

# ENVIRONMENTAL PRODUCT DECLARATION (EPD)

*In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019 for:*

**URSA WBW: PUREONE PURE FLOC, PURE FLOC,  
PUREONE PURE FLOC KD, PURE FLOC KD,  
WBWPF, URSA PUREFLOC Cavity, URSA  
PUREFLOC Universal, URSA PUREFLOC Frame**  
60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280,  
300, 320, 340, 360, 380, 400 mm  
R= 1.75, 2.35, 2.90, 3.50, 4.10, 4.70, 5.25, 5.85, 6.45,  
7.05, 7.65, 8.20, 8.80, 9.40, 10, 10.55, 11.15, 11.75  
m<sup>2</sup>·K/W

Owner: URSA INSULATION S.A

Programme: The International EPD® System,  
[www.environdec.com](http://www.environdec.com)

Programme operator: EPD International AB

EPD registration number: S-P-08576

Publication date: 03-03-2023

Revision date: 25-09-2025 (Version 1)

Valid until: 02-03-2028



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)

## 1. General information

### 1.1. Programme information

**EPD Owner:** URSA Insulation. Paseo de Recoletos 3, 28004 Madrid (Spain)

**Programme used:** The International EPD® System. [www.environdec.com](http://www.environdec.com)

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**Date of issue:** 03-03-2023

**Revision date:** 25-09-2025 (Version 1)

**Valid:** 02-03-2028

|                   |                                                                     |
|-------------------|---------------------------------------------------------------------|
| <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>          |
| <b>E-mail:</b>    | <a href="mailto:info@environdec.com">info@environdec.com</a>        |

|                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CEN standard EN 15804+A2 serves as the Core Product Category Rules (PCR)                                                                                                                                                                                                                                                                |
| Product Category Rules (PCR): <i>PCR 2019:14. Construction products (EN 15804+A2) Version 1.11. C-PCR-005 Thermal insulation products (EN 16783:2017) Version: 2019-12-20</i>                                                                                                                                                           |
| PCR review was conducted by: 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.<br>Review chair: Claudia A. Peña. The review panel may be contacted via the Secretariat <a href="mailto:info@environdec.com">info@environdec.com</a> |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006:<br><br><input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification                                                                                                                           |
| Third-party verifier:<br>Marcel Gómez Ferrer, Marcel Gómez Consultoría Ambiental S.L<br>Email: <a href="mailto:info@marcelgomez.com">info@marcelgomez.com</a><br><br>Approved by: The International EPD® System                                                                                                                         |
| Procedure for follow-up of data during EPD validity involves third party verifier:<br><br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                                           |

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.

## 2. Company information

**Owner of the EPD:** URSA Insulation S.A.

**Contact:** Silvia Herranz (Sustainability & Technical Manager)  
(silvia.herranz@etexgroup.com)

### **Description of the organization:**

URSA is a company dedicated to the manufacture and commercialization of thermal and acoustic insulation materials oriented towards sustainability and energy efficiency in building. URSA is one of the leading mineral wool and extruded polystyrene (XPS) manufacturers in Europe.

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

Desselgem plant is covered by EPD process certification system, are certified ISO 9001, ISO 14001.

**Name and location of production site(s):** Desselgem - Pitantiestraat 127, B-8792 Desselgem (Belgium)

## 3. Product information

This Environmental Product Declaration (EPD) describes the environmental impacts of 1m<sup>2</sup> glass wool insulation, thickness 60, 80, 100, 120, 140, 160, 180, 200, and 220, 240, 260, 280, 300, 320, 340, 360, 380, 400 mm and R-value 1.75, 2.35, 2.90, 3.50, 4.10, 4.70, 5.25, 5.85, and 6.45, 7.05, 7.65, 8.20 8.80, 9.40, 10, 10.55, 11.15, 11.75 m<sup>2</sup>·K/W respectively.

URSA manufactures glass wool using natural and plentiful raw materials (sand) or recycled materials (Cullet) in a fusion and fiber formation process. The products obtained are presented in the form of a "mineral wool mattress" composed of a flexible airy structure.

Thanks to their intertwined structure, mineral wools (glass wool or stone wool) are porous materials which trap air, thus providing an insulation solution. The porous and elastic structure of the mineral wool also absorbs aerial noise, impact sounds and enables acoustic correction inside buildings and premises. Finally, as they are based on naturally incombustible minerals, mineral wools are incombustible and do not propagate fire.

Insulation with mineral wool (glass wool) is used in buildings and in industrial installations. It ensures a high level of comfort, reduces energy costs, reduces carbon dioxide emissions (CO<sub>2</sub>), prevents heat loss through sloping roofs, walls, ceilings, pipes, and boilers, reduces sound pollution and protects houses and industrial installations from risk of fire.

The service life of a glass wool product is like that of a building, as it is a component of that installation (often established at 50 years).

**UN CPC code:** 37990 Non-metallic mineral products N.E.C (including mineral wool, expanded mineral materials, worked mica, articles of mica, non-electrical articles of graphite or other carbon and articles of pear)

**Geographical scope:** The product is manufactured in Belgium. The product is marketed mainly in Europe.

**Product name:** URSA WBW: PUREONE PURE FLOC, PURE FLOC, PUREONE PURE FLOC KD, PURE FLOC KD, WBWPF, URSA PUREFLOC Cavity, URSA PUREFLOC Universal, URSA PUREFLOC Frame.

**Product identification:** URSA PUREONE mineral wool panel in accordance with the EN 14064-1 standard, non-hydrophilic. Supplied in bulk.

**Functional unit:** Thermal insulation over 1 m<sup>2</sup> of enclosure for the application of interior wall insulation that guarantees the following thermal resistance:

| Thickness (mm) | R -Value (m <sup>2</sup> ·K/W) |
|----------------|--------------------------------|
| 60             | 1.75                           |
| 80             | 2.35                           |
| 100            | 2.90                           |
| 120            | 3.50                           |
| 140            | 4.10                           |
| 160            | 4.70                           |
| 180            | 5.25                           |
| 200            | 5.85                           |
| 220            | 6.45                           |
| 240            | 7.05                           |
| 260            | 7.65                           |
| 280            | 8.20                           |
| 300            | 8.80                           |
| 320            | 9.40                           |
| 340            | 10.00                          |
| 360            | 10.55                          |
| 380            | 11.15                          |
| 400            | 11.75                          |

### Technical data and physical characteristics:

| Parameters                                                | Unit      | Test method          | Value                      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
|-----------------------------------------------------------|-----------|----------------------|----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|-------|-------|-------|
| Thickness                                                 | mm        |                      | 60                         | 80   | 100  | 120  | 140  | 160  | 180  | 200  | 220  | 240  | 260  | 280  | 300  | 320  | 340 | 360   | 380   | 400   |
| R-value                                                   | m²·K/W    |                      | 1.75                       | 2.35 | 2.90 | 3.50 | 4.10 | 4.70 | 5.25 | 5.85 | 6.45 | 7.05 | 7.65 | 8.20 | 8.80 | 9.40 | 10  | 10.55 | 11.15 | 11.75 |
| Thermal Conductivity                                      | W/(m.K)   | EN 12667<br>EN 12939 | 0.034                      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Fire reaction                                             | Euroclase | EN 13501-1           | A1                         |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Air Flow resistivity                                      |           | EN 29053             | AFr20                      |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Settlement                                                |           | EN 15101-1           | S1                         |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Water vapour transmission (μ)                             |           | EN 12086             | MU1                        |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Short term water absorption                               | kg/m²     | EN 1609              | ≤ 1                        |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Long term water absorption                                | kg/m²     | EN 12087             | ≤ 3                        |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Reference standard to declare the efficacy of the product |           |                      | EN 14064-1                 |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |
| Designation code CE                                       |           |                      | MW EN 14064-1-A1-S1-WS-MU1 |      |      |      |      |      |      |      |      |      |      |      |      |      |     |       |       |       |

|             |                                                                                      |
|-------------|--------------------------------------------------------------------------------------|
| Certificate | CE EN 14064-1:2010; ETA 18/0889                                                      |
| Application | Thermal insulation in Building / thermal Insulation of interior walls. Timber/Cavity |

## Description of the main components of the glass wool product:

| Product components | Weight, kg/m <sup>2</sup> |       |       |       |       |       |       |       |       |       |       |       |        |        |        |        |        |        | Post-consumer material, weight - % |
|--------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|------------------------------------|
| Thickness mm       | 60                        | 80    | 100   | 120   | 140   | 160   | 180   | 200   | 220   | 240   | 260   | 280   | 300    | 320    | 340    | 360    | 380    | 400    |                                    |
| Glass wool         | 2.100                     | 2.800 | 3.500 | 4.200 | 4.900 | 5.600 | 6.300 | 7.000 | 7.700 | 8.400 | 9.100 | 9.800 | 10.500 | 11.200 | 11.900 | 12.600 | 13.300 | 14.000 | 50%                                |

| Packaging components          | weight, kg/m <sup>2</sup> |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|-------------------------------|---------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
| Thickness mm                  | 60                        | 80    | 100   | 120   | 140   | 160   | 180   | 200   | 220   | 240   | 260   | 280   | 300   | 320   | 340   | 360   | 380   | 400   |  |
| Plastic Packaging             | 0.007                     | 0.009 | 0.012 | 0.014 | 0.016 | 0.019 | 0.021 | 0.024 | 0.026 | 0.029 | 0.031 | 0.034 | 0.036 | 0.039 | 0.041 | 0.044 | 0.047 | 0.049 |  |
| Wood Pallet                   | 0.065                     | 0.086 | 0.108 | 0.130 | 0.151 | 0.173 | 0.195 | 0.216 | 0.238 | 0.259 | 0.281 | 0.303 | 0.324 | 0.346 | 0.368 | 0.389 | 0.411 | 0.432 |  |
| TOTAL                         | 0.072                     | 0.096 | 0.120 | 0.144 | 0.168 | 0.192 | 0.216 | 0.240 | 0.264 | 0.288 | 0.312 | 0.336 | 0.361 | 0.385 | 0.409 | 0.433 | 0.457 | 0.482 |  |
| Weight-% (versus the product) | 3%                        | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    | 3%    |  |

## 4. LCA Information

**Functional unit / declared unit:** It performs the function of thermal isolation on 1 m<sup>2</sup> de wall ensuring thermal resistance of 1.75, 2.35, 2.90, 3.50, 4.10, 4.70, 5.25, 5.85, 6.45, 7.05, 7.65, 8.20, 8.80, 9.40, 10, 10.55, 11.15 and 11.75 m<sup>2</sup>·K/W for application Insulation (Glass wool 2.100-14.000 kg/m<sup>2</sup>) of interior walls.

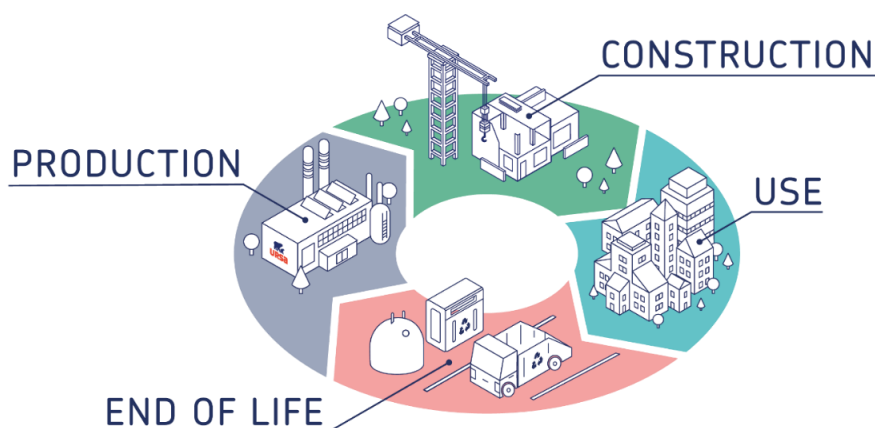
**Reference service life:** 50 years

**Time representativeness:** Plant production data for the complete year 2020.

**Database(s) and LCA software used:** ECOINVENT 3.6, EuGeos' 15804+A2\_IA v4.1, OPENLCA 1.10.3 (2020)

### Description of system boundaries:

Cradle to grave and module D (A + B + C + D)



## Main hypotheses and considerations:

The polluter pays principle, the principle of modularity, and study exclusions (long-term emissions, infrastructure processes, and staff travel) have been considered.

