# ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

| | |
|---|---|
| Owner of the Declaration | JANSEN AG |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
| Declaration number | EPD-JAN-20230114-CBA1-EN |
| Issue date | 20.10.2023 |
| Valid to | 19.10.2028 |

## JANSEN VISS façade width x height: 2500mm x 3200mm

## Jansen AG

Institut Bauen und Umwelt e.V.

**www.ibu-epd.com | https://epd-online.com**

ECO PLATFORM EPD VERIFIED

## General Information

### Jansen AG

**Programme holder**

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

**Declaration number**

EPD-JAN-20230114-CBA1-EN

**This declaration is based on the product category rules:**

Curtain walling, 01.08.2021
(PCR checked and approved by the SVR)

**Issue date**

20.10.2023

**Valid to**

19.10.2028

Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

### JANSEN VISS façade width x height: 2500mm x 3200mm

**Owner of the declaration**

JANSEN AG
Industriestrasse 34
9463 Oberriet
Switzerland

**Declared product / declared unit**

1 $m^2$ JANSEN VISS façade with a grammage of 45.55 kg/$m^2$. The actual reference size of the declared façade element has dimensions of 2500mm x 3200mm.

**Scope:**

The environmental product declaration refers to a façade type Jansen VISS in specific dimension width x height. The characteristic values used for the system components of the JANSEN VISS façade in the LCA are provided by Jansen AG.

The declared product with the dimension 2500mm x 3200mm is defined according to the profile series and product characteristics.

The location of the production site is Oberriet/Switzerland.
This EPD was created with the help of a semi-automated LCA-Tool.
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

**Verification**

| |
|---|
| The standard EN 15804 serves as the core PCR |
| Independent verification of the declaration and data according to ISO 14025:2011 |
| ☐ internally ☒ externally |

Matthias Klingler,
(Independent verifier)

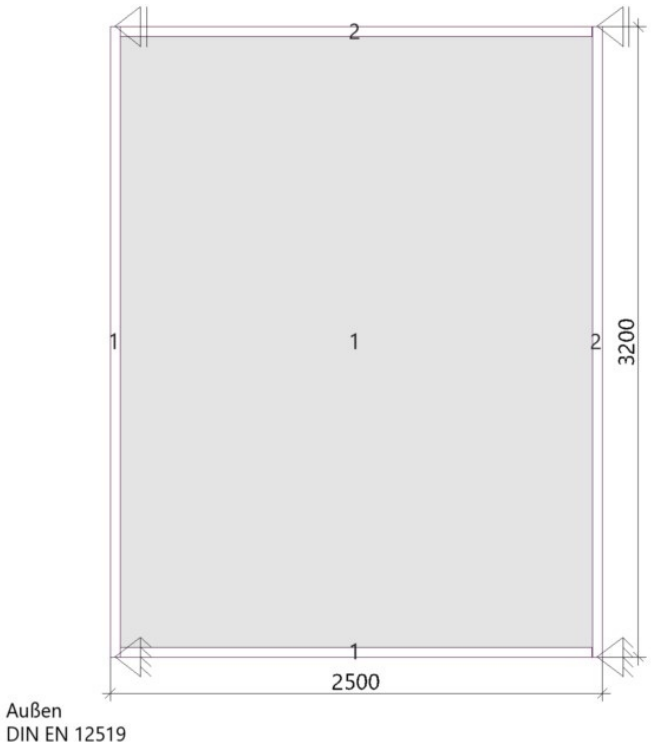
## Product

### Product description/Product definition

The steel façade system JANSEN VISS can be designed as a mullion-transom construction or welded as a frame. The JANSEN VISS façade with face widths of 50 and 60 mm is available with Jansen profiles made of steel in construction depths of 18 to 280 mm. Design possible in each case as burglar-resistant, bullet-resistant, fire-protection façade or SG-solution, as well as combinations of these properties. The system can also be applied as add-on construction on commercially available beams made of steel, aluminum and wood according to static requirements. Our profiles meet increased thermal insulation requirements with $U_f$ values from 0.65 W/m²K or 0.51 W/m²K and sound insulation up to 47 dB. Our façade can be planned generally with infill unit weights up to 1800 kg.

