8,16E-08 | 9,12E-09 | 1,04E-08 | 1,01E-07 | 0  | 2,77E-09 | 0  | 7,02E-08 | -1,37E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.1  | 1,96E-07    | 8,40E-08 | 9,63E-09 | 1,15E-08 | 1,05E-07 | 0  | 3,38E-09 | 0  | 8,77E-08 | -1,71E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 55.2  | 2,10E-07    | 9,61E-08 | 1,08E-08 | 1,15E-08 | 1,18E-07 | 0  | 3,43E-09 | 0  | 8,77E-08 | -1,71E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.1  | 2,32E-07    | 9,80E-08 | 1,17E-08 | 1,26E-08 | 1,22E-07 | 0  | 4,05E-09 | 0  | 1,05E-07 | -2,06E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 66.2  | 2,44E-07    | 1,09E-07 | 1,27E-08 | 1,25E-08 | 1,34E-07 | 0  | 4,10E-09 | 0  | 1,05E-07 | -2,06E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.1  | 3,03E-07    | 1,27E-07 | 1,44E-08 | 1,60E-08 | 1,58E-07 | 0  | 5,38E-09 | 0  | 1,40E-07 | -2,74E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.2  | 3,14E-07    | 1,37E-07 | 1,64E-08 | 1,47E-08 | 1,69E-07 | 0  | 5,43E-09 | 0  | 1,40E-07 | -2,74E-08 |
|                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 88.12 | 4,64E-07    | 2,72E-07 | 2,94E-08 | 1,57E-08 | 3,17E-07 | 0  | 5,96E-09 | 0  | 1,40E-07 | -2,74E-08 |
| DISCLAIMER                                      | <p>1: this impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this Indicator.</p> <p>2: the results of this environmental impact Indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the Indicator.</p> |       |             |          |          |          |          |    |          |    |          |           |