## Cutt-off rules:

In the case that there is not enough information, the process energy and materials representing less than 1% of the whole energy and mass used can be excluded (if they do not cause significant impacts). The addition of all the inputs and outputs excluded cannot be bigger than the 5% of the whole mass and energy used, as well of the emissions to environment occurred

## Description of the data quality used:

All the raw materials for the manufacture of the declared product, the necessary energy, the water, the consumption, and the resulting emissions are considered in the life cycle analysis of this material. The production data of the Desselgem factory, for the full year 2020, have been used. The allocations of consumption, emissions and raw materials have been made based on physical criteria of the mass of glass.

The Ecoinvent 3.6 and EuGeos' 15804+A2\_IA v4.1 databases have been used to choose the most representative processes, considering that the data is representative of technological development, regionalized data and as current as possible. These data have been treated in the OpenLCA 1.10.3 software for LCA modeling and the calculation of environmental impact categories, complying with the quality requirements established in the RCP.

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

### Phases and modules of life cycle taken into account

| Module               | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Module declared      | X                | X                  | X               | X         | X              | X         | X              | X                | X             | X               | X                              | X            | X                  | X          | X                                                    |
| Geography            | Belgium          | Belgium            | Global          | Global    | Global         | Global    | Global         | Global           | Global        | Global          | Global                         | Global       | Global             | Global     | Global                                               |
| Specific data used   | >90% GWP         | >90% GWP           | >90% GWP        |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |
| Variation - Products | No variability   | No variability     | No variability  |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |
| Variation - Sites    | Only plant       | Only plant         | Only plant      |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

## A1-A3 Production phase

## Description of the phase:

The production phase of mineral wool products is divided into three modules: A1, supply of raw materials; A2, transport and A3, manufacture.

The addition of modules A1, A2 et A3 is an option provided by standard EN 15804+A2 and has been applied to this EPD.

### A1 Supply of raw materials

This module considers the supply and processing of all raw materials and the energies they produce prior to the manufacturing process. In particular, it covers supply of raw materials for manufacturing the binding and glass fibers, such as sand. In addition to these raw materials, recycled materials (cullet) are used in the process.

### A2 Transport to manufacturer

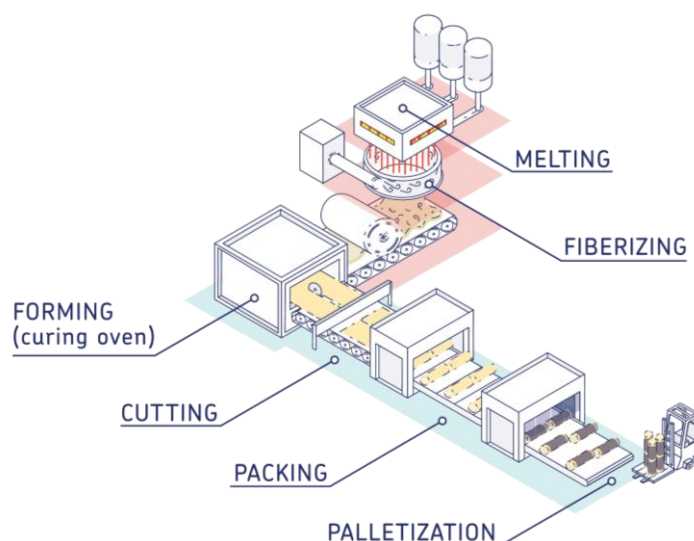
Raw materials are transported to the manufacturing site. The modelling includes road, river or rail transport (average values) for each of the raw materials.

### A3 Manufacturing

Glass wool manufacture includes stages of fusion and fibre formation (see diagram of manufacturing process). Furthermore, production of packaging is considered during this phase.

A certified 100% renewable mix has been used.

#### System Diagram:



### A4-A5 Construction phase

#### Description:

The construction phase is divided into two modules: A4, transport to the construction site and A5, installation in the building.

Description of the scenarios and supplementary technical information.

#### A4 Transporte hasta la obra:

This module includes transport from factory to site. Average value.

The transport is calculated based on a scenario that includes the following parameters:

| Parameter                                                                                                                          | Value                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Type of fuel and consumption of the vehicle or type of vehicle used for the transport for example, long distance lorry, boat, etc. | The vehicle runs on diesel, its emission standard is classified as EURO5 and it falls under the truck size class of 7.5 to 16 metric tons |
| Average distance to site                                                                                                           | Lorry: 460 km                                                                                                                             |
| Use of capacity (including returning empty)                                                                                        | 100 % volume capacity                                                                                                                     |
| Terra<br>ζ                                                                                                                         | 308.29-46.24 m <sup>2</sup> per pallet and 22 pallets per lorry<br>Density of product = 30 kg/m <sup>3</sup>                              |
| Coefficient of use of volume capacity                                                                                              | >1 (products compressed in the packaging)                                                                                                 |

#### A5 Installation in the building:

This module includes the waste products created during mechanical installation of the mineral wool in the building, supplementary production required to compensate losses and treatment of site waste. The scenarios used for the quantity of waste generated during the installation and the treatment of the site waste are as follows:

| Parameter                                                                                                                                                                                | Value                                                                                                                                                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ancillary inputs for installation (specified by material)                                                                                                                                | No ancillary inputs                                                                                                                                       |
| Use of water                                                                                                                                                                             | No water used                                                                                                                                             |
| Use of other resources                                                                                                                                                                   | No other resources                                                                                                                                        |
| Quantitative description of the type of energy (regional mix) and consumption during the installation process                                                                            | Electricity                                                                                                                                               |
| Waste produced on the construction site prior to waste treatment generated by installation of the product (specified by type)                                                            | 2 % of glass wool                                                                                                                                         |
| Materials (specified by type) produced by waste treatment on the construction site, for example collection with a view to recycling, recovery of energy, disposal (specified by channel) | All glass wool waste, its packaging and waste deriving from excess production for installation are considered as disposed of in landfill<br>114-762 gr/UF |
| Transport to landfill                                                                                                                                                                    | 15 km                                                                                                                                                     |
| Direct emissions to atmosphere, soil and water                                                                                                                                           | No emissions to be considered                                                                                                                             |

#### B1-B7 Phase of use or exploitation (Excluding potential savings)

Phase of use is divided into seven modules:

- B1: Use or application of product installed

- B2: Maintenance
- B3: Repair
- B4: Replacement
- B5: Refurbishment
- B6: Energy needs during exploitation phase
- B7: Water needs during exploitation phase

Description of the scenarios and supplementary technical information.

No technical operation is required during the useful phase until the end of service life. Thus mineral wools do not have any impact during this phase but they permit potential energy savings.

## C1-C4 End of life phase

### Description:

This phase includes the different modules of the end of service life as follows: C1, deconstruction, demolition; C2, transport to waste treatment; C3, waste treatment with a view to their reuse, recovery and/or recycling; C4, disposal.

Description of the scenarios and supplementary technical information.

### C1 Deconstruction, demolition:

Deconstruction and /or dismantling of the insulation products is part of the demolition work of an entire building. In our case the environmental impact is considered to be very slight and can be ignored.

### C2 Transport to waste treatment site:

The use of the model for transport is considered (see A4, transport to the construction site) at a distance of 15 km.

### C3 Waste treatment with a view to reuse, recovery, and/or recycling:

The product is considered for landfill without reuse, recovery and/or recycling.

### C4 Disposal:

Glass wool should be installed in a storage facility for non-inert and non-hazardous waste

| Parameter                                                 | Value                                                                                         |
|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Collection procedure specified by type                    | 2.100-14.000 kg of glass wool (collected with mixed construction waste)                       |
| Recovery system specified by type                         | No reuse, no recycling, no energy recovery                                                    |
| Disposal specified by type                                | 2.100-14.000 kg of glass wool kept in storage facility for non -inert and non-hazardous waste |
| Hypotheses for creating scenarios (for example transport) | 100% Landfill                                                                                 |

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## **D Benefit and charge (refer to standard)**

There are no recycling benefits since 100% of the weight of the product and its packaging is considered landfilled.

## **5. Content information**

For the functional unit "1m<sup>2</sup> of glass wool insulation with a thickness of 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280, 300, 320, 340, 360, 380 and 400 mm and thermal resistance of 1.75, 2.35, 2.90, 3.50, 4.10, 4.70, 5.25, 5.85, 6.45, 7.05, 7.65, 8.20, 8.80, 9.40, 10, 10.55, 11.15 and 11.75 m<sup>2</sup>·K/W respectively".

Estimated impact results are only relative statements that do not indicate impact category endpoints, exceeding threshold values, safety margins, or risks.

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 60 mm and thermal resistance of 1.75 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.27E+00         | 2.07E-01           | 1.97E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.19E-03     | 0.00E+00           | 1.11E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -1.06E-01        | 4.24E-04           | -1.57E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.18E-06     | 0.00E+00           | 3.16E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.32E-03         | 9.72E-05           | 2.09E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.06E-06     | 0.00E+00           | 1.02E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.17E+00         | 2.08E-01           | 1.82E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.20E-03     | 0.00E+00           | 1.11E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2.11E-07         | 4.65E-08           | 3.27E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.21E-09     | 0.00E+00           | 4.47E-09   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6.55E-03         | 8.22E-04           | 1.03E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.63E-05     | 0.00E+00           | 1.04E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.42E-03         | 4.80E-05           | 2.26E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.04E-06     | 0.00E+00           | 3.13E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.62E-04         | 1.56E-05           | 7.37E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.39E-07     | 0.00E+00           | 1.02E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.37E-03         | 2.40E-04           | 2.16E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.06E-06     | 0.00E+00           | 3.62E-05   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.60E-02         | 2.62E-03           | 2.50E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.90E-05     | 0.00E+00           | 3.96E-04   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4.48E-03         | 7.86E-04           | 7.03E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.78E-05     | 0.00E+00           | 1.12E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.52E-04         | 9.06E-07           | 3.79E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.75E-08     | 0.00E+00           | 2.38E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 9.39E+00         | 2.66E-01           | 1.46E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.95E-03     | 0.00E+00           | 2.31E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.41E+00         | 1.68E-02           | 2.17E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.79E-04     | 0.00E+00           | 1.42E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>1</sup> | kg CO <sub>2</sub> eq. | 1.24E+00         | 2.05E-01           | 1.92E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.14E-03     | 0.00E+00           | 1.09E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.59E-01         | 3.89E-02           | 1.45E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.39E-04     | 0.00E+00           | 1.79E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.09E+00         | 1.32E-02           | 3.15E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.75E-04     | 0.00E+00           | 8.45E-04   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.94E+00         | 5.21E-02           | 4.60E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.11E-03     | 0.00E+00           | 2.63E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.18E+01         | 3.44E-01           | 1.86E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.60E-03     | 0.00E+00           | 2.62E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.74E+01         | 2.78E+00           | 2.68E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.20E-02     | 0.00E+00           | 2.84E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.92E+01         | 3.12E+00           | 4.54E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.96E-02     | 0.00E+00           | 3.11E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.37E+00         | 3.80E-03           | 2.06E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.99E-05     | 0.00E+00           | 1.67E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.92E-02         | 1.16E-03           | 3.50E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.38E-05     | 0.00E+00           | 2.93E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.50E-02         | 5.03E-03           | 4.20E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.65E-05     | 0.00E+00           | 4.23E-05   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3.30E-02         | 3.99E-04           | 5.08E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.02E-06     | 0.00E+00           | 3.33E-04   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>1</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 8.05E-01         | 8.14E-02           | 1.43E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.75E-03     | 0.00E+00           | 5.10E-03   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 8.46E-01         | 1.29E-01           | 4.43E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.04E-03     | 0.00E+00           | 2.10E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 8.32E-04         | 6.91E-05           | 1.51E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.57E-06     | 0.00E+00           | 3.91E-06   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 3.52E-02         | 3.21E-03           | 6.34E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.64E-05     | 0.00E+00           | 1.06E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 2.78E-03         | 8.40E-04           | 4.34E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.83E-05     | 0.00E+00           | 5.87E-05   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