This declaration describes the following element in JANSEN VISS:
**Product: JANSEN VISS**
**Face width: 50mm**
**Construction depth: 80mm**
**Width x height: 2500mm x 3200mm**
**CE marking according to *EN 13830***

For the placing on the market in the European Union/European Free Trade Association (EU/EFTA) the *CPR (EU) No. 305/2011/* applies. The products require a declaration of performance taking into account the harmonized product standard *EN 13830/ curtain walling* and a CE marking. The respective national regulations apply to the use. With this declaration the following element is declared:




### Application

The JANSEN VISS façade meets all the requirements of an interior or exterior wall without taking over load-bearing functions. Our steel façades allow the combination of the visually identical fire protection façade VISS Fire and the burglary- and bullet-resistant VISS RC/FB façade. The VISS Basic add-on construction can be combined with all our VISS façades, as well as the structural glazing façade. All Jansen window and door systems can be integrated into the Jansen façade.

### Technical Data

According to the CE marking, the following structural data for the element must be stated:

**Constructional data**

| Name | Value | Unit |
|---|---|---|
| Water tightness acc EN 12154 | 1200 | Pa |
| Resistance to wind load acc EN 13116 | 2 | kN/m2 |
| Thermal transmittance EN ISO 10077-2 | 0.65 | W/m2K |
| Sound insulation EN ISO 717-1 | 47 (-1; -5) | dB |
| Air permeability EN 12152 | AE | class |
| Impact strength EN 14019 | E5 / I5 | class |
| The technical regulations for protecting glazing against falling out TRAV | A | category |

Further product specifications can be found in the declaration of performance. The properties of the element can be taken from the CE marking according to *EN 13830:2020*, curtain wall façade. Other constructional data are not relevant for this product.

### Base materials/Ancillary materials

JANSEN VISS façade is made of the following materials:

- Glazing approx. 83%
- Steel approx. 12.5%
- Aluminium approx. 2%
- Plastics approx. 2%
- Stainless steel < 1%

The percentages refer to the declared facade with an 8m² area. The percentages stated may vary depending on the product type and dimensions.

Does the product or at least one part product contain materials from the *ECHA candidate list* of materials which are especially problematic for approval: Substances of Very High Concern – SVHC (date 17.01.2023) above a mass percentage of 0.1: no.

This product/article/at least one partial article contains other carcinogenic, mutagenic, reprotoxic (CMR) substances in categories 1A or 1B which are not on *the candidate list*, exceeding 0.1 percentage by mass: no.

Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) *Ordinance on Biocide Products No. 528/2012)*: no.

### Reference service life

According to SBR 2011 regarding the specific material characteristics of steel, the reference service life is 100 years (*SBR 2011*). The practical service life may well be longer. Conditions for a long service life are regular maintenance, care and upkeep of the product. The specified service life is independent of the manufacturer's warranty.

## LCA: Calculation rules

**Declared Unit**

The declared unit is 1 $m^2$ of JANSEN VISS façade.
The actual reference size of the declared façade element has dimensions of 2500 mm x 3200 mm.

| Name | Value | Unit |
|---|---|---|
| Declared unit | 1 | $m^2$ |
| Grammage | 45.55 | $kg/m^2$ |
| Layer thickness | 0.14 | m |

For inhomogeneous components made of different materials, the conversion to other dimensions with factors leads to deviations compared to the exact calculation.
Frame percentage = Frame surface / total area * 100 [%]
Ground reference = Element depth x element width [m²]

**System boundary**

Type of EPD according to *EN 15804*: "cradle to gate with options, modules C1–C4, and module D". The following modules are declared: A1–A3, C, D and additional modules: A4 + A5.