## Use of resources

| Results per declared unit |      |       |             |          |          |          |          |    |          |    |          |           |
|---------------------------|------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
| Indicator                 | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| PERE                      | MJ   | 33.1  | 1,00E+01    | 8,14E+00 | 1,73E-02 | 1,86E+00 | 1,00E+01 | 0  | 3,93E-03 | 0  | 1,12E-03 | -7,23E-01 |
|                           |      | 33.2  | 1,08E+01    | 8,89E+00 | 1,99E-02 | 1,91E+00 | 1,08E+01 | 0  | 4,03E-03 | 0  | 1,12E-03 | -7,23E-01 |
|                           |      | 44.1  | 1,17E+01    | 9,19E+00 | 2,00E-02 | 2,46E+00 | 1,17E+01 | 0  | 5,21E-03 | 0  | 1,49E-03 | -9,68E-01 |
|                           |      | 44.2  | 1,25E+01    | 9,95E+00 | 2,25E-02 | 2,51E+00 | 1,25E+01 | 0  | 5,31E-03 | 0  | 1,49E-03 | -9,68E-01 |
|                           |      | 55.1  | 1,37E+01    | 1,06E+01 | 2,44E-02 | 3,07E+00 | 1,37E+01 | 0  | 6,49E-03 | 0  | 1,87E-03 | -1,21E+00 |
|                           |      | 55.2  | 1,45E+01    | 1,14E+01 | 2,69E-02 | 3,11E+00 | 1,45E+01 | 0  | 6,59E-03 | 0  | 1,87E-03 | -1,21E+00 |
|                           |      | 66.1  | 1,60E+01    | 1,23E+01 | 2,95E-02 | 3,68E+00 | 1,60E+01 | 0  | 7,76E-03 | 0  | 2,24E-03 | -1,45E+00 |
|                           |      | 66.2  | 1,67E+01    | 1,29E+01 | 3,17E-02 | 3,72E+00 | 1,67E+01 | 0  | 7,86E-03 | 0  | 2,24E-03 | -1,45E+00 |
|                           |      | 88.1  | 2,05E+01    | 1,56E+01 | 3,65E-02 | 4,90E+00 | 2,05E+01 | 0  | 1,03E-02 | 0  | 2,98E-03 | -1,94E+00 |
|                           |      | 88.2  | 2,11E+01    | 1,61E+01 | 4,10E-02 | 4,93E+00 | 2,10E+01 | 0  | 1,04E-02 | 0  | 2,98E-03 | -1,94E+00 |
|                           |      | 88.12 | 3,04E+01    | 2,49E+01 | 7,01E-02 | 5,39E+00 | 3,03E+01 | 0  | 1,14E-02 | 0  | 2,99E-03 | -1,94E+00 |
| Indicator                 | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| PERM                      | MJ   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
| Indicator                 | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| PERT                      | MJ   | 33.1  | 1,00E+01    | 8,14E+00 | 1,73E-02 | 1,86E+00 | 1,00E+01 | 0  | 3,93E-03 | 0  | 1,12E-03 | -7,23E-01 |
|                           |      | 33.2  | 1,08E+01    | 8,89E+00 | 1,99E-02 | 1,91E+00 | 1,08E+01 | 0  | 4,03E-03 | 0  | 1,12E-03 | -7,23E-01 |
|                           |      | 44.1  | 1,17E+01    | 9,19E+00 | 2,00E-02 | 2,46E+00 | 1,17E+01 | 0  | 5,21E-03 | 0  | 1,49E-03 | -9,68E-01 |
|                           |      | 44.2  | 1,25E+01    | 9,95E+00 | 2,25E-02 | 2,51E+00 | 1,25E+01 | 0  | 5,31E-03 | 0  | 1,49E-03 | -9,68E-01 |
|                           |      | 55.1  | 1,37E+01    | 1,06E+01 | 2,44E-02 | 3,07E+00 | 1,37E+01 | 0  | 6,49E-03 | 0  | 1,87E-03 | -1,21E+00 |
|                           |      | 55.2  | 1,45E+01    | 1,14E+01 | 2,69E-02 | 3,11E+00 | 1,45E+01 | 0  | 6,59E-03 | 0  | 1,87E-03 | -1,21E+00 |
|                           |      | 66.1  | 1,60E+01    | 1,23E+01 | 2,95E-02 | 3,68E+00 | 1,60E+01 | 0  | 7,76E-03 | 0  | 2,24E-03 | -1,45E+00 |
|                           |      | 66.2  | 1,67E+01    | 1,29E+01 | 3,17E-02 | 3,72E+00 | 1,67E+01 | 0  | 7,86E-03 | 0  | 2,24E-03 | -1,45E+00 |
|                           |      | 88.1  | 2,05E+01    | 1,56E+01 | 3,65E-02 | 4,90E+00 | 2,05E+01 | 0  | 1,03E-02 | 0  | 2,98E-03 | -1,94E+00 |
|                           |      | 88.2  | 2,11E+01    | 1,61E+01 | 4,10E-02 | 4,93E+00 | 2,10E+01 | 0  | 1,04E-02 | 0  | 2,98E-03 | -1,94E+00 |
|                           |      | 88.12 | 3,04E+01    | 2,49E+01 | 7,01E-02 | 5,39E+00 | 3,03E+01 | 0  | 1,14E-02 | 0  | 2,99E-03 | -1,94E+00 |
| Indicator                 | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| PENRE                     | MJ   | 33.1  | 2,70E+02    | 2,48E+02 | 1,28E+01 | 5,81E+00 | 2,66E+02 | 0  | 3,25E+00 | 0  | 6,81E-01 | -1,29E+01 |
|                           |      | 33.2  | 3,01E+02    | 2,77E+02 | 1,46E+01 | 5,82E+00 | 2,97E+02 | 0  | 3,33E+00 | 0  | 6,81E-01 | -1,29E+01 |
|                           |      | 44.1  | 3,23E+02    | 2,96E+02 | 1,48E+01 | 7,61E+00 | 3,18E+02 | 0  | 4,30E+00 | 0  | 9,08E-01 | -1,72E+01 |
|                           |      | 44.2  | 3,55E+02    | 3,25E+02 | 1,66E+01 | 7,64E+00 | 3,49E+02 | 0  | 4,38E+00 | 0  | 9,08E-01 | -1,72E+01 |
|                           |      | 55.1  | 3,96E+02    | 3,62E+02 | 1,80E+01 | 9,51E+00 | 3,90E+02 | 0  | 5,35E+00 | 0  | 1,13E+00 | -2,15E+01 |
|                           |      | 55.2  | 4,27E+02    | 3,91E+02 | 1,99E+01 | 9,52E+00 | 4,20E+02 | 0  | 5,44E+00 | 0  | 1,13E+00 | -2,15E+01 |
|                           |      | 66.1  | 4,76E+02    | 4,34E+02 | 2,19E+01 | 1,15E+01 | 4,68E+02 | 0  | 6,41E+00 | 0  | 1,36E+00 | -2,58E+01 |
|                           |      | 66.2  | 5,00E+02    | 4,58E+02 | 2,34E+01 | 1,14E+01 | 4,93E+02 | 0  | 6,49E+00 | 0  | 1,36E+00 | -2,58E+01 |
|                           |      | 88.1  | 6,24E+02    | 5,69E+02 | 2,71E+01 | 1,73E+01 | 6,14E+02 | 0  | 8,51E+00 | 0  | 1,82E+00 | -3,44E+01 |
|                           |      | 88.2  | 6,46E+02    | 5,90E+02 | 3,03E+01 | 1,52E+01 | 6,35E+02 | 0  | 8,60E+00 | 0  | 1,82E+00 | -3,44E+01 |
|                           |      | 88.12 | 1,00E+03    | 9,25E+02 | 5,13E+01 | 1,63E+01 | 9,93E+02 | 0  | 9,44E+00 | 0  | 1,82E+00 | -3,44E+01 |
| Indicator                 | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| PENRM                     | MJ   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|                           |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |

|           |      |       |             |          |          |          |          |    |          |    |          |           |
|-----------|------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
|           |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
| Indicator | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| PENRT     | MJ   | 33.1  | 2,70E+02    | 2,48E+02 | 1,28E+01 | 5,81E+00 | 2,66E+02 | 0  | 3,25E+00 | 0  | 6,81E-01 | -1,29E+01 |
|           |      | 33.2  | 3,01E+02    | 2,77E+02 | 1,46E+01 | 5,82E+00 | 2,97E+02 | 0  | 3,33E+00 | 0  | 6,81E-01 | -1,29E+01 |
|           |      | 44.1  | 3,23E+02    | 2,96E+02 | 1,48E+01 | 7,61E+00 | 3,18E+02 | 0  | 4,30E+00 | 0  | 9,08E-01 | -1,72E+01 |
|           |      | 44.2  | 3,55E+02    | 3,25E+02 | 1,66E+01 | 7,64E+00 | 3,49E+02 | 0  | 4,38E+00 | 0  | 9,08E-01 | -1,72E+01 |
|           |      | 55.1  | 3,96E+02    | 3,62E+02 | 1,80E+01 | 9,51E+00 | 3,90E+02 | 0  | 5,35E+00 | 0  | 1,13E+00 | -2,15E+01 |
|           |      | 55.2  | 4,27E+02    | 3,91E+02 | 1,99E+01 | 9,52E+00 | 4,20E+02 | 0  | 5,44E+00 | 0  | 1,13E+00 | -2,15E+01 |
|           |      | 66.1  | 4,76E+02    | 4,34E+02 | 2,19E+01 | 1,15E+01 | 4,68E+02 | 0  | 6,41E+00 | 0  | 1,36E+00 | -2,58E+01 |
|           |      | 66.2  | 5,00E+02    | 4,58E+02 | 2,34E+01 | 1,14E+01 | 4,93E+02 | 0  | 6,49E+00 | 0  | 1,36E+00 | -2,58E+01 |
|           |      | 88.1  | 6,24E+02    | 5,69E+02 | 2,71E+01 | 1,73E+01 | 6,14E+02 | 0  | 8,51E+00 | 0  | 1,82E+00 | -3,44E+01 |
|           |      | 88.2  | 6,46E+02    | 5,90E+02 | 3,03E+01 | 1,52E+01 | 6,35E+02 | 0  | 8,60E+00 | 0  | 1,82E+00 | -3,44E+01 |
|           |      | 88.12 | 1,00E+03    | 9,25E+02 | 5,13E+01 | 1,63E+01 | 9,93E+02 | 0  | 9,44E+00 | 0  | 1,82E+00 | -3,44E+01 |
| Indicator | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| SM        | kg   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
| Indicator | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| RSF       | MJ   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
| Indicator | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| NRSF      | MJ   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |
|           |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00  |