## Information on biogenic carbon content

### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.119    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 80 mm and thermal resistance of 2.35 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.58E+00         | 2.76E-01           | 2.46E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.92E-03     | 0.00E+00           | 1.47E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -1.42E-01        | 5.66E-04           | -2.11E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.22E-05     | 0.00E+00           | 4.22E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.70E-03         | 1.30E-04           | 2.70E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.74E-06     | 0.00E+00           | 1.36E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.44E+00         | 2.77E-01           | 2.25E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.93E-03     | 0.00E+00           | 1.48E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2.55E-07         | 6.21E-08           | 3.96E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.61E-09     | 0.00E+00           | 5.96E-09   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 8.26E-03         | 1.10E-03           | 1.30E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.50E-05     | 0.00E+00           | 1.39E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.86E-03         | 6.40E-05           | 2.97E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.39E-06     | 0.00E+00           | 4.18E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.07E-04         | 2.09E-05           | 9.69E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.53E-07     | 0.00E+00           | 1.36E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.68E-03         | 3.20E-04           | 2.66E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.21E-05     | 0.00E+00           | 4.82E-05   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.97E-02         | 3.49E-03           | 3.11E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.32E-04     | 0.00E+00           | 5.28E-04   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5.51E-03         | 1.05E-03           | 8.67E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.70E-05     | 0.00E+00           | 1.50E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.36E-04         | 1.21E-06           | 5.04E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.33E-08     | 0.00E+00           | 3.17E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.24E+01         | 3.55E-01           | 1.92E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.93E-03     | 0.00E+00           | 3.08E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.87E+00         | 2.24E-02           | 2.88E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.05E-04     | 0.00E+00           | 1.90E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>2</sup> | kg CO <sub>2</sub> eq. | 1.54E+00         | 2.74E-01           | 2.39E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.86E-03     | 0.00E+00           | 1.45E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.12E+00         | 5.19E-02           | 1.89E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.12E-03     | 0.00E+00           | 2.38E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.77E+00         | 1.76E-02           | 4.19E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.67E-04     | 0.00E+00           | 1.13E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.89E+00         | 6.95E-02           | 6.08E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.49E-03     | 0.00E+00           | 3.51E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.55E+01         | 4.58E-01           | 2.45E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.01E-02     | 0.00E+00           | 3.50E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.16E+01         | 3.71E+00           | 3.34E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.59E-02     | 0.00E+00           | 3.79E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.71E+01         | 4.16E+00           | 5.79E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.06E-01     | 0.00E+00           | 4.14E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.82E+00         | 5.06E-03           | 2.74E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.07E-04     | 0.00E+00           | 2.22E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.49E-02         | 1.54E-03           | 4.58E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.17E-05     | 0.00E+00           | 3.91E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.00E-02         | 6.71E-03           | 5.10E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.29E-04     | 0.00E+00           | 5.64E-05   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4.38E-02         | 5.32E-04           | 6.74E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.20E-05     | 0.00E+00           | 4.44E-04   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>2</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 1.03E+00         | 1.08E-01           | 1.83E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.33E-03     | 0.00E+00           | 6.80E-03   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 8.57E-01         | 1.73E-01           | 5.50E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.38E-03     | 0.00E+00           | 2.80E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 1.07E-03         | 9.22E-05           | 1.96E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.10E-06     | 0.00E+00           | 5.21E-06   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 4.51E-02         | 4.29E-03           | 8.18E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.85E-05     | 0.00E+00           | 1.41E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 3.20E-03         | 1.12E-03           | 5.03E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.44E-05     | 0.00E+00           | 7.83E-05   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.159    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 100 mm and thermal resistance of 2.90 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.89E+00         | 3.45E-01           | 2.94E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.65E-03     | 0.00E+00           | 1.84E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -1.78E-01        | 7.07E-04           | -2.65E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.53E-05     | 0.00E+00           | 5.28E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.08E-03         | 1.62E-04           | 3.31E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.43E-06     | 0.00E+00           | 1.70E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.71E+00         | 3.46E-01           | 2.68E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.67E-03     | 0.00E+00           | 1.85E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 2.98E-07         | 7.76E-08           | 4.65E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.02E-09     | 0.00E+00           | 7.46E-09   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 9.96E-03         | 1.37E-03           | 1.57E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.38E-05     | 0.00E+00           | 1.73E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.31E-03         | 8.00E-05           | 3.69E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.74E-06     | 0.00E+00           | 5.22E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 7.52E-04         | 2.61E-05           | 1.20E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.66E-07     | 0.00E+00           | 1.70E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.00E-03         | 4.00E-04           | 3.17E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.51E-05     | 0.00E+00           | 6.03E-05   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.35E-02         | 4.36E-03           | 3.71E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.65E-04     | 0.00E+00           | 6.60E-04   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 6.54E-03         | 1.31E-03           | 1.03E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.63E-05     | 0.00E+00           | 1.87E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4.19E-04         | 1.51E-06           | 6.30E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.91E-08     | 0.00E+00           | 3.97E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.54E+01         | 4.43E-01           | 2.38E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.92E-03     | 0.00E+00           | 3.86E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.34E+00         | 2.80E-02           | 3.59E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.31E-04     | 0.00E+00           | 2.37E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>3</sup> | kg CO <sub>2</sub> eq. | 1.84E+00         | 3.42E-01           | 2.86E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.57E-03     | 0.00E+00           | 1.81E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.39E+00         | 6.48E-02           | 2.34E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.40E-03     | 0.00E+00           | 2.98E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.46E+00         | 2.20E-02           | 5.23E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.59E-04     | 0.00E+00           | 1.41E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.85E+00         | 8.69E-02           | 7.58E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.86E-03     | 0.00E+00           | 4.39E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.93E+01         | 5.73E-01           | 3.04E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.27E-02     | 0.00E+00           | 4.37E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.58E+01         | 4.63E+00           | 4.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.20E-01     | 0.00E+00           | 4.74E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.51E+01         | 5.20E+00           | 7.03E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.33E-01     | 0.00E+00           | 5.18E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.27E+00         | 6.33E-03           | 3.43E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.33E-04     | 0.00E+00           | 2.78E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.06E-02         | 1.93E-03           | 5.65E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.97E-05     | 0.00E+00           | 4.89E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.51E-02         | 8.38E-03           | 6.01E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.61E-04     | 0.00E+00           | 7.05E-05   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5.46E-02         | 6.65E-04           | 8.40E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.50E-05     | 0.00E+00           | 5.55E-04   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>3</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 1.25E+00         | 1.36E-01           | 2.24E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.92E-03     | 0.00E+00           | 8.50E-03   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 8.67E-01         | 2.16E-01           | 6.57E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.73E-03     | 0.00E+00           | 3.50E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 1.31E-03         | 1.15E-04           | 2.41E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.62E-06     | 0.00E+00           | 6.52E-06   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 5.51E-02         | 5.36E-03           | 1.00E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.11E-04     | 0.00E+00           | 1.77E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 3.62E-03         | 1.40E-03           | 5.73E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.05E-05     | 0.00E+00           | 9.79E-05   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.198    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 120 mm and thermal resistance of 3.50 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.19E+00         | 4.14E-01           | 3.42E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.04E-02     | 0.00E+00           | 2.21E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -2.14E-01        | 8.49E-04           | -3.18E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.84E-05     | 0.00E+00           | 6.33E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.46E-03         | 1.94E-04           | 3.92E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.11E-06     | 0.00E+00           | 2.04E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.98E+00         | 4.15E-01           | 3.11E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.04E-02     | 0.00E+00           | 2.22E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3.42E-07         | 9.31E-08           | 5.35E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.42E-09     | 0.00E+00           | 8.95E-09   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.17E-02         | 1.64E-03           | 1.84E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.25E-05     | 0.00E+00           | 2.08E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2.75E-03         | 9.60E-05           | 4.40E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.08E-06     | 0.00E+00           | 6.27E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 8.97E-04         | 3.13E-05           | 1.43E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.79E-07     | 0.00E+00           | 2.04E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.31E-03         | 4.80E-04           | 3.68E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.81E-05     | 0.00E+00           | 7.24E-05   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.73E-02         | 5.23E-03           | 4.31E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.98E-04     | 0.00E+00           | 7.92E-04   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7.57E-03         | 1.57E-03           | 1.20E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.55E-05     | 0.00E+00           | 2.25E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.03E-04         | 1.81E-06           | 7.55E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.49E-08     | 0.00E+00           | 4.76E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1.83E+01         | 5.32E-01           | 2.84E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.19E-02     | 0.00E+00           | 4.63E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 2.80E+00         | 3.35E-02           | 4.31E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.57E-04     | 0.00E+00           | 2.84E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>4</sup> | kg CO <sub>2</sub> eq. | 2.13E+00         | 4.10E-01           | 3.33E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.03E-02     | 0.00E+00           | 2.17E-02   | 0.00E+00                                             |

\*Disclaimers shall be added, if required by EN 15804.