**Production (modules A1-A3):**
This module considers the provision of all relevant system components (i.e. metal profiles/components, glass unit and plastic parts/profiles) and raw materials including their transport to the declared production plant. This considers the manufacturing and assembly of these system components, including waste processing up to the end-of-waste state. The impact of packaging materials is also covered by this module.

**Transport to the construction site (module A4):**
A distance of 100 km is considered for the transport of the packed finished product via truck. The transport distance can be modified project-specific if required by linear scaling.

**Installation (module A5):**
Treatment and disposal of packaging material are considered in this module. Credits for potential avoided burdens due to energy substitution of electricity and thermal energy generation are declared in module D under European conditions and affect only the rate of primary materials (no secondary materials). Electricity consumption for the installation of the declared product at the construction/building site is also considered.

**EoL stage (modules C1-C4):**
Module C1 - considers manual deconstruction (without environmental burdens).
Module C2 - considers 50 km truck transport to waste processing. The transport distance can be modified project-specific if required by linear scaling.
Modules C3 and C4 - consider waste processing and/or disposal with the following scenarios:

- Scenario 1: 100% thermal treatment of all raw materials with heating value including plastic system parts and 100% recycling of metal system components (C3/1). Landfill of all materials without heating value (except metals) including glazing (C4/1).
- Scenario 2 (module C3/2): 100% recycling of plastic system parts and 100% recycling of metal system components. Landfill of all materials without heating value (except metals) including glazing (C4/2).

Modules C4/1 & C4/2 are identical.

**Benefits and loads beyond the product system boundary (module D):**
Considers credits and loads from the recycling of the metal components (duplicated in D/1 and D/2) and the recycling of the plastic system parts/profiles (D/2). Avoided burdens from the thermal treatment of all raw materials with heating value (including plastic system parts/profiles) (D/1) and packaging treatment (duplicated in D/1 and D/2) under European conditions are considered. This affects only the rate of primary materials (no secondary materials).

**Geographic Representativeness**

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Europe

**Comparability**

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.
The following background database has been used for the LCA calculation: Sphera LCA software (*GaBi ts*) content update package (CUP) version 2022.2

## LCA: Scenarios and additional technical information

**Characteristic product properties of biogenic carbon**

No biogenic carbon is reported in the product. The biogenic carbon content in the accompanying packaging for 1 $m^2$ JANSEN VISS façade is declared below.

**Information on describing the biogenic Carbon Content at factory gate**

| Name | Value | Unit |
|---|---|---|
| Biogenic carbon content in product | - | kg C |
| Biogenic carbon content in accompanying packaging | 0.00327 | kg C |

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of $CO_2$

The following technical information is a basis for the declared modules. The values refer to the declared unit of 1 $m^2$ of JANSEN VISS façade.

**Transport from the gate to the site (A4)**

| Name | Value | Unit |
|---|---|---|
| Litres of fuel | 0.0896 | l/100km |
| Transport distance | 100 | km |
| Capacity utilisation (including empty runs) | 61 | % |
| Gross weight of packed products transported | 45.56 | kg |

**Assembly (A5)**

Treatment and disposal of packaging material are considered in this module. Electricity consumption for the installation of the declared product at the construction/building site is also considered. The values refer to the declared unit of 1 $m^2$ of JANSEN VISS façade.

| Name | Value | Unit |
|---|---|---|
| Electricity consumption | 7.2 | MJ |
| Polyethylene (waste packaging to incineration) | 0.000704 | kg |
| Cardboard box (waste packaging to incineration) | 0.00337 | kg |
| Wood (waste packaging to incineration) | 0.00445 | kg |

According to SBR 2011 regarding the specific material characteristics of steel, the reference service life is 100 years (SBR 2011). The practical service life may well be longer. Conditions for a long service life are regular maintenance, care and upkeep of the product. The specified service life is independent of the manufacturer's warranty.

