# **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-20230116-CBA1-EN

Issue date 20.10.2023 Valid to 19.10.2028

# Janisol 2 El30 door width x height: 1230mm x 2180mm Jansen AG









#### **General Information** Jansen AG Janisol 2 El30 door width x height: 1230mm x 2180mm Owner of the declaration Programme holder IBU - Institut Bauen und Umwelt e.V. JANSEN AG Hegelplatz 1 Industriestrasse 34 10117 Berlin 9463 Oberriet Switzerland Germany **Declaration number** Declared product / declared unit EPD-JAN-20230116-CBA1-EN 1 $\mathrm{m}^2$ Jansen Janisol 2 El30 with a grammage of 59.18 kg/m². The actual reference size of the declared single leaf door has dimensions of width x height: 1230 mm x 2180 mm. This declaration is based on the product category rules: Scope: Windows and doors, 01.08.2021 The environmental product declaration refers to a single leaf door type (PCR checked and approved by the SVR) Jansen Janisol 2 El30 in specific dimension width x height. The characteristic values used for the system components Janisol 2 in the LCA are provided by Jansen AG. Issue date The declared product is defined according to the profile series and product 20.10.2023 characteristics. The location of the production site is Oberriet/ Switzerland. Valid to This EPD was created with the help of a semi-automatic LCA-Tool. 19.10.2028 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 Dipl.-Ing. Hans Peters X externally internally (Chairman of Institut Bauen und Umwelt e.V.) Win,

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

Matthias Klingler, (Independent verifier)



# **Product**

#### Product description/Product definition

Jansen Janisol 2 is our fire-rated system for El30 classifications and fulfills very high safety requirements. With 60mm construction depth, it is compatible with our other (non-fire protection) window and door series. Combinations with burglar resistance, bullet resistance or emergency exits in public buildings are visually identical and can be excellently integrated into the building envelope without offsets or visual losses. The performance of the system has been internationally confirmed in numerous fire tests in combination with many different makes of glass.

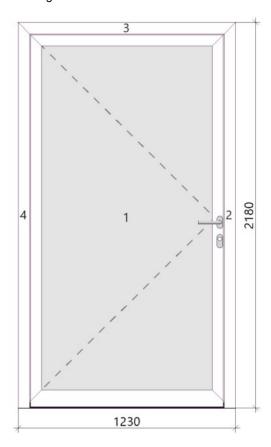
This declaration describes the following element in Janisol 2:

Product: Jansen Janisol 2 El30, single leaf door

Face width: 132.5mm Construction depth: 60mm

Width x height: 1230mm x 2180mm CE marking according to *EN 14351-1* 

For the placing on the market in the 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 14351-1* windows and doors and a CE marking. The respective national regulations apply to the use. With this declaration the following element is declared:



#### **Application**

**DIN EN 12519** 

Außen

The Jansen Janisol 2 El30 door can be integrated for building ventilation and light transmission and it meets all the requirements of an interior or exterior wall without taking over load-bearing functions.

#### **Technical Data**

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

#### **Constructional data**

Name	Value	Unit
Resistance to wind load acc. to EN 12210	4	class
Water tightness acc. to EN 12208	4A	class
Sound insulation class according to EN ISO 10140	Rw 43 db (-2;-5)	-
Heat transfer coefficient acc. to DIN EN ISO 10077-2	1.5	W/(m <sup>2</sup> K)
Air permeability acc. to EN 12207	4	class
Classification of strength requirements acc. to EN 1192	4	class
Mechanical durability acc. to EN 1191 / EN 1603	8	class
Operating forces acc. to EN 13115	2	class
Fire resistance class acc. to DIN EN 1634-1 / EN13501-2	El30	class
Burglar protection class acc. to EN 1627	3	class

Product according to the CPR, based on an EN: Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 14351-1*, doors. Other constructional data are not relevant for this product.

# Base materials/Ancillary materials

JANSEN Janisol 2 El30 door is made of the following materials:

- Glazing approx. 48%
- Steel approx. 34%
- Gypsum board approx. 9%
- Plastics and fillers approx. 6%
- Fittings <2%
- Aluminium < 2%
- Stainless steel < 1%

The percentages relate to the most frequently sold product with an opening of 2.68 m<sup>2</sup>. 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 % 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 windows and doors, the reference service life is 75 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 a 1  $\rm m^2$  of Janisol 2 door element. The actual reference size of the declared door element has dimensions of 1230  $\rm mm$  x 2180  $\rm mm$ .