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.65E+00         | 7.78E-02           | 2.79E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.68E-03     | 0.00E+00           | 3.57E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.15E+00         | 2.65E-02           | 6.27E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.50E-04     | 0.00E+00           | 1.69E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.80E+00         | 1.04E-01           | 9.07E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.23E-03     | 0.00E+00           | 5.26E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.30E+01         | 6.87E-01           | 3.63E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.52E-02     | 0.00E+00           | 5.25E-02   | 0.00E+00                                             |
| PENRM     | MJ.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.00E+01         | 5.56E+00           | 4.65E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.44E-01     | 0.00E+00           | 5.69E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.30E+01         | 6.25E+00           | 8.28E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.59E-01     | 0.00E+00           | 6.21E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.72E+00         | 7.59E-03           | 4.11E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.60E-04     | 0.00E+00           | 3.34E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.64E-02         | 2.32E-03           | 6.72E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.76E-05     | 0.00E+00           | 5.87E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.01E-02         | 1.01E-02           | 6.91E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.93E-04     | 0.00E+00           | 8.46E-05   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 6.53E-02         | 7.99E-04           | 1.01E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.80E-05     | 0.00E+00           | 6.66E-04   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>4</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 1.47E+00         | 1.63E-01           | 2.65E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.50E-03     | 0.00E+00           | 1.02E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 8.78E-01         | 2.59E-01           | 7.64E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.07E-03     | 0.00E+00           | 4.20E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 1.55E-03         | 1.38E-04           | 2.85E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.15E-06     | 0.00E+00           | 7.82E-06   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 6.50E-02         | 6.43E-03           | 1.19E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.33E-04     | 0.00E+00           | 2.12E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 4.05E-03         | 1.68E-03           | 6.42E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.65E-05     | 0.00E+00           | 1.17E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.238    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 140 mm and thermal resistance of 4.10 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.50E+00         | 4.83E-01           | 3.90E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.21E-02     | 0.00E+00           | 2.58E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -2.50E-01        | 9.90E-04           | -3.71E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.14E-05     | 0.00E+00           | 7.39E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.84E-03         | 2.27E-04           | 4.53E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.80E-06     | 0.00E+00           | 2.38E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.25E+00         | 4.84E-01           | 3.54E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.21E-02     | 0.00E+00           | 2.59E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3.86E-07         | 1.09E-07           | 6.04E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.82E-09     | 0.00E+00           | 1.04E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.34E-02         | 1.92E-03           | 2.11E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.13E-05     | 0.00E+00           | 2.43E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.20E-03         | 1.12E-04           | 5.11E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.43E-06     | 0.00E+00           | 7.31E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.04E-03         | 3.65E-05           | 1.67E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.92E-07     | 0.00E+00           | 2.38E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.62E-03         | 5.60E-04           | 4.19E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.11E-05     | 0.00E+00           | 8.44E-05   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.11E-02         | 6.10E-03           | 4.92E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.31E-04     | 0.00E+00           | 9.23E-04   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 8.60E-03         | 1.83E-03           | 1.36E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.48E-05     | 0.00E+00           | 2.62E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.87E-04         | 2.11E-06           | 8.81E-05        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.08E-08     | 0.00E+00           | 5.55E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.13E+01         | 6.21E-01           | 3.30E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.39E-02     | 0.00E+00           | 5.40E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.26E+00         | 3.91E-02           | 5.02E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.84E-04     | 0.00E+00           | 3.32E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>5</sup> | kg CO <sub>2</sub> eq. | 2.43E+00         | 4.79E-01           | 3.80E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.20E-02     | 0.00E+00           | 2.53E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.92E+00         | 9.08E-02           | 3.24E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.96E-03     | 0.00E+00           | 4.17E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.83E+00         | 3.09E-02           | 7.30E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.42E-04     | 0.00E+00           | 1.97E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.75E+00         | 1.22E-01           | 1.05E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.60E-03     | 0.00E+00           | 6.14E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.67E+01         | 8.02E-01           | 4.22E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.77E-02     | 0.00E+00           | 6.12E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.42E+01         | 6.48E+00           | 5.31E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.68E-01     | 0.00E+00           | 6.64E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.10E+01         | 7.29E+00           | 9.53E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.86E-01     | 0.00E+00           | 7.25E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.18E+00         | 8.86E-03           | 4.79E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.86E-04     | 0.00E+00           | 3.89E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.21E-02         | 2.70E-03           | 7.79E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.55E-05     | 0.00E+00           | 6.85E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.52E-02         | 1.17E-02           | 7.82E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.25E-04     | 0.00E+00           | 9.87E-05   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7.61E-02         | 9.32E-04           | 1.17E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.10E-05     | 0.00E+00           | 7.78E-04   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>5</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 1.69E+00         | 1.90E-01           | 3.05E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.08E-03     | 0.00E+00           | 1.19E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 8.88E-01         | 3.02E-01           | 8.71E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.42E-03     | 0.00E+00           | 4.90E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 1.79E-03         | 1.61E-04           | 3.30E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.67E-06     | 0.00E+00           | 9.13E-06   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 7.49E-02         | 7.50E-03           | 1.37E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.55E-04     | 0.00E+00           | 2.48E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 4.47E-03         | 1.96E-03           | 7.11E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.26E-05     | 0.00E+00           | 1.37E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.278    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 160 mm and thermal resistance of 4.70 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.81E+00         | 5.52E-01           | 4.39E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.38E-02     | 0.00E+00           | 2.95E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -2.87E-01        | 1.13E-03           | -4.26E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.45E-05     | 0.00E+00           | 8.44E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.22E-03         | 2.59E-04           | 5.14E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.49E-06     | 0.00E+00           | 2.72E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.52E+00         | 5.53E-01           | 3.97E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.39E-02     | 0.00E+00           | 2.96E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4.30E-07         | 1.24E-07           | 6.74E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.23E-09     | 0.00E+00           | 1.19E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.51E-02         | 2.19E-03           | 2.38E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.01E-05     | 0.00E+00           | 2.77E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 3.64E-03         | 1.28E-04           | 5.83E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.78E-06     | 0.00E+00           | 8.36E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.19E-03         | 4.17E-05           | 1.90E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.05E-07     | 0.00E+00           | 2.72E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.94E-03         | 6.40E-04           | 4.70E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.42E-05     | 0.00E+00           | 9.65E-05   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.49E-02         | 6.97E-03           | 5.52E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.64E-04     | 0.00E+00           | 1.06E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 9.63E-03         | 2.10E-03           | 1.53E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.41E-05     | 0.00E+00           | 3.00E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.70E-04         | 2.42E-06           | 1.01E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.66E-08     | 0.00E+00           | 6.34E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.43E+01         | 7.09E-01           | 3.77E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.59E-02     | 0.00E+00           | 6.17E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 3.72E+00         | 4.47E-02           | 5.73E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.01E-03     | 0.00E+00           | 3.79E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>6</sup> | kg CO <sub>2</sub> eq. | 2.73E+00         | 5.47E-01           | 4.27E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.37E-02     | 0.00E+00           | 2.89E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.18E+00         | 1.04E-01           | 3.69E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.24E-03     | 0.00E+00           | 4.76E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.53E+00         | 3.53E-02           | 8.36E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.34E-04     | 0.00E+00           | 2.25E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.71E+00         | 1.39E-01           | 1.20E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.97E-03     | 0.00E+00           | 7.02E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.05E+01         | 9.16E-01           | 4.81E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.03E-02     | 0.00E+00           | 7.00E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.85E+01         | 7.41E+00           | 5.97E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.92E-01     | 0.00E+00           | 7.59E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.89E+01         | 8.33E+00           | 1.08E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.12E-01     | 0.00E+00           | 8.29E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.63E+00         | 1.01E-02           | 5.47E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.13E-04     | 0.00E+00           | 4.45E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.79E-02         | 3.09E-03           | 8.87E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.35E-05     | 0.00E+00           | 7.82E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.02E-02         | 1.34E-02           | 8.73E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.57E-04     | 0.00E+00           | 1.13E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 8.69E-02         | 1.06E-03           | 1.34E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.41E-05     | 0.00E+00           | 8.89E-04   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>6</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 1.92E+00         | 2.17E-01           | 3.46E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.66E-03     | 0.00E+00           | 1.36E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 8.99E-01         | 3.45E-01           | 9.78E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.08E-02     | 0.00E+00           | 5.60E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 2.03E-03         | 1.84E-04           | 3.75E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.20E-06     | 0.00E+00           | 1.04E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 8.49E-02         | 8.57E-03           | 1.56E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.77E-04     | 0.00E+00           | 2.83E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 4.90E-03         | 2.24E-03           | 7.81E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.87E-05     | 0.00E+00           | 1.57E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.317    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 180 mm and thermal resistance of 5.25 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.12E+00         | 6.21E-01           | 4.87E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.56E-02     | 0.00E+00           | 3.32E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -3.23E-01        | 1.27E-03           | -4.80E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.75E-05     | 0.00E+00           | 9.50E-05   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.60E-03         | 2.92E-04           | 5.75E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.17E-06     | 0.00E+00           | 3.06E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.80E+00         | 6.23E-01           | 4.40E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.56E-02     | 0.00E+00           | 3.33E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 4.74E-07         | 1.40E-07           | 7.43E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.63E-09     | 0.00E+00           | 1.34E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.68E-02         | 2.47E-03           | 2.65E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.88E-05     | 0.00E+00           | 3.12E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.09E-03         | 1.44E-04           | 6.54E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.13E-06     | 0.00E+00           | 9.40E-06   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.33E-03         | 4.69E-05           | 2.13E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.02E-06     | 0.00E+00           | 3.06E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.25E-03         | 7.20E-04           | 5.20E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.72E-05     | 0.00E+00           | 1.09E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3.87E-02         | 7.85E-03           | 6.13E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.97E-04     | 0.00E+00           | 1.19E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.07E-02         | 2.36E-03           | 1.69E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.33E-05     | 0.00E+00           | 3.37E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.54E-04         | 2.72E-06           | 1.13E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.24E-08     | 0.00E+00           | 7.14E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 2.73E+01         | 7.98E-01           | 4.23E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.78E-02     | 0.00E+00           | 6.94E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.18E+00         | 5.03E-02           | 6.44E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.14E-03     | 0.00E+00           | 4.27E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>7</sup> | kg CO <sub>2</sub> eq. | 3.03E+00         | 6.15E-01           | 4.73E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.54E-02     | 0.00E+00           | 3.26E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.45E+00         | 1.17E-01           | 4.14E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.52E-03     | 0.00E+00           | 5.36E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.22E+00         | 3.97E-02           | 9.40E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.26E-04     | 0.00E+00           | 2.53E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.66E+00         | 1.56E-01           | 1.35E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.34E-03     | 0.00E+00           | 7.90E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.42E+01         | 1.03E+00           | 5.40E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.28E-02     | 0.00E+00           | 7.87E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.27E+01         | 8.34E+00           | 6.63E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.16E-01     | 0.00E+00           | 8.53E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.69E+01         | 9.37E+00           | 1.20E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.39E-01     | 0.00E+00           | 9.32E-01   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.08E+00         | 1.14E-02           | 6.16E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.40E-04     | 0.00E+00           | 5.00E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.36E-02         | 3.47E-03           | 9.94E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.14E-05     | 0.00E+00           | 8.80E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.53E-02         | 1.51E-02           | 9.63E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.90E-04     | 0.00E+00           | 1.27E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 9.77E-02         | 1.20E-03           | 1.50E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.71E-05     | 0.00E+00           | 1.00E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>7</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 2.14E+00         | 2.44E-01           | 3.87E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.25E-03     | 0.00E+00           | 