**Reference service life**

| Name | Value | Unit |
|---|---|---|
| Life Span (according to SBR 2011 | 100 | a |

**End of life (C1-C4)**

For the End-of-Life stage two scenarios are considered. Scenario 1 considers 100% thermal treatment of all raw materials with heating value including plastic system parts and 100% recycling of metal system components (C3/1). Landfill of all materials without heating value (except metals) including glazing (C4/1). Scenario 2 considers 100% recycling of plastic system parts and 100% recycling of metal system components (C3/2). Landfill of all materials without heating value (except metals) including glazing (C4/2). Modules C4/1 and C4/2 are identical. The recycling of plastics scenario declared in this EPD is currently considered a scenario that is not widely available in reality due to economic viability limitations associated with higher costs of sorting smaller shares of plastics such as those present in the declared product.

| Name | Value | Unit |
|---|---|---|
| EoL scenario 1 (modules C3/1 and C4/1) | | |
| Collected separately waste type (façade element) | 45.55 | kg |
| Recycling (C3/1) | 6.72 | kg |
| Energy recovery (C3/1) | 0.918 | kg |
| Landfilling (C4/1) | 37.95 | kg |
| EoL scenario 2 (modules C3/2 and C4/2) | | |
| Collected separately (façade element) | 45.55 | kg |
| Recycling (C3/2) | 7.60 | kg |
| Energy recovery (C3/2) | 0.038 | kg |
| Landfilling (C4/2) | 37.95 | kg |

**Reuse, recovery and/or recycling potentials (D), relevant scenario information**

Module D includes the credits and loads from the recycling of the metal components (duplicated in D/1 and D/2) and the recycling of the plastic system parts/profiles (D/2). Avoided burdens from the thermal treatment of all raw materials with heating value (including plastic system parts/profiles) (D/1) and packaging treatment (duplicated in D/1 and D/2) under European conditions are considered. This affects only the rate of primary materials (no secondary materials). A waste incineration plant with R1-value > 0.6 is assumed.
For recycling, a collection rate of 100% is considered.

## LCA: Results

Results provided in this section are presented relative to 1 $m^2$ of façade type Jansen VISS (reference dimensions 2500 mm x 3200 mm).

For the End-of-Life stage two scenarios are considered:
C3/1 - considers 100% recycling of metal system components (duplicated in D/1 and D/2) and 100% thermal treatment of all raw materials with heating value including plastic system parts.
C3/2 - considers 100% recycling of metal system components (duplicated in D/1 and D/2) and 100% recycling of plastic system parts.
C4/1 and C4/2 - consider landfill of all materials without heating value (except metals) including glazing. Modules C4/1 and C4/2 are identical.
D/1 - considers credits and loads from the recycling of the metal components (duplicated in D/1 and D/2). Avoided burdens from packaging treatment (duplicated in D/1 and D/2) and thermal treatment of all raw materials with heating value (including plastic system parts/profiles) are considered.
D/2 - considers credits and loads from the recycling of the metal components (duplicated in D/1 and D/2) and the recycling of the plastic system parts/profiles. Avoided burdens from packaging treatment (duplicated in D/1 and D/2) are considered.

**DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)**

| Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundaries |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw material supply | Transport | Manufacturing | Transport from the gate to the site | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| **A1** | **A2** | **A3** | **A4** | **A5** | **B1** | **B2** | **B3** | **B4** | **B5** | **B6** | **B7** | **C1** | **C2** | **C3** | **C4** | **D** |
| X | X | X | X | X | MND | MND | MNR | MNR | MNR | MND | MND | X | X | X | X | X |

**RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m2 JANSEN VISS façade (45.55 kg/m2)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3/1 | C3/2 | C4/1 | C4/2 | D/1 | D/2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg $CO_2$ eq | 7.84E+01 | 2.75E-01 | 8.4E-01 | 0 | 1.38E-01 | 2.32E+00 | 2.97E-02 | 5.69E-01 | 5.69E-01 | -9.65E+00 | -9.86E+00 |
| GWP-fossil | kg $CO_2$ eq | 7.81E+01 | 2.72E-01 | 8.27E-01 | 0 | 1.36E-01 | 2.32E+00 | 2.97E-02 | 5.66E-01 | 5.66E-01 | -9.64E+00 | -9.85E+00 |
| GWP-biogenic | kg $CO_2$ eq | 2.74E-01 | 1.15E-03 | 1.23E-02 | 0 | 5.75E-04 | 9.45E-05 | 7.53E-06 | 1.91E-03 | 1.91E-03 | -1.1E-02 | -1.24E-02 |
| GWP-luluc | kg $CO_2$ eq | 2.3E-02 | 1.52E-03 | 5.35E-05 | 0 | 7.6E-04 | 9.73E-06 | 1.19E-06 | 1.05E-03 | 1.05E-03 | -8.84E-04 | -8.66E-04 |
| ODP | kg CFC11 eq | 1.86E-10 | 1.63E-14 | 8.15E-12 | 0 | 8.17E-15 | 1.45E-13 | 1.1E-14 | 1.33E-12 | 1.33E-12 | -6.53E-12 | -2.65E-12 |
| AP | mol $H^+$ eq | 3.72E-01 | 2.6E-04 | 1.21E-03 | 0 | 1.3E-04 | 2.35E-04 | 7.4E-06 | 4.02E-03 | 4.02E-03 | -3.26E-02 | -3.35E-02 |
| EP-freshwater | kg P eq | 7.72E-05 | 8.14E-07 | 3.71E-07 | 0 | 4.07E-07 | 6.65E-08 | 8.2E-09 | 9.6E-07 | 9.6E-07 | -3.44E-06 | -1.92E-06 |
| EP-marine | kg N eq | 1.27E-01 | 8.09E-05 | 3.32E-04 | 0 | 4.04E-05 | 6.27E-05 | 2.61E-06 | 1.03E-03 | 1.03E-03 | -4.38E-03 | -4.63E-03 |
| EP-terrestrial | mol N eq | 1.49E+00 | 9.72E-04 | 3.55E-03 | 0 | 4.86E-04 | 1.11E-03 | 3.58E-05 | 1.13E-02 | 1.13E-02 | -4.39E-02 | -4.66E-02 |
| POCP | kg NMVOC eq | 3.31E-01 | 2.26E-04 | 9.38E-04 | 0 | 1.13E-04 | 1.78E-04 | 7.02E-06 | 3.12E-03 | 3.12E-03 | -1.54E-02 | -1.68E-02 |
| ADPE | kg Sb eq | 2.61E-04 | 2.28E-08 | 9.81E-08 | 0 | 1.14E-08 | 3.61E-09 | 2.56E-10 | 5.8E-08 | 5.8E-08 | -1.72E-05 | -1.73E-05 |
| ADPF | MJ | 9.55E+02 | 3.65E+00 | 1.75E+01 | 0 | 1.82E+00 | 3.79E-01 | 2.03E-02 | 7.42E+00 | 7.42E+00 | -1.07E+02 | -1.34E+02 |
| WDP | $m^3$ world eq deprived | 3.98E+00 | 2.45E-03 | 6.32E-02 | 0 | 1.22E-03 | 2.02E-01 | 6.04E-03 | 6.21E-02 | 6.21E-02 | -1.68E+00 | -1.77E+00 |

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential)

**RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m2 JANSEN VISS façade (45.55 kg/m2)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3/1 | C3/2 | C4/1 | C4/2 | D/1 | D/2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 1.25E+02 | 2.07E-01 | 2.65E+00 | 0 | 1.04E-01 | 9.15E-02 | 6.66E-03 | 1.11E+00 | 1.11E+00 | -2.6E+01 | -2.34E+01 |
| PERM | MJ | 1.18E-01 | 0 | -1.18E-01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 1.25E+02 | 2.07E-01 | 2.53E+00 | 0 | 1.04E-01 | 9.15E-02 | 6.66E-03 | 1.11E+00 | 1.11E+00 | -2.6E+01 | -2.34E+01 |
| PENRE | MJ | 9.17E+02 | 3.65E+00 | 1.75E+01 | 0 | 1.83E+00 | 3.88E+01 | 3.85E+01 | 7.43E+00 | 7.43E+00 | -1.08E+02 | -1.34E+02 |
| PENRM | MJ | 3.85E+01 | 0 | -3.24E-02 | 0 | 0 | -3.85E+01 | -3.85E+01 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 9.56E+02 | 3.65E+00 | 1.75E+01 | 0 | 1.83E+00 | 3.79E-01 | 2.03E-02 | 7.43E+00 | 7.43E+00 | -1.08E+02 | -1.34E+02 |
| SM | kg | 3.56E+00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3.3E+00 | 3.75E+00 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 2.46E-01 | 2.34E-04 | 3.87E-03 | 0 | 1.17E-04 | 4.74E-03 | 1.36E-04 | 1.88E-03 | 1.88E-03 | -8.86E-02 | -8.99E-02 |