#### **Declared unit**

Name	Value	Unit
Declared unit	1	m <sup>2</sup>
Grammage	59.18	kg/m <sup>2</sup>
Layer thickness	0.06	m

For inhomogeneous components made of different materials, the conversion to other dimensions with factors leads to deviations compared to the exact calculation. The frame percentage is 30.04% and the ground reference is 0.0738m². 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 and B6.

#### Production (modules A1-A3):

This module considers the provision of all relevant door components (i.e. metal profiles/components, plastic parts/profiles and glazing) and raw materials including their transport to the declared production plant. This considers the manufacturing and assembly of these 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 is 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 affects only the rate of primary materials (no secondary materials).

#### Operational energy use (module B6):

Electric consumption for operating the motorised door is considered. Its impacts are calculated per year.

# 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). For mineral based components (i.e. gypsum board), construction waste processing (shredding) and material recycling as filling material (incl. benefits for substitution of gravel in Module (D/1) is considered, assuming 3% recycling losses are sent to landfill (C4/1).
- Scenario 2 (module C3/2): 100% recycling of plastic system parts (excluding e-waste sent to incineration) and 100% recycling of metal system components.
   Landfill of all materials without heating value (except metals) including glazing (C4/2). For mineral based components (i.e. gypsum board), construction waste processing (shredding) and material recycling as filling material (incl. benefits for substitution of gravel in Module D/2) are considered, assuming 3% recycling losses are sent to landfill (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 and mineral based components (i.e. gypsum board) as filling material (incl. benefits for the substitution of gravel (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<sup>2</sup> Janisol

2 door 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	0.0111	kg C

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

The following technical information is a basis for the declared modules. The values refer to the declared unit of 1  $\rm m^2$  of Jansen Janisol 2 El30 door.

## Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.11	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Gross weight of packed products transported	59.21	kg

### Installation into the building (A5)

Treatment and disposal of packaging material is considered in this module.

The values refer to the declared unit of 1 m<sup>2</sup> of Janisol 2 door.

Name	Value	Unit
Polyethylene (waste packaging to incineration)	0.00239	kg
Cardboard box (waste packaging to incineration)	0.0115	kg
Wood (waste packaging to incineration)	0.0151	kg

According to *SBR 2011* regarding the specific material characteristics of steel windows and doors, the reference service life is 75 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)	75	а

#### Operational energy use (B6)

The value below refers to the declared unit of 1  $\mathrm{m}^2$  of Jansen Janisol 2 El30 door.

Name	Value	Unit
Electricity consumption (per year)	72.39	MJ

# 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). For mineral based components (i.e. gypsum board), construction waste processing (shredding) and material recycling as filling material (incl. benefits for substitution of gravel in Module D/1) are considered, assuming 3% recycling losses are sent to landfill (C4/1).

Scenario 2 considers 100% recycling of plastic system parts (excluding e-waste sent to incineration) and 100% recycling of metal system components (C3/2). Landfill of all materials without heating value (except metals) including glazing (C4/2). For mineral based components (i.e. gypsum board), construction waste processing (shredding) and material recycling as filling material (incl. benefits for substitution of gravel in Module D/2) are considered, assuming 3% recycling losses are sent to landfill (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 (door element)	59.18	kg
Recycling (C3/1)	27.4	kg
Energy recovery (C3/1)	2.74	kg
Landfilling (C4/1)	29.18	kg
EoL scenario 2 (modules C3/2 and C4/2)		
Collected separately (door element)	59.18	kg
Recycling (C3/2)	30.0	kg
Energy recovery (C3/2)	0.14	kg
Landfilling (C4/2)	29.18	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 and mineral based components (i.e. gypsum board) as filling material (incl. benefits for substitution of gravel (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 in relation to 1 m<sup>2</sup> of door type Jansen Janisol 2 El30 (reference dimensions 1230 mm x 2180 mm).

For the operational energy use (B6), electric consumption for operating the motorised door is considered. Its impacts are calculated per year.