1.53E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.09E-01         | 3.88E-01           | 1.08E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.21E-02     | 0.00E+00           | 6.30E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 2.26E-03         | 2.07E-04           | 4.20E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.72E-06     | 0.00E+00           | 1.17E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 9.48E-02         | 9.64E-03           | 1.74E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.99E-04     | 0.00E+00           | 3.18E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 5.32E-03         | 2.52E-03           | 8.50E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.48E-05     | 0.00E+00           | 1.76E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.357    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 200 mm and thermal resistance of 5.85 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.42E+00         | 6.90E-01           | 5.35E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.73E-02     | 0.00E+00           | 3.68E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -3.59E-01        | 1.41E-03           | -5.33E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.06E-05     | 0.00E+00           | 1.06E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.98E-03         | 3.24E-04           | 6.35E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.86E-06     | 0.00E+00           | 3.40E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.07E+00         | 6.92E-01           | 4.83E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.73E-02     | 0.00E+00           | 3.70E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5.18E-07         | 1.55E-07           | 8.13E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.04E-09     | 0.00E+00           | 1.49E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1.85E-02         | 2.74E-03           | 2.92E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.76E-05     | 0.00E+00           | 3.46E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.53E-03         | 1.60E-04           | 7.25E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.47E-06     | 0.00E+00           | 1.04E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.48E-03         | 5.21E-05           | 2.36E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.13E-06     | 0.00E+00           | 3.40E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.57E-03         | 7.99E-04           | 5.71E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.02E-05     | 0.00E+00           | 1.21E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4.24E-02         | 8.72E-03           | 6.73E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.30E-04     | 0.00E+00           | 1.32E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.17E-02         | 2.62E-03           | 1.86E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.26E-05     | 0.00E+00           | 3.75E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.37E-04         | 3.02E-06           | 1.26E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.82E-08     | 0.00E+00           | 7.93E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.02E+01         | 8.87E-01           | 4.69E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.98E-02     | 0.00E+00           | 7.71E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4.65E+00         | 5.59E-02           | 7.15E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.26E-03     | 0.00E+00           | 4.74E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>8</sup> | kg CO <sub>2</sub> eq. | 3.32E+00         | 6.84E-01           | 5.20E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.71E-02     | 0.00E+00           | 3.62E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.71E+00         | 1.30E-01           | 4.59E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.80E-03     | 0.00E+00           | 5.96E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.90E+00         | 4.41E-02           | 1.04E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.17E-04     | 0.00E+00           | 2.82E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.61E+00         | 1.74E-01           | 1.50E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.71E-03     | 0.00E+00           | 8.77E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.79E+01         | 1.15E+00           | 5.99E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.53E-02     | 0.00E+00           | 8.75E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.69E+01         | 9.26E+00           | 7.29E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.40E-01     | 0.00E+00           | 9.48E-01   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.49E+01         | 1.04E+01           | 1.33E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.65E-01     | 0.00E+00           | 1.04E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.53E+00         | 1.27E-02           | 6.84E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.66E-04     | 0.00E+00           | 5.56E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.94E-02         | 3.86E-03           | 1.10E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.93E-05     | 0.00E+00           | 9.78E-05   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.03E-02         | 1.68E-02           | 1.05E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.22E-04     | 0.00E+00           | 1.41E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.08E-01         | 1.33E-03           | 1.67E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.01E-05     | 0.00E+00           | 1.11E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>8</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 2.36E+00         | 2.71E-01           | 4.27E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.83E-03     | 0.00E+00           | 1.70E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.20E-01         | 4.31E-01           | 1.19E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.35E-02     | 0.00E+00           | 7.00E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 2.50E-03         | 2.30E-04           | 4.64E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.25E-06     | 0.00E+00           | 1.30E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.05E-01         | 1.07E-02           | 1.92E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.21E-04     | 0.00E+00           | 3.54E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 5.74E-03         | 2.80E-03           | 9.20E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.09E-05     | 0.00E+00           | 1.96E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.396    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 220 mm and thermal resistance of 6.45 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.73E+00         | 7.59E-01           | 5.84E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.90E-02     | 0.00E+00           | 4.05E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -3.94E-01        | 1.56E-03           | -5.85E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.37E-05     | 0.00E+00           | 1.16E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.35E-03         | 3.57E-04           | 6.96E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.54E-06     | 0.00E+00           | 3.74E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.34E+00         | 7.61E-01           | 5.26E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.91E-02     | 0.00E+00           | 4.07E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 5.62E-07         | 1.71E-07           | 8.82E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.44E-09     | 0.00E+00           | 1.64E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.02E-02         | 3.01E-03           | 3.19E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.63E-05     | 0.00E+00           | 3.81E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 4.98E-03         | 1.76E-04           | 7.96E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.82E-06     | 0.00E+00           | 1.15E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.62E-03         | 5.74E-05           | 2.59E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.24E-06     | 0.00E+00           | 3.74E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.88E-03         | 8.79E-04           | 6.22E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.32E-05     | 0.00E+00           | 1.33E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4.62E-02         | 9.59E-03           | 7.33E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.63E-04     | 0.00E+00           | 1.45E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.27E-02         | 2.88E-03           | 2.02E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.02E-04     | 0.00E+00           | 4.12E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.21E-04         | 3.32E-06           | 1.38E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.41E-08     | 0.00E+00           | 8.72E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.32E+01         | 9.75E-01           | 5.15E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.18E-02     | 0.00E+00           | 8.48E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.11E+00         | 6.15E-02           | 7.86E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.39E-03     | 0.00E+00           | 5.21E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator            | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>9</sup> | kg CO <sub>2</sub> eq. | 3.62E+00         | 7.52E-01           | 5.67E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.89E-02     | 0.00E+00           | 3.98E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.97E+00         | 1.43E-01           | 5.04E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.08E-03     | 0.00E+00           | 6.55E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.57E+00         | 4.85E-02           | 1.14E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.01E-03     | 0.00E+00           | 3.10E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.05E+01         | 1.91E-01           | 1.65E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.08E-03     | 0.00E+00           | 9.65E-03   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.17E+01         | 1.26E+00           | 6.58E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.79E-02     | 0.00E+00           | 9.62E-02   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.11E+01         | 1.02E+01           | 7.94E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.64E-01     | 0.00E+00           | 1.04E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.28E+01         | 1.14E+01           | 1.45E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.92E-01     | 0.00E+00           | 1.14E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.99E+00         | 1.39E-02           | 7.52E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.93E-04     | 0.00E+00           | 6.12E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.51E-02         | 4.25E-03           | 1.21E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.73E-05     | 0.00E+00           | 1.08E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.53E-02         | 1.84E-02           | 1.14E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.54E-04     | 0.00E+00           | 1.55E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.19E-01         | 1.46E-03           | 1.84E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.31E-05     | 0.00E+00           | 1.22E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>9</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 2.59E+00         | 2.98E-01           | 4.68E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.41E-03     | 0.00E+00           | 1.87E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.30E-01         | 4.75E-01           | 1.30E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.48E-02     | 0.00E+00           | 7.71E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 2.74E-03         | 2.54E-04           | 5.09E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.77E-06     | 0.00E+00           | 1.43E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.15E-01         | 1.18E-02           | 2.11E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.43E-04     | 0.00E+00           | 3.89E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 6.16E-03         | 3.08E-03           | 9.88E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.70E-05     | 0.00E+00           | 2.15E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.436    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 240 mm and thermal resistance of 7.05 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.04E+00         | 8.28E-01           | 6.32E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.08E-02     | 0.00E+00           | 4.42E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -4.30E-01        | 1.70E-03           | -6.38E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.67E-05     | 0.00E+00           | 1.27E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.73E-03         | 3.89E-04           | 7.57E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.23E-06     | 0.00E+00           | 4.08E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.61E+00         | 8.30E-01           | 5.69E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.08E-02     | 0.00E+00           | 4.44E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6.06E-07         | 1.86E-07           | 9.52E-08        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.84E-09     | 0.00E+00           | 1.79E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.19E-02         | 3.29E-03           | 3.46E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.05E-04     | 0.00E+00           | 4.16E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.42E-03         | 1.92E-04           | 8.68E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.17E-06     | 0.00E+00           | 1.25E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.77E-03         | 6.26E-05           | 2.83E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.36E-06     | 0.00E+00           | 4.08E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.20E-03         | 9.59E-04           | 6.73E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.62E-05     | 0.00E+00           | 1.45E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.00E-02         | 1.05E-02           | 7.94E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.96E-04     | 0.00E+00           | 1.58E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.37E-02         | 3.14E-03           | 2.18E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.11E-04     | 0.00E+00           | 4.50E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.00E-03         | 3.62E-06           | 1.51E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.99E-08     | 0.00E+00           | 9.52E-08   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.62E+01         | 1.06E+00           | 5.62E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.38E-02     | 0.00E+00           | 9.25E-02   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.57E+00         | 6.71E-02           | 8.57E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.51E-03     | 0.00E+00           | 5.69E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>10</sup> | kg CO <sub>2</sub> eq. | 3.92E+00         | 8.21E-01           | 6.14E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.06E-02     | 0.00E+00           | 4.34E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.24E+00         | 1.56E-01           | 5.49E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.36E-03     | 0.00E+00           | 7.15E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.26E+00         | 5.29E-02           | 1.25E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.10E-03     | 0.00E+00           | 3.38E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.15E+01         | 2.09E-01           | 1.80E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.46E-03     | 0.00E+00           | 1.05E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.54E+01         | 1.37E+00           | 7.17E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.04E-02     | 0.00E+00           | 1.05E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.54E+01         | 1.11E+01           | 8.60E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.88E-01     | 0.00E+00           | 1.14E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.01E+02         | 1.25E+01           | 1.58E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.18E-01     | 0.00E+00           | 1.24E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.44E+00         | 1.52E-02           | 8.21E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.20E-04     | 0.00E+00           | 6.67E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.09E-02         | 4.63E-03           | 1.32E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.52E-05     | 0.00E+00           | 1.17E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.04E-02         | 2.01E-02           | 1.23E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.86E-04     | 0.00E+00           | 1.69E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.30E-01         | 1.60E-03           | 2.00E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.61E-05     | 0.00E+00           | 1.33E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>10</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 2.81E+00         | 3.25E-01           | 5.09E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.00E-03     | 0.00E+00           | 2.04E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.41E-01         | 5.18E-01           | 1.41E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.61E-02     | 0.00E+00           | 8.41E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 2.98E-03         | 2.77E-04           | 5.54E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.30E-06     | 0.00E+00           | 1.56E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.25E-01         | 1.29E-02           | 2.29E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.65E-04     | 0.00E+00           | 4.24E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 6.59E-03         | 3.36E-03           | 1.06E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.31E-05     | 0.00E+00           | 2.35E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.436    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 260 mm and thermal resistance of 7.65 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.35E+00         | 8.97E-01           | 6.80E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.25E-02     | 0.00E+00           | 4.79E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -4.68E-01        | 1.84E-03           | -6.96E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.98E-05     | 0.00E+00           | 1.37E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.12E-03         | 4.21E-04           | 8.18E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.91E-06     | 0.00E+00           | 4.42E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.88E+00         | 8.99E-01           | 6.12E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.25E-02     | 0.00E+00           | 4.81E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6.50E-07         | 2.02E-07           | 1.02E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.25E-09     | 0.00E+00           | 1.94E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.36E-02         | 3.56E-03           | 3.73E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.14E-04     | 0.00E+00           | 4.50E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 5.87E-03         | 2.08E-04           | 9.39E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.52E-06     | 0.00E+00           | 