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00  | 0,00E+00  |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|----------|----------|----------|----------|----|----------|----|-----------|-----------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00  | 0,00E+00  |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00  | 0,00E+00  |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00  | 0,00E+00  |
| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4        | D         |
| FW        | m3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 33.1  | 1,11E-01    | 1,11E-01 | 2,33E-05 | 8,29E-04 | 1,11E-01 | 0  | 7,12E-05 | 0  | -7,63E-04 | -1,95E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 33.2  | 1,28E-01    | 1,28E-01 | 2,62E-05 | 8,41E-04 | 1,29E-01 | 0  | 7,31E-05 | 0  | -7,63E-04 | -1,95E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 44.1  | 1,30E-01    | 1,29E-01 | 2,76E-05 | 2,01E-03 | 1,31E-01 | 0  | 9,43E-05 | 0  | -1,02E-03 | -2,60E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 44.2  | 1,47E-01    | 1,46E-01 | 3,05E-05 | 2,02E-03 | 1,48E-01 | 0  | 9,62E-05 | 0  | -1,02E-03 | -2,60E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 55.1  | 1,58E-01    | 1,56E-01 | 3,39E-05 | 3,19E-03 | 1,59E-01 | 0  | 1,17E-04 | 0  | -1,27E-03 | -3,25E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 55.2  | 1,75E-01    | 1,73E-01 | 3,68E-05 | 3,20E-03 | 1,76E-01 | 0  | 1,19E-04 | 0  | -1,27E-03 | -3,25E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 66.1  | 1,85E-01    | 1,82E-01 | 4,10E-05 | 4,41E-03 | 1,87E-01 | 0  | 1,41E-04 | 0  | -1,53E-03 | -3,91E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 66.2  | 2,00E-01    | 1,97E-01 | 4,34E-05 | 4,38E-03 | 2,01E-01 | 0  | 1,42E-04 | 0  | -1,53E-03 | -3,91E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.1  | 2,42E-01    | 2,37E-01 | 5,15E-05 | 6,86E-03 | 2,44E-01 | 0  | 1,87E-04 | 0  | -2,03E-03 | -5,21E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.2  | 2,55E-01    | 2,50E-01 | 5,64E-05 | 6,78E-03 | 2,57E-01 | 0  | 1,89E-04 | 0  | -2,03E-03 | -5,21E-02 |
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 88.12 | 4,49E-01    | 4,43E-01 | 9,02E-05 | 7,21E-03 | 4,51E-01 | 0  | 2,07E-04 | 0  | -2,03E-03 | -5,21E-02 |
| Acronyms  | PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water |       |             |          |          |          |          |    |          |    |           |           |