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. For mineral based components (i.e. gypsum board), construction waste processing (shredding) and material recycling as filling material is considered.

C3/2 - considers 100% recycling of metal system components (duplicated in D/1 and D/2) and 100% recycling of plastic system parts (excluding e-waste sent to incineration). For mineral based components (i.e. gypsum board), construction waste processing (shredding) and material recycling as filling material is considered.

C4/1 and C4/2 - consider landfill of all materials without heating value (except metals) including glazing and recycling losses from mineral based components (i.e. gypsum board). Modules C4/1 and C4/2 are identical.

D/1 - considers credits and loads from the recycling of the metal components and mineral based components (i.e. gypsum board) as filling material (incl. benefits for the substitution of gravel (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 and mineral based components (i.e. gypsum board) as filling material (incl. benefits for the substitution of gravel (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)

MODUL	IODULE NOT RELEVANT)															
Pro	duct sta	age	_	ruction s stage	Use stage								End of li	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
<b>A1</b>	A2	А3	A4	A5	B1	B2	В3	B4	B5	В6	B7	C1	C2	C3	C4	D
Χ	Χ	Х	X	Х	MND	MND	MNR	MNR	MNR	Х	MND	Χ	Х	Х	Х	X

# RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m2 Jansen Janisol 2 El30 door (59.18 kg/m2)

Unit	A1-A3	A4	A5	B6	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
kg CO <sub>2</sub> eq	9.56E+01	3.57E-01	4.86E-02	8.3E+00	0	1.79E-01	6.56E+00	1.26E-01	4.38E-01	4.38E-01	-2.44E+01	-2.46E+01
kg CO <sub>2</sub> eq	9.53E+01	3.54E-01	8.28E-03	8.29E+00	0	1.77E-01	6.56E+00	1.26E-01	4.35E-01	4.35E-01	-2.43E+01	-2.46E+01
kg CO <sub>2</sub> eq	2.68E-01	1.49E-03	4.03E-02	4.9E-03	0	7.47E-04	3.59E-04	3.04E-05	1.47E-03	1.47E-03	-2.03E-02	-7.64E-03
kg CO <sub>2</sub> eq	2.19E-02	1.98E-03	1.32E-07	5.38E-04	0	9.88E-04	7.65E-05	6.37E-05	8.04E-04	8.04E-04	-1.64E-03	-2.32E-03
kg CFC11 eq	2.58E-10	2.12E-14	4.17E-15	8.19E-11	0	1.06E-14	4.54E-13	6.09E-14	1.02E-12	1.02E-12	-1.9E-11	-1.06E-11
mol H+ eq	3.56E-01	3.37E-04	9.1E-06	1.22E-02	0	1.69E-04	2.32E-03	9.56E-05	3.09E-03	3.09E-03	-6.68E-02	-6.84E-02
kg P eq	1.07E-04	1.06E-06	1.13E-09	3.72E-06	0	5.29E-07	1.84E-07	6.76E-08	7.38E-07	7.38E-07	-8.58E-06	-7.61E-06
kg N eq	1.02E-01	1.05E-04	3.05E-06	3.33E-03	0	5.26E-05	1.04E-03	4.09E-05	7.89E-04	7.89E-04	-1.03E-02	-1.09E-02
mol N eq	1.19E+00	1.26E-03	4.22E-05	3.56E-02	0	6.31E-04	1.26E-02	4.78E-04	8.67E-03	8.67E-03	-9.86E-02	-1.05E-01
kg NMVOC eq	2.87E-01	2.94E-04	8.21E-06	9.4E-03	0	1.47E-04	2.71E-03	1.11E-04	2.4E-03	2.4E-03	-3.77E-02	-4.23E-02
kg Sb eq	7.72E-03	2.96E-08	1.02E-10	9.86E-07	0	1.48E-08	2.55E-08	1.52E-08	4.46E-08	4.46E-08	-9.51E-05	-9.53E-05
MJ	1.15E+03	4.74E+00	1.15E-02	1.76E+02	0	2.37E+00	1.58E+00	3.28E-01	5.7E+00	5.7E+00	-2.61E+02	-3.18E+02
m <sup>3</sup> world eq deprived	4.79E+00	3.18E-03	5.54E-03	6.19E-01	0	1.59E-03	6.18E-01	2.55E-02	4.78E-02	4.78E-02	-4.14E+00	-3.99E+00
	kg CO <sub>2</sub> eq kg CO <sub>2</sub> eq kg CO <sub>2</sub> eq kg CFC11 eq mol H+ eq kg P eq kg N eq mol N eq kg NMVOC eq kg Sb eq MJ m³ world eq	kg CO <sub>2</sub> eq 9.56E+01 kg CO <sub>2</sub> eq 9.53E+01 kg CO <sub>2</sub> eq 2.68E-01 kg CO <sub>2</sub> eq 2.19E-02 kg CFC11 2.58E-10 mol H+ eq 3.56E-01 kg P eq 1.07E-04 kg N eq 1.02E-01 mol N eq 1.19E+00 kg NMVOC eq 2.87E-01 kg Sb eq 7.72E-03 MJ 1.15E+03 m³ world eq 4.79E+00	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03           kg CFC11 eq         2.58E-10         2.12E-14           mol H+ eq         3.56E-01         3.37E-04           kg P eq         1.07E-04         1.06E-06           kg N eq         1.02E-01         1.55E-04           mol N eq         1.19E+00         1.26E-03           kg NMVOC eq         2.87E-01         2.94E-04           kg Sb eq         7.72E-03         2.96E-08           MJ         1.15E+03         4.74E+00           m³ world eq         4.79F+00         3.18E-03	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15           mol H+ eq         3.56E-01         3.37E-04         9.1E-06           kg P eq         1.07E-04         1.06E-06         