1.36E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1.91E-03         | 6.78E-05           | 3.06E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.47E-06     | 0.00E+00           | 4.42E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.51E-03         | 1.04E-03           | 7.24E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.93E-05     | 0.00E+00           | 1.57E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.38E-02         | 1.13E-02           | 8.54E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.29E-04     | 0.00E+00           | 1.71E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.48E-02         | 3.41E-03           | 2.35E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.20E-04     | 0.00E+00           | 4.87E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.09E-03         | 3.92E-06           | 1.63E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.57E-08     | 0.00E+00           | 1.03E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 3.92E+01         | 1.15E+00           | 6.08E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.58E-02     | 0.00E+00           | 1.00E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6.03E+00         | 7.27E-02           | 9.28E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.64E-03     | 0.00E+00           | 6.16E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>11</sup> | kg CO <sub>2</sub> eq. | 4.22E+00         | 8.89E-01           | 6.61E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.23E-02     | 0.00E+00           | 4.70E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.50E+00         | 1.69E-01           | 5.94E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.64E-03     | 0.00E+00           | 7.74E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.98E+00         | 5.73E-02           | 1.36E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.19E-03     | 0.00E+00           | 3.66E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.25E+01         | 2.26E-01           | 1.95E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.83E-03     | 0.00E+00           | 1.14E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.91E+01         | 1.49E+00           | 7.76E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.29E-02     | 0.00E+00           | 1.14E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.96E+01         | 1.20E+01           | 9.26E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.12E-01     | 0.00E+00           | 1.23E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.09E+02         | 1.35E+01           | 1.70E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.45E-01     | 0.00E+00           | 1.35E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.89E+00         | 1.64E-02           | 8.89E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.46E-04     | 0.00E+00           | 7.23E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.66E-02         | 5.02E-03           | 1.42E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.03E-04     | 0.00E+00           | 1.27E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.54E-02         | 2.18E-02           | 1.33E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.18E-04     | 0.00E+00           | 1.83E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.41E-01         | 1.73E-03           | 2.17E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.91E-05     | 0.00E+00           | 1.44E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>11</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 3.03E+00         | 3.53E-01           | 5.49E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.58E-03     | 0.00E+00           | 2.21E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.52E-01         | 5.61E-01           | 1.51E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.75E-02     | 0.00E+00           | 9.11E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 3.22E-03         | 3.00E-04           | 5.99E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.82E-06     | 0.00E+00           | 1.69E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.35E-01         | 1.39E-02           | 2.48E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.88E-04     | 0.00E+00           | 4.60E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 7.02E-03         | 3.64E-03           | 1.13E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.92E-05     | 0.00E+00           | 2.54E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOTIC CARBON CONTENT                | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.515    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 280 mm and thermal resistance of 8.20 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.65E+00         | 9.66E-01           | 7.29E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.42E-02     | 0.00E+00           | 5.16E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -5.05E-01        | 1.98E-03           | -7.49E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.29E-05     | 0.00E+00           | 1.48E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.50E-03         | 4.54E-04           | 8.79E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.60E-06     | 0.00E+00           | 4.76E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.15E+00         | 9.68E-01           | 6.55E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.43E-02     | 0.00E+00           | 5.18E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 6.94E-07         | 2.17E-07           | 1.09E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.65E-09     | 0.00E+00           | 2.09E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.53E-02         | 3.84E-03           | 4.00E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.23E-04     | 0.00E+00           | 4.85E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6.32E-03         | 2.24E-04           | 1.01E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.86E-06     | 0.00E+00           | 1.46E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.06E-03         | 7.30E-05           | 3.29E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.58E-06     | 0.00E+00           | 4.76E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 4.83E-03         | 1.12E-03           | 7.74E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.23E-05     | 0.00E+00           | 1.69E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5.76E-02         | 1.22E-02           | 9.15E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.62E-04     | 0.00E+00           | 1.85E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.58E-02         | 3.67E-03           | 2.51E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.30E-04     | 0.00E+00           | 5.24E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.17E-03         | 4.23E-06           | 1.76E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.15E-08     | 0.00E+00           | 1.11E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4.22E+01         | 1.24E+00           | 6.54E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.78E-02     | 0.00E+00           | 1.08E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6.49E+00         | 7.83E-02           | 9.99E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.77E-03     | 0.00E+00           | 6.63E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>12</sup> | kg CO <sub>2</sub> eq. | 4.52E+00         | 9.57E-01           | 7.08E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.40E-02     | 0.00E+00           | 5.07E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.77E+00         | 1.82E-01           | 6.39E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.91E-03     | 0.00E+00           | 8.34E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.66E+00         | 6.17E-02           | 1.46E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.28E-03     | 0.00E+00           | 3.94E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.34E+01         | 2.43E-01           | 2.10E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.20E-03     | 0.00E+00           | 1.23E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.29E+01         | 1.60E+00           | 8.35E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.54E-02     | 0.00E+00           | 1.22E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.38E+01         | 1.30E+01           | 9.92E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.36E-01     | 0.00E+00           | 1.33E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.17E+02         | 1.46E+01           | 1.83E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.71E-01     | 0.00E+00           | 1.45E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.35E+00         | 1.77E-02           | 9.57E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.73E-04     | 0.00E+00           | 7.78E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.24E-02         | 5.40E-03           | 1.53E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.11E-04     | 0.00E+00           | 1.37E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.05E-02         | 2.35E-02           | 1.42E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.51E-04     | 0.00E+00           | 1.97E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.52E-01         | 1.86E-03           | 2.33E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.21E-05     | 0.00E+00           | 1.56E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>12</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 3.25E+00         | 3.80E-01           | 5.90E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.16E-03     | 0.00E+00           | 2.38E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.62E-01         | 6.04E-01           | 1.62E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.88E-02     | 0.00E+00           | 9.81E+00   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 3.46E-03         | 3.23E-04           | 6.43E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.35E-06     | 0.00E+00           | 1.83E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.44E-01         | 1.50E-02           | 2.66E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.10E-04     | 0.00E+00           | 4.95E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 7.44E-03         | 3.92E-03           | 1.20E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.53E-05     | 0.00E+00           | 2.74E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.555    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 300 mm and thermal resistance of 8.80 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.96E+00         | 1.03E+00           | 7.77E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.59E-02     | 0.00E+00           | 5.53E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -5.40E-01        | 2.12E-03           | -8.01E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.59E-05     | 0.00E+00           | 1.58E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.88E-03         | 4.86E-04           | 9.40E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.03E-05     | 0.00E+00           | 5.11E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.43E+00         | 1.04E+00           | 6.98E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.60E-02     | 0.00E+00           | 5.55E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7.38E-07         | 2.33E-07           | 1.16E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.05E-09     | 0.00E+00           | 2.24E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.71E-02         | 4.11E-03           | 4.27E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.31E-04     | 0.00E+00           | 5.20E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6.76E-03         | 2.40E-04           | 1.08E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.21E-06     | 0.00E+00           | 1.57E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.20E-03         | 7.82E-05           | 3.52E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.70E-06     | 0.00E+00           | 5.10E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.14E-03         | 1.20E-03           | 8.25E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.53E-05     | 0.00E+00           | 1.81E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.14E-02         | 1.31E-02           | 9.75E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.95E-04     | 0.00E+00           | 1.98E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.68E-02         | 3.93E-03           | 2.68E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.39E-04     | 0.00E+00           | 5.62E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.26E-03         | 4.53E-06           | 1.89E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.74E-08     | 0.00E+00           | 1.19E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4.51E+01         | 1.33E+00           | 7.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.97E-02     | 0.00E+00           | 1.16E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 6.96E+00         | 8.39E-02           | 1.07E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.89E-03     | 0.00E+00           | 7.11E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>13</sup> | kg CO <sub>2</sub> eq. | 4.81E+00         | 1.03E+00           | 7.55E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.57E-02     | 0.00E+00           | 5.43E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.03E+00         | 1.95E-01           | 6.84E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.19E-03     | 0.00E+00           | 8.93E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.03E+01         | 6.61E-02           | 1.56E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.38E-03     | 0.00E+00           | 4.22E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.44E+01         | 2.61E-01           | 2.25E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.57E-03     | 0.00E+00           | 1.32E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.66E+01         | 1.72E+00           | 8.94E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.80E-02     | 0.00E+00           | 1.31E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.80E+01         | 1.39E+01           | 1.06E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.60E-01     | 0.00E+00           | 1.42E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.25E+02         | 1.56E+01           | 1.95E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.98E-01     | 0.00E+00           | 1.55E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.80E+00         | 1.90E-02           | 1.03E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.99E-04     | 0.00E+00           | 8.34E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.81E-02         | 5.79E-03           | 1.64E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.19E-04     | 0.00E+00           | 1.47E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.55E-02         | 2.51E-02           | 1.51E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.83E-04     | 0.00E+00           | 2.12E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.62E-01         | 2.00E-03           | 2.50E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.51E-05     | 0.00E+00           | 1.67E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>13</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 3.48E+00         | 4.07E-01           | 6.31E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.75E-03     | 0.00E+00           | 2.55E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.73E-01         | 6.47E-01           | 1.73E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.02E-02     | 0.00E+00           | 1.05E+01   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 3.70E-03         | 3.46E-04           | 6.88E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.87E-06     | 0.00E+00           | 1.96E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.54E-01         | 1.61E-02           | 2.85E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.32E-04     | 0.00E+00           | 5.30E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 7.86E-03         | 4.20E-03           | 1.27E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.14E-05     | 0.00E+00           | 2.94E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.595    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 320 mm and thermal resistance of 9.40 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.27E+00         | 1.10E+00           | 8.25E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.77E-02     | 0.00E+00           | 5.90E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -5.76E-01        | 2.26E-03           | -8.56E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.90E-05     | 0.00E+00           | 1.69E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6.26E-03         | 5.19E-04           | 1.00E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.10E-05     | 0.00E+00           | 5.45E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.70E+00         | 1.11E+00           | 7.41E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.77E-02     | 0.00E+00           | 5.92E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7.82E-07         | 2.48E-07           | 1.23E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.46E-09     | 0.00E+00           | 2.39E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.88E-02         | 4.39E-03           | 4.54E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.40E-04     | 0.00E+00           | 5.54E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7.21E-03         | 2.56E-04           | 1.15E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.56E-06     | 0.00E+00           | 1.67E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.35E-03         | 8.34E-05           | 3.76E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.81E-06     | 0.00E+00           | 5.45E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.46E-03         | 1.28E-03           | 8.76E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.83E-05     | 0.00E+00           | 1.93E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.52E-02         | 1.39E-02           | 1.04E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.28E-04     | 0.00E+00           | 2.11E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.79E-02         | 4.19E-03           | 2.84E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.48E-04     | 0.00E+00           | 5.99E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.34E-03         | 4.83E-06           | 2.01E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.32E-08     | 0.00E+00           | 1.27E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4.81E+01         | 1.42E+00           | 7.47E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.17E-02     | 0.00E+00           | 1.23E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7.42E+00         | 8.94E-02           | 1.14E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.02E-03     | 0.00E+00           | 7.58E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>14</sup> | kg CO <sub>2</sub> eq. | 5.11E+00         | 1.09E+00           | 8.02E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.74E-02     | 0.00E+00           | 5.79E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.30E+00         | 2.08E-01           | 7.29E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.47E-03     | 0.00E+00           | 9.53E-03   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.10E+01         | 7.05E-02           | 1.67E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.47E-03     | 0.00E+00           | 4.51E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.53E+01         | 2.78E-01           | 2.40E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.94E-03     | 0.00E+00           | 1.40E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.04E+01         | 1.83E+00           | 9.53E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.05E-02     | 0.00E+00           | 1.40E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.23E+01         | 1.48E+01           | 1.12E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.84E-01     | 0.00E+00           | 1.52E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.33E+02         | 1.67E+01           | 2.08E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.24E-01     | 0.00E+00           | 1.66E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.25E+00         | 2.02E-02           | 1.09E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.26E-04     | 0.00E+00           | 8.90E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.39E-02         | 6.18E-03           | 1.74E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.27E-04     | 0.00E+00           | 1.56E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.06E-02         | 2.68E-02           | 1.60E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.15E-04     | 0.00E+00           | 2.26E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.73E-01         | 2.13E-03           | 2.67E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.81E-05     | 0.00E+00           | 1.78E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>14</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 3.70E+00         | 4.34E-01           | 6.72E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.33E-03     | 0.00E+00           | 2.72E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.83E-01         | 6.90E-01           | 1.83E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.15E-02     | 0.00E+00           | 1.12E+01   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 3.94E-03         | 3.69E-04           | 7.33E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.39E-06     | 0.00E+00           | 2.09E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.64E-01         | 1.71E-02           | 3.03E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.54E-04     | 0.00E+00           | 5.66E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 8.29E-03         | 4.48E-03           | 1.34E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.75E-05     | 0.00E+00           | 3.13E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.634    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 340 mm and thermal resistance of 10 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.58E+00         | 1.17E+00           | 8.74E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.94E-02     | 0.00E+00           | 6.26E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -6.14E-01        | 2.40E-03           | -9.12E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.20E-05     | 0.00E+00           | 1.79E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6.64E-03         | 5.51E-04           | 1.06E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.17E-05     | 0.00E+00           | 5.79E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 4.97E+00         | 1.18E+00           | 7.84E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.95E-02     | 0.00E+00           | 6.29E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8.26E-07         | 2.64E-07           | 1.30E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.86E-09     | 0.00E+00           | 2.53E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.05E-02         | 4.66E-03           | 4.82E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.49E-04     | 0.00E+00           | 5.89E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7.65E-03         | 2.72E-04           | 1.22E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.91E-06     | 0.00E+00           | 1.78E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.49E-03         | 8.86E-05           | 3.99E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.92E-06     | 0.00E+00           | 5.79E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.77E-03         | 1.36E-03           | 9.27E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.13E-05     | 0.00E+00           | 2.05E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6.90E-02         | 1.48E-02           | 1.10E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.61E-04     | 0.00E+00           | 2.24E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.89E-02         | 4.46E-03           | 3.01E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.57E-04     | 0.00E+00           | 6.37E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.42E-03         | 5.13E-06           | 2.14E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.90E-08     | 0.00E+00           | 1.35E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.11E+01         | 1.51E+00           | 7.93E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.37E-02     | 0.00E+00           | 1.31E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 7.88E+00         | 9.50E-02           | 1.21E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.15E-03     | 0.00E+00           | 8.06E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>15</sup> | kg CO <sub>2</sub> eq. | 5.41E+00         | 1.16E+00           | 8.48E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.92E-02     | 0.00E+00           | 6.15E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.56E+00         | 2.20E-01           | 7.74E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.75E-03     | 0.00E+00           | 1.01E-02   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.17E+01         | 7.49E-02           | 1.78E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.56E-03     | 0.00E+00           | 4.79E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.63E+01         | 2.95E-01           | 2.55E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.31E-03     | 0.00E+00           | 1.49E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.41E+01         | 1.95E+00           | 1.01E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.30E-02     | 0.00E+00           | 1.49E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.65E+01         | 1.57E+01           | 1.19E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.08E-01     | 0.00E+00           | 1.61E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.41E+02         | 1.77E+01           | 2.20E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.51E-01     | 0.00E+00           | 1.76E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.70E+00         | 2.15E-02           | 1.16E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.53E-04     | 0.00E+00           | 9.45E-04   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.96E-02         | 6.56E-03           | 1.85E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.35E-04     | 0.00E+00           | 1.66E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.57E-02         | 2.85E-02           | 1.69E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.47E-04     | 0.00E+00           | 2.40E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.84E-01         | 2.26E-03           | 2.83E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.11E-05     | 0.00E+00           | 1.89E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>15</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 3.92E+00         | 4.61E-01           | 7.12E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.91E-03     | 0.00E+00           | 2.89E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 9.94E-01         | 7.33E-01           | 1.94E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.29E-02     | 0.00E+00           | 1.19E+01   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 4.18E-03         | 3.92E-04           | 7.78E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.92E-06     | 0.00E+00           | 2.22E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.74E-01         | 1.82E-02           | 3.22E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.76E-04     | 0.00E+00           | 6.01E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 8.72E-03         | 4.76E-03           | 1.41E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.04E-04     | 0.00E+00           | 3.33E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.674    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 360 mm and thermal resistance of 10.55 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.88E+00         | 1.24E+00           | 9.22E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.11E-02     | 0.00E+00           | 6.63E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -6.46E-01        | 2.55E-03           | -9.59E-02       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.51E-05     | 0.00E+00           | 1.90E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7.01E-03         | 5.83E-04           | 1.12E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.23E-05     | 0.00E+00           | 6.13E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.25E+00         | 1.25E+00           | 8.27E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.12E-02     | 0.00E+00           | 6.66E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 8.70E-07         | 2.79E-07           | 1.37E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.26E-09     | 0.00E+00           | 2.68E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.22E-02         | 4.93E-03           | 5.09E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.58E-04     | 0.00E+00           | 6.24E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8.10E-03         | 2.88E-04           | 1.30E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.25E-06     | 0.00E+00           | 1.88E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.64E-03         | 9.39E-05           | 4.22E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.04E-06     | 0.00E+00           | 6.13E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.09E-03         | 1.44E-03           | 9.78E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.44E-05     | 0.00E+00           | 2.17E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.27E-02         | 1.57E-02           | 1.16E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.94E-04     | 0.00E+00           | 2.37E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.99E-02         | 4.72E-03           | 3.17E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.67E-04     | 0.00E+00           | 6.74E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.51E-03         | 5.43E-06           | 2.26E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.05E-07     | 0.00E+00           | 1.43E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.41E+01         | 1.60E+00           | 8.39E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.57E-02     | 0.00E+00           | 1.39E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8.34E+00         | 1.01E-01           | 1.28E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.27E-03     | 0.00E+00           | 8.53E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>16</sup> | kg CO <sub>2</sub> eq. | 5.71E+00         | 1.23E+00           | 8.95E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.09E-02     | 0.00E+00           | 6.51E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4.83E+00         | 2.33E-01           | 8.19E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.03E-03     | 0.00E+00           | 1.07E-02   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.24E+01         | 7.94E-02           | 1.87E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.65E-03     | 0.00E+00           | 5.07E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.72E+01         | 3.13E-01           | 2.69E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.68E-03     | 0.00E+00           | 1.58E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.78E+01         | 2.06E+00           | 1.07E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.56E-02     | 0.00E+00           | 1.57E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.07E+01         | 1.67E+01           | 1.26E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.32E-01     | 0.00E+00           | 1.71E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.49E+02         | 1.87E+01           | 2.33E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.77E-01     | 0.00E+00           | 1.86E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.16E+00         | 2.28E-02           | 1.23E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.79E-04     | 0.00E+00           | 1.00E-03   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.05E-01         | 6.95E-03           | 1.96E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.43E-04     | 0.00E+00           | 1.76E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.01E-01         | 3.02E-02           | 1.78E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.79E-04     | 0.00E+00           | 2.54E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.95E-01         | 2.40E-03           | 3.00E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.41E-05     | 0.00E+00           | 2.00E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>16</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 4.15E+00         | 4.88E-01           | 7.53E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.05E-02     | 0.00E+00           | 3.06E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 1.00E+00         | 7.77E-01           | 2.05E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.42E-02     | 0.00E+00           | 1.26E+01   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 4.41E-03         | 4.15E-04           | 8.22E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.44E-06     | 0.00E+00           | 2.35E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.84E-01         | 1.93E-02           | 3.40E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.98E-04     | 0.00E+00           | 6.37E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 9.13E-03         | 5.04E-03           | 1.47E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.10E-04     | 0.00E+00           | 3.52E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.714    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 380 mm and thermal resistance of 11.15 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6.19E+00         | 1.31E+00           | 9.70E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.29E-02     | 0.00E+00           | 7.00E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -6.82E-01        | 2.69E-03           | -1.01E-01       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.82E-05     | 0.00E+00           | 2.00E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7.39E-03         | 6.16E-04           | 1.18E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.30E-05     | 0.00E+00           | 6.47E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.52E+00         | 1.31E+00           | 8.70E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.29E-02     | 0.00E+00           | 7.03E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9.14E-07         | 2.95E-07           | 1.44E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.67E-09     | 0.00E+00           | 2.83E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.39E-02         | 5.21E-03           | 5.36E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.66E-04     | 0.00E+00           | 6.58E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8.54E-03         | 3.04E-04           | 1.37E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.60E-06     | 0.00E+00           | 1.99E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.78E-03         | 9.91E-05           | 4.45E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.15E-06     | 0.00E+00           | 6.47E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.40E-03         | 1.52E-03           | 1.03E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.74E-05     | 0.00E+00           | 2.29E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 7.65E-02         | 1.66E-02           | 1.22E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.27E-04     | 0.00E+00           | 2.51E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2.10E-02         | 4.98E-03           | 3.34E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.76E-04     | 0.00E+00           | 7.12E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.59E-03         | 5.74E-06           | 2.39E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.11E-07     | 0.00E+00           | 1.51E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.71E+01         | 1.68E+00           | 8.86E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.77E-02     | 0.00E+00           | 1.47E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 8.80E+00         | 1.06E-01           | 1.35E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.40E-03     | 0.00E+00           | 9.00E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>17</sup> | kg CO <sub>2</sub> eq. | 6.01E+00         | 1.30E+00           | 9.42E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.26E-02     | 0.00E+00           | 6.88E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.09E+00         | 2.46E-01           | 8.64E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.31E-03     | 0.00E+00           | 1.13E-02   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.31E+01         | 8.38E-02           | 1.98E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.74E-03     | 0.00E+00           | 5.35E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.82E+01         | 3.30E-01           | 2.84E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.06E-03     | 0.00E+00           | 1.67E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.16E+01         | 2.18E+00           | 1.13E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.81E-02     | 0.00E+00           | 1.66E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.50E+01         | 1.76E+01           | 1.32E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.56E-01     | 0.00E+00           | 1.80E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.57E+02         | 1.98E+01           | 2.45E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.04E-01     | 0.00E+00           | 1.97E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.61E+00         | 2.40E-02           | 1.30E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.06E-04     | 0.00E+00           | 1.06E-03   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.11E-01         | 7.33E-03           | 2.07E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.51E-04     | 0.00E+00           | 1.86E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.06E-01         | 3.19E-02           | 1.87E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.11E-04     | 0.00E+00           | 2.68E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2.06E-01         | 2.53E-03           | 3.16E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.71E-05     | 0.00E+00           | 2.11E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>17</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 4.37E+00         | 5.15E-01           | 7.94E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.11E-02     | 0.00E+00           | 3.23E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 1.01E+00         | 8.20E-01           | 2.15E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.56E-02     | 0.00E+00           | 1.33E+01   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 4.65E-03         | 4.38E-04           | 8.67E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 9.97E-06     | 0.00E+00           | 2.48E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 1.94E-01         | 2.04E-02           | 3.58E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.20E-04     | 0.00E+00           | 6.72E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 9.56E-03         | 5.32E-03           | 1.54E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.16E-04     | 0.00E+00           | 3.72E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.753    |