## Waste production and output flows

### Waste production

| Results per declared unit    |      |       |             |          |          |          |          |    |          |    |          |           |
|------------------------------|------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|-----------|
| Indicator                    | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Hazardous waste disposed     | kg   | 33.1  | 3,88E-04    | 2,65E-04 | 2,73E-05 | 8,56E-05 | 3,78E-04 | 0  | 8,26E-06 | 0  | 1,68E-06 | -8,93E-06 |
|                              |      | 33.2  | 4,04E-04    | 2,76E-04 | 3,18E-05 | 8,55E-05 | 3,94E-04 | 0  | 8,48E-06 | 0  | 1,68E-06 | -8,93E-06 |
|                              |      | 44.1  | 4,77E-04    | 3,23E-04 | 3,06E-05 | 1,11E-04 | 4,64E-04 | 0  | 1,09E-05 | 0  | 2,24E-06 | -1,19E-05 |
|                              |      | 44.2  | 4,94E-04    | 3,34E-04 | 3,52E-05 | 1,11E-04 | 4,81E-04 | 0  | 1,12E-05 | 0  | 2,24E-06 | -1,19E-05 |
|                              |      | 55.1  | 5,92E-04    | 4,01E-04 | 3,69E-05 | 1,38E-04 | 5,75E-04 | 0  | 1,36E-05 | 0  | 2,79E-06 | -1,49E-05 |
|                              |      | 55.2  | 6,07E-04    | 4,12E-04 | 4,14E-05 | 1,38E-04 | 5,91E-04 | 0  | 1,38E-05 | 0  | 2,79E-06 | -1,49E-05 |
|                              |      | 66.1  | 7,18E-04    | 4,87E-04 | 4,50E-05 | 1,66E-04 | 6,98E-04 | 0  | 1,63E-05 | 0  | 3,35E-06 | -1,79E-05 |
|                              |      | 66.2  | 7,25E-04    | 4,92E-04 | 4,89E-05 | 1,64E-04 | 7,05E-04 | 0  | 1,65E-05 | 0  | 3,35E-06 | -1,79E-05 |
|                              |      | 88.1  | 9,54E-04    | 6,46E-04 | 5,48E-05 | 2,27E-04 | 9,28E-04 | 0  | 2,17E-05 | 0  | 4,47E-06 | -2,39E-05 |
|                              |      | 88.2  | 9,55E-04    | 6,47E-04 | 6,31E-05 | 2,19E-04 | 9,29E-04 | 0  | 2,19E-05 | 0  | 4,47E-06 | -2,39E-05 |
|                              |      | 88.12 | 1,18E-03    | 8,03E-04 | 1,15E-04 | 2,31E-04 | 1,15E-03 | 0  | 2,40E-05 | 0  | 4,47E-06 | -2,39E-05 |
| Indicator                    | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Non-hazardous waste disposed | kg   | 33.1  | 3,15E+00    | 2,48E-01 | 6,50E-04 | 7,26E-01 | 9,74E-01 | 0  | 8,44E-04 | 0  | 2,18E+00 | -4,65E-02 |
|                              |      | 33.2  | 3,21E+00    | 2,94E-01 | 7,41E-04 | 7,41E-01 | 1,04E+00 | 0  | 8,66E-04 | 0  | 2,18E+00 | -4,65E-02 |
|                              |      | 44.1  | 4,14E+00    | 2,91E-01 | 7,55E-04 | 9,48E-01 | 1,24E+00 | 0  | 1,12E-03 | 0  | 2,90E+00 | -6,26E-02 |
|                              |      | 44.2  | 4,21E+00    | 3,38E-01 | 8,47E-04 | 9,65E-01 | 1,30E+00 | 0  | 1,14E-03 | 0  | 2,90E+00 | -6,26E-02 |
|                              |      | 55.1  | 5,17E+00    | 3,59E-01 | 9,24E-04 | 1,18E+00 | 1,54E+00 | 0  | 1,39E-03 | 0  | 3,63E+00 | -7,81E-02 |
|                              |      | 55.2  | 5,23E+00    | 4,05E-01 | 1,01E-03 | 1,20E+00 | 1,60E+00 | 0  | 1,41E-03 | 0  | 3,63E+00 | -7,81E-02 |
|                              |      | 66.1  | 6,20E+00    | 4,16E-01 | 1,12E-03 | 1,43E+00 | 1,85E+00 | 0  | 1,67E-03 | 0  | 4,35E+00 | -9,41E-02 |
|                              |      | 66.2  | 6,24E+00    | 4,57E-01 | 1,20E-03 | 1,43E+00 | 1,89E+00 | 0  | 1,69E-03 | 0  | 4,35E+00 | -9,41E-02 |
|                              |      | 88.1  | 8,27E+00    | 5,43E-01 | 1,39E-03 | 1,92E+00 | 2,46E+00 | 0  | 2,21E-03 | 0  | 5,80E+00 | -1,25E-01 |
|                              |      | 88.2  | 8,29E+00    | 5,82E-01 | 1,55E-03 | 1,90E+00 | 2,49E+00 | 0  | 2,24E-03 | 0  | 5,80E+00 | -1,25E-01 |
|                              |      | 88.12 | 9,09E+00    | 1,10E+00 | 2,60E-03 | 2,18E+00 | 3,29E+00 | 0  | 2,45E-03 | 0  | 5,80E+00 | -1,25E-01 |
| Indicator                    | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D         |
| Radioactive waste disposed   | kg   | 33.1  | 3,18E-04    | 1,98E-04 | 8,72E-05 | 7,21E-06 | 2,92E-04 | 0  | 2,17E-05 | 0  | 4,57E-06 | -2,83E-05 |
|                              |      | 33.2  | 3,62E-04    | 2,28E-04 | 9,96E-05 | 7,35E-06 | 3,35E-04 | 0  | 2,23E-05 | 0  | 4,57E-06 | -2,83E-05 |
|                              |      | 44.1  | 3,73E-04    | 2,28E-04 | 1,01E-04 | 9,44E-06 | 3,38E-04 | 0  | 2,87E-05 | 0  | 6,09E-06 | -3,78E-05 |
|                              |      | 44.2  | 4,16E-04    | 2,58E-04 | 1,13E-04 | 9,59E-06 | 3,81E-04 | 0  | 2,93E-05 | 0  | 6,09E-06 | -3,78E-05 |
|                              |      | 55.1  | 4,50E-04    | 2,71E-04 | 1,23E-04 | 1,18E-05 | 4,06E-04 | 0  | 3,58E-05 | 0  | 7,62E-06 | -4,72E-05 |
|                              |      | 55.2  | 4,93E-04    | 3,01E-04 | 1,35E-04 | 1,19E-05 | 4,49E-04 | 0  | 3,63E-05 | 0  | 7,62E-06 | -4,72E-05 |
|                              |      | 66.1  | 5,31E-04    | 3,15E-04 | 1,49E-04 | 1,42E-05 | 4,79E-04 | 0  | 4,28E-05 | 0  | 9,14E-06 | -5,67E-05 |
|                              |      | 66.2  | 5,68E-04    | 3,42E-04 | 1,60E-04 | 1,42E-05 | 5,16E-04 | 0  | 4,34E-05 | 0  | 9,14E-06 | -5,67E-05 |
|                              |      | 88.1  | 6,91E-04    | 4,06E-04 | 1,85E-04 | 3,17E-05 | 6,22E-04 | 0  | 5,69E-05 | 0  | 1,22E-05 | -7,57E-05 |
|                              |      | 88.2  | 7,25E-04    | 4,30E-04 | 2,07E-04 | 1,89E-05 | 6,56E-04 | 0  | 5,75E-05 | 0  | 1,22E-05 | -7,57E-05 |
|                              |      | 88.12 | 1,22E-03    | 7,71E-04 | 3,50E-04 | 2,13E-05 | 1,14E-03 | 0  | 6,31E-05 | 0  | 1,22E-05 | -7,57E-05 |