1.13E-09           kg N eq         1.02E-01         1.05E-04         3.05E-06           mol N eq         1.19E+00         1.26E-03         4.22E-05           kg NMVOC eq         2.87E-01         2.94E-04         8.21E-06           kg Sb eq         7.72E-03         2.96E-08         1.02E-10           MJ         1.15E+03         4.74E+00         1.15E-02           m³ world eq         4.79E+00         3.18E-03         5.54E-03	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02           kg P eq         1.07E-04         1.06E-06         1.13E-09         3.72E-06           kg N eq         1.02E-01         1.05E-04         3.05E-06         3.33E-03           mol N eq         1.19E+00         1.26E-03         4.22E-05         3.56E-02           kg NMVOC eq         2.87E-01         2.94E-04         8.21E-06         9.4E-03           kg Sb eq         7.72E-03         2.96E-08         1.02E-10         9.86E-07           MJ         1.15E+03         4.74E+00         1.15E-02         1.76E+02           m³ world eq         4.79E+00         3.18E-03         5.54E-03         6.19E-01	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0           kg P eq         1.07E-04         1.06E-06         1.13E-09         3.72E-06         0           kg N eq         1.02E-01         1.05E-04         3.05E-06         3.33E-03         0           mol N eq         1.19E+00         1.26E-03         4.22E-05         3.56E-02         0           kg NMVOC eq         2.87E-01         2.94E-04         8.21E-06         9.4E-03         0           kg Sb eq         7.72E-03         2.96E-08         1.02E-10         9.86E-07         0           MJ         1.15E+03         4.74E+00         1.15E-02         1.76E+02         0	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04           kg P eq         1.07E-04         1.06E-06         1.13E-09         3.72E-06         0         5.29E-07           kg N eq         1.02E-01         1.05E-04         3.05E-06         3.33E-03         0         5.26E-05           mol N eq         1.19E+00         1.26E-03         4.22E-05         3.56E-02         0         6.31E-04           kg NMVOC eq         2.87E-01         2.94E-04         8.21E-06         9.4E-03         0         1.47E-04           kg Sb eq         7.72E-03         2.96E-08	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05           kg CFC11         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03           kg P eq         1.07E-04         1.06E-06         1.13E-09         3.72E-06         0         5.29E-07         1.84E-07           kg N eq         1.02E-01         1.05E-04         3.05E-06         3.33E-03         0         5.26E-05         1.04E-03           mol N eq         1.19E+00         1.26E-03         4.22E-05         3.56E-02         0         6.31E-04         1.26E-02           kg Sb eq         7.72E-03<	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00         1.26E-01           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00         1.26E-01           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04         3.04E-05           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05         6.37E-05           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13         6.09E-14           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03         9.56E-05           kg P eq         1.07E-04         1.06E-06         1.13E-09         3.72E-06         0         5.29E-07         1.84E-07         6.76E-08           kg N eq         1.02E-01         1.05E-04         3.05E-06         3.33E-03         0         5.26E-05         1.04E-03         4.09E-05           mol N eq         1.19E+00	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00         1.26E-01         4.38E-01           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00         1.26E-01         4.38E-01           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04         3.04E-05         1.47E-03           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05         6.37E-05         8.04E-04           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13         6.09E-14         1.02E-12           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03         9.56E-05         3.09E-03           kg P eq         1.07E-04         