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

Results for 1m<sup>2</sup> of glass wool insulation with a thickness of 400 mm and thermal resistance of 11.75 m<sup>2</sup>·K/W:

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

### Results per functional or declared unit

| Indicator            | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-fossil           | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 6.50E+00         | 1.38E+00           | 1.02E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.46E-02     | 0.00E+00           | 7.37E-02   | 0.00E+00                                             |
| GWP-biogenic         | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -7.16E-01        | 2.83E-03           | -1.06E-01       | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.12E-05     | 0.00E+00           | 2.11E-04   | 0.00E+00                                             |
| GWP-luluc            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 7.77E-03         | 6.48E-04           | 1.24E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.37E-05     | 0.00E+00           | 6.81E-05   | 0.00E+00                                             |
| GWP-total            | kg CO <sub>2</sub> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 5.79E+00         | 1.38E+00           | 9.14E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.47E-02     | 0.00E+00           | 7.40E-02   | 0.00E+00                                             |
| ODP                  | kg CFC 11 eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9.58E-07         | 3.10E-07           | 1.51E-07        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 8.07E-09     | 0.00E+00           | 2.98E-08   | 0.00E+00                                             |
| AP                   | mol H <sup>+</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3.56E-02         | 5.48E-03           | 5.63E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.75E-04     | 0.00E+00           | 6.93E-04   | 0.00E+00                                             |
| EP-freshwater        | kg PO <sub>4</sub> <sup>3-</sup> eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 8.99E-03         | 3.20E-04           | 1.44E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.95E-06     | 0.00E+00           | 2.09E-05   | 0.00E+00                                             |
| EP-freshwater        | kg P eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 2.93E-03         | 1.04E-04           | 4.69E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.26E-06     | 0.00E+00           | 6.81E-06   | 0.00E+00                                             |
| EP-marine            | kg N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 6.72E-03         | 1.60E-03           | 1.08E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.04E-05     | 0.00E+00           | 2.41E-04   | 0.00E+00                                             |
| EP-terrestrial       | mol N eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 8.03E-02         | 1.74E-02           | 1.28E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.60E-04     | 0.00E+00           | 2.64E-03   | 0.00E+00                                             |
| POCP                 | kg NMVOC eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2.20E-02         | 5.24E-03           | 3.50E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.85E-04     | 0.00E+00           | 7.49E-04   | 0.00E+00                                             |
| ADP-minerals&metals* | kg Sb eq.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.67E-03         | 6.04E-06           | 2.51E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.16E-07     | 0.00E+00           | 1.59E-07   | 0.00E+00                                             |
| ADP-fossil*          | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6.00E+01         | 1.77E+00           | 9.32E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.97E-02     | 0.00E+00           | 1.54E-01   | 0.00E+00                                             |
| WDP*                 | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9.27E+00         | 1.12E-01           | 1.43E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.52E-03     | 0.00E+00           | 9.48E-02   | 0.00E+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: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

## Potential environmental impact – additional mandatory and voluntary indicators

### Results per functional or declared unit

| Indicator             | Unit                   | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------------------|------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                       |                        | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| GWP-GHG <sup>18</sup> | kg CO <sub>2</sub> eq. | 6.30E+00         | 1.37E+00           | 9.89E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 3.43E-02     | 0.00E+00           | 7.24E-02   | 0.00E+00                                             |

## Use of resources

### Results per functional or declared unit

| Indicator | Unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| PERE      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 5.36E+00         | 2.59E-01           | 9.09E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.59E-03     | 0.00E+00           | 1.19E-02   | 0.00E+00                                             |
| PERM      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.37E+01         | 8.82E-02           | 2.08E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.83E-03     | 0.00E+00           | 5.63E-03   | 0.00E+00                                             |
| PERT      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.91E+01         | 3.48E-01           | 2.98E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 7.43E-03     | 0.00E+00           | 1.75E-02   | 0.00E+00                                             |
| PENRE     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7.53E+01         | 2.29E+00           | 1.19E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.06E-02     | 0.00E+00           | 1.75E-01   | 0.00E+00                                             |
| PENRM     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 8.92E+01         | 1.85E+01           | 1.39E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.80E-01     | 0.00E+00           | 1.90E+00   | 0.00E+00                                             |
| PENRT     | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.65E+02         | 2.08E+01           | 2.58E+01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.30E-01     | 0.00E+00           | 2.07E+00   | 0.00E+00                                             |
| SM        | kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 9.06E+00         | 2.53E-02           | 1.37E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 5.33E-04     | 0.00E+00           | 1.11E-03   | 0.00E+00                                             |
| RSF       | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.17E-01         | 7.72E-03           | 2.17E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.59E-04     | 0.00E+00           | 1.96E-04   | 0.00E+00                                             |
| NRSF      | MJ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.11E-01         | 3.35E-02           | 1.96E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.44E-04     | 0.00E+00           | 2.82E-04   | 0.00E+00                                             |
| FW        | m <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2.16E-01         | 2.66E-03           | 3.33E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 6.01E-05     | 0.00E+00           | 2.22E-03   | 0.00E+00                                             |
| 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 |                  |                    |                 |           |                |           |                |                  |               |                 |                                |              |                    |            |                                                      |

<sup>18</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

#### Results per functional or declared unit

| Indicator                    | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                              |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Hazardous waste disposed     | kg   | 4.59E+00         | 5.42E-01           | 8.34E-01        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.17E-02     | 0.00E+00           | 3.40E-02   | 0.00E+00                                             |
| Non-hazardous waste disposed | kg   | 1.03E+00         | 8.63E-01           | 2.26E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 2.69E-02     | 0.00E+00           | 1.40E+01   | 0.00E+00                                             |
| Radioactive waste disposed   | kg   | 4.89E-03         | 4.61E-04           | 9.11E-04        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.05E-05     | 0.00E+00           | 2.61E-05   | 0.00E+00                                             |

### Output flows

#### Results per functional or declared unit

| Indicator                     | Unit | Production phase | Construction phase |                 | Use phase |                |           |                |                  |               |                 | End of life phase              |              |                    |            | D Benefits and loads beyond the limits of the system |
|-------------------------------|------|------------------|--------------------|-----------------|-----------|----------------|-----------|----------------|------------------|---------------|-----------------|--------------------------------|--------------|--------------------|------------|------------------------------------------------------|
|                               |      | A1 / A2 / A3     | A4 Transport       | A5 Installation | B1 Use    | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Energy use | B7 Use of water | C1 Deconstruction / demolition | C2 Transport | C3 Waste treatment | C4 Removal |                                                      |
| Components for re-use         | kg   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Material for recycling        | kg   | 2.04E-01         | 2.14E-02           | 3.77E-02        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 4.42E-04     | 0.00E+00           | 7.07E-04   | 0.00E+00                                             |
| Materials for energy recovery | kg   | 9.97E-03         | 5.60E-03           | 1.61E-03        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 1.22E-04     | 0.00E+00           | 3.91E-04   | 0.00E+00                                             |
| Exported energy, electricity  | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |
| Exported energy, thermal      | MJ   | 0.00E+00         | 0.00E+00           | 0.00E+00        | 0.00E+00  | 0.00E+00       | 0.00E+00  | 0.00E+00       | 0.00E+00         | 0.00E+00      | 0.00E+00        | 0.00E+00                       | 0.00E+00     | 0.00E+00           | 0.00E+00   | 0.00E+00                                             |

### Information on biogenic carbon content

#### Results per functional or declared unit

| BIOGENIC CARBON CONTENT              | Unit | QUANTITY |
|--------------------------------------|------|----------|
| Biogenic carbon content in product   | kg C | 0        |
| Biogenic carbon content in packaging | kg C | 0.793    |

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

## 6. Additional Information

### Emissions in the indoor air:

URSA WBW: PUREONE PURE FLOC, PURE FLOC, PUREONE PURE FLOC KD, PURE FLOC KD, WBWPF comply with Indoor Air Comfort Gold requirements for products type, version 7.0 (2020). These include both inspections of factory production according to DIN 18200 and VOC testing according to EN 16516 by an ISO 17025 accredited laboratory, at regular interval.

Indoor Air COMFORT Gold Certification ensures that low product emission requirements are fulfilled and is a sign of the applicant's focus on quality and contribution to a healthy indoor environment.



Certificate number: IACG-451-01-01-2022

Compliance with Indoor Air Comfort means compliance with VOC requirements on low emitting products of:

France VOC class A+, Germany (AgBB/ABG), BREEAM international, BREEM NOR, BREEM NL, LEED (ACP), WELL Building, SKA Rating, French HQE certification, Italian CAM Edilizia, BVB (Sweden), Eco Product Norway, DGNB, Blue Angel DE-UZ 132, M1, Danish Indoor Climate Label (Emission Class 1), very low emitting products according to EN 16798-1, Singapore Green Label, GreenTag Australia.

### EUCEB:

Mineral wool fibers have been exempted from carcinogenic classification according to: Regulation on classification and labelling of substances and mixtures Regulation (EC) n° 1272/2008 and its last update Regulation (EU) n° 2021/643. They have in fact successfully passed the tests established by this Regulation and their biopersistence is lower than the values defined in note « Q » of this text. This exemption is certified by the European Certification Board (EUCEB - [www.euceb.org](http://www.euceb.org)).

The EUCEB certifies that fibers conform to note « Q » of the Regulation (EC) n° 1272/2008. The EUCEB guarantees that the exemption tests have been executed in conformance with European protocols, that industrial entities have control procedures in place during manufacture of the products, and that third parties inspect and approve the results.

The industrial entities in respect of EUCEB undertake as follows:

- To provide a test report compiled by a EUCEB recognized laboratory providing proof that the fibers satisfy one of the four exemption conditions established in note « Q » of Regulation (EC) n° 1272/2008,
- Twice yearly, to undergo production inspection by an independent third party recognized by EUCEB (sample taking and conformance with initial chemical analysis),

- To set up internal control procedures in each factory.

The products with this certification are recognizable as they have the EUCEB logo affixed to their packaging



### **REACH:**

**Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).**

The glass wool products (rolls and boards) manufactured by URSA are defined as "articles" according to the article 3 (3) of EC Regulation 1907/2006 (REACH). Articles, whose functionality is more determinate by the shape, surface or design given in their production process, than by its chemical composition.

There, according to Art. 2 of EC Regulation 1907/2006 (REACH) our articles are excluded from the EC Regulation 1907/2006 (REACH).

Our products do not contain Substances of Very High Concern (SVHC) in a higher concentration than 0,01 % by weight according to the last update of the candidate list know at the date this document was issued.

ECHA-European Chemicals Agency regularly published an update SHVC list. The validity of this statement is therefore of ECHA new publications.

### **Circular Economy:**

#### **Recycled Glass Content:**

According to ISO 14021:

- 1) Recycled Content is a Proportion, by mass, of recycled material in a product.  
*Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the following use of terms,*

Pre-consumer material: Material diverted from waste stream during a manufacturing process. Excluded is reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Post-consumer material: Material generated by households or by commercial, industrial, and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of materials from the distribution chain.

- 2) Recovered material: Material that would have otherwise been disposed of a waste or used for energy recovery but has instead been collected and

recovered as a material input, in lieu of new primary material, for a recycling or a manufacturing process.

For the Desselgem plant, in the year 2022:

| Products                                                                          | % Recovered material | % Recycled content (According to 14021) |               |         | % Total recycled |
|-----------------------------------------------------------------------------------|----------------------|-----------------------------------------|---------------|---------|------------------|
|                                                                                   |                      | Pre-consumer                            | Post-consumer | % Total |                  |
| URSA WBW: PUREONE PURE FLOC, PURE FLOC, PUREONE PURE FLOC KD, PURE FLOC KD, WBWPF | 13                   | 0                                       | 50            | 50      | 63               |

### **Sorting info label for the packing**

The Article 17 of the French AGEC Law and Decree no. 2021-835 of 29 June 2021, says that a new mandatory harmonised sorting label to the household packaging should be implemented to contribute to recycling and circular economy. The aim is to provide consumers with the information they need and ensure that the producers are in compliance with the new regulatory requirements.



### **European Waste Codes**

Waste glass wool in the module A5 and C will be classified according to the European Waste Codes:

17 06 04 insulation materials other than those mentioned in 17 06 01 and 17 06 03

## **7. Differences versus previous versions**

The new version (v1) has been affected by the following editorial modifications:

- Included the new logo 'URSA by etex'.
- Erased old Etex logo in the bottom page
- Updated it in 'Cover page' & 'Product name' with more product commercial names: URSA PUREFLOC Cavity, URSA PUREFLOC Universal, URSA PUREFLOC Frame.
- Updated the product image.
- Added the review date.

## **8. References**

- ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework
- ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

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- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
  - PCR 2019:14. Construction products (EN 15804+A2) Version 1.11. C-PCR-005 Thermal insulation products (EN 16783:2017) Version: 2019-12-20
  - General Programme Instructions of the International EPD<sup>®</sup> System. Version 3.01.
  - LCA Report (Version 3 – 30.06.2022)