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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

**RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2:**
**1 m2 JANSEN VISS façade (45.55 kg/m2)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3/1 | C3/2 | C4/1 | C4/2 | D/1 | D/2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 1.17E-07 | 1.75E-11 | 1.25E-09 | 0 | 8.75E-12 | 3.36E-11 | 1.32E-12 | 3.81E-10 | 3.81E-10 | 1.08E-08 | 9.64E-09 |
| NHWD | kg | 5.47E+00 | 5.24E-04 | 3.93E-03 | 0 | 2.62E-04 | 7.19E-02 | 3.72E-03 | 3.8E+01 | 3.8E+01 | -4.9E-01 | -4.74E-01 |
| RWD | kg | 1.68E-02 | 4.5E-06 | 2.91E-03 | 0 | 2.25E-06 | 2.17E-05 | 1.43E-06 | 8.27E-05 | 8.27E-05 | -4.14E-03 | -3.37E-03 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 2.02E-01 | 0 | 0 | 0 | 0 | 6.72E+00 | 7.6E+00 | 0 | 0 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 1.63E-02 | 0 | 0 | 3.59E+00 | 3.28E-02 | 0 | 0 | 0 | 0 |
| EET | MJ | 0 | 0 | 2.93E-02 | 0 | 0 | 6.44E+00 | 6.84E-02 | 0 | 0 | 0 | 0 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

**RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:**
**1 m2 JANSEN VISS façade (45.55 kg/m2)**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3/1 | C3/2 | C4/1 | C4/2 | D/1 | D/2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 2.56E-06 | 1.57E-09 | 1.08E-08 | 0 | 7.85E-10 | 2.28E-09 | 1.83E-10 | 4.94E-08 | 4.94E-08 | -3.84E-07 | -3.88E-07 |
| IR | kBq U235 eq | 2.39E+00 | 6.59E-04 | 4.26E-01 | 0 | 3.3E-04 | 3.44E-03 | 1.71E-04 | 9.19E-03 | 9.19E-03 | -7.3E-01 | -5.98E-01 |
| ETP-fw | CTUe | 2.31E+03 | 2.53E+00 | 5.36E+00 | 0 | 1.27E+00 | 2.09E-01 | 1.49E-02 | 4.16E+00 | 4.16E+00 | -2.52E+01 | -4.07E+01 |
| HTP-c | CTUh | 1.39E-07 | 5.1E-11 | 9.87E-11 | 0 | 2.55E-11 | 1.43E-11 | 4.73E-13 | 6.34E-10 | 6.34E-10 | -4.87E-09 | -5.17E-09 |
| HTP-nc | CTUh | 9.33E-07 | 2.64E-09 | 5.02E-09 | 0 | 1.32E-09 | 5.63E-10 | 1.8E-11 | 7.02E-08 | 7.02E-08 | -1.2E-07 | -1.33E-07 |
| SQP | SQP | 9.28E+01 | 1.25E+00 | 1.61E+00 | 0 | 6.27E-01 | 1.15E-01 | 7.2E-03 | 1.54E+00 | 1.54E+00 | -3.42E+00 | -1.74E+00 |

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'.This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.
Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator. This EPD was created using a software tool.

## References


**Standards**

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**Further References**

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