### Environmental information describing output flows

| Results per declared unit |      |       |             |          |          |          |          |    |          |    |          |          |
|---------------------------|------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|----------|
| Indicator                 | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D        |
| Components for re-use     | kg   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                           |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |

|                               |      |       |             |          |          |          |          |    |          |    |          |          |
|-------------------------------|------|-------|-------------|----------|----------|----------|----------|----|----------|----|----------|----------|
|                               |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
| Indicator                     | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D        |
| Materials for recycling       | kg   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
| Indicator                     | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D        |
| Materials for energy recovery | kg   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
| Indicator                     | Unit | Width | Total w/o D | A1       | A2       | A3       | A1-A3    | C1 | C2       | C3 | C4       | D        |
| Exported energy               | Mj   | 33.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 33.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 44.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 44.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 55.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 55.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 66.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 66.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.1  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.2  | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |
|                               |      | 88.12 | 0,00E+00    | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0  | 0,00E+00 | 0  | 0,00E+00 | 0,00E+00 |

## Information on biogenic carbon content

| Results per declared unit            |                       |           |           |           |           |           |           |           |           |           |           |           |
|--------------------------------------|-----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| BIOGENIC CARBON CONTENT              | Unit                  | 33.1      | 33.2      | 44.1      | 44.2      | 55.1      | 55.2      | 66.1      | 66.2      | 88.1      | 88.2      | 88.12     |
| Biogenic carbon content in product   | kg C / m <sup>2</sup> | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 | 0,00 E+00 |
| Biogenic carbon content in packaging | kg C / m <sup>2</sup> | 5,61E-02  | 5,76E-02  | 7,41E-02  | 7,55E-02  | 9,24E-02  | 9,39E-02  | 1,10E-01  | 1,12E-01  | 1,47E-01  | 1,48E-01  | 1,63E-01  |

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>.

## References

PCR 2019:14 Construction products (EN 15804:A2) (1.11);

c-PCR-009 Flat glass products used in buildings and other construction works (EN 17074) (2021-01-25)

EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

EN 17074:2019 Glass in building - Environmental product declaration - Product category rules for flat glass products

ISO 14040-44: UNI EN ISO 14040:2021: Environmental management - Life cycle assessment - Principles and framework and UNI EN ISO 14040:2006) Requirements and guidelines

EN 673:2011 Glass in building - Determination of thermal transmittance (U value) - Calculation method

EN 410:2011 Glass in building - Determination of luminous and solar characteristics of glazing

EN 572-2:2012 Glass in building. Basic soda lime silicate glass products. Float glass.

CE marking: Construction Products Regulation (CPR) Regulation (EU) No 305/2011 of the European Parliament and of the Council

Construction Products Regulation (CPR: Construction Products Regulation (CPR) Regulation (EU) No 305/2011 of The European Parliament and of the Council

GPI: General Programme Instruction v. 3.1

Ecoinvent: Ecoinvent Centre, [www.ecoinvent.com](http://www.ecoinvent.com)

SimaPro: SimaPro LCA Package, Pré Consultants, the Netherlands, [www.pre-sustainability.com](http://www.pre-sustainability.com)