1.05E-06         3.03E-06         0         5.29E-07         1.84E-07         6.76E-08         7.38E-07           kg N eq         1.02E-01         1.05E-04         3.05E-06         3.33E-03         0 <td>kg CO<sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00         1.26E-01         4.38E-01         4.38E-01           kg CO<sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00         1.26E-01         4.35E-01         4.35E-01           kg CO<sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04         3.04E-05         1.47E-03         1.47E-03           kg CO<sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05         6.37E-05         8.04E-04         8.04E-04           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13         6.09E-14         1.02E-12         1.02E-12           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03         9.56E-05         3.09E-03         3.09E-03           kg N eq         1.07E-04         1.05E-04         3.05E-06         3.33E-03         0         5.26E-05         1.04E-03         4.09E-05</td> <td>kg CO<sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00         1.26E-01         4.38E-01         4.38E-01         -2.44E+01           kg CO<sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00         1.26E-01         4.38E-01         4.35E-01         -2.44E+01           kg CO<sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04         3.04E-05         1.47E-03         1.47E-03         -2.03E-02           kg CO<sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05         6.37E-05         8.04E-04         8.04E-04         -1.64E-03           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13         6.09E-14         1.02E-12         1.02E-12         -1.9E-11           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03         9.56E-05         3.09E-03         3.09E-03         -6.68E-02           kg Ne q         1.07E-04         1.05E-04<!--</td--></td>	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00         1.26E-01         4.38E-01         4.38E-01           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00         1.26E-01         4.35E-01         4.35E-01           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04         3.04E-05         1.47E-03         1.47E-03           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05         6.37E-05         8.04E-04         8.04E-04           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13         6.09E-14         1.02E-12         1.02E-12           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03         9.56E-05         3.09E-03         3.09E-03           kg N eq         1.07E-04         1.05E-04         3.05E-06         3.33E-03         0         5.26E-05         1.04E-03         4.09E-05	kg CO <sub>2</sub> eq         9.56E+01         3.57E-01         4.86E-02         8.3E+00         0         1.79E-01         6.56E+00         1.26E-01         4.38E-01         4.38E-01         -2.44E+01           kg CO <sub>2</sub> eq         9.53E+01         3.54E-01         8.28E-03         8.29E+00         0         1.77E-01         6.56E+00         1.26E-01         4.38E-01         4.35E-01         -2.44E+01           kg CO <sub>2</sub> eq         2.68E-01         1.49E-03         4.03E-02         4.9E-03         0         7.47E-04         3.59E-04         3.04E-05         1.47E-03         1.47E-03         -2.03E-02           kg CO <sub>2</sub> eq         2.19E-02         1.98E-03         1.32E-07         5.38E-04         0         9.88E-04         7.65E-05         6.37E-05         8.04E-04         8.04E-04         -1.64E-03           kg CFC11 eq         2.58E-10         2.12E-14         4.17E-15         8.19E-11         0         1.06E-14         4.54E-13         6.09E-14         1.02E-12         1.02E-12         -1.9E-11           mol H+ eq         3.56E-01         3.37E-04         9.1E-06         1.22E-02         0         1.69E-04         2.32E-03         9.56E-05         3.09E-03         3.09E-03         -6.68E-02           kg Ne q         1.07E-04         1.05E-04 </td

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 Janisol 2 El30 door (59.18 kg/m2)

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
PERE	MJ	2.07E+02	2.69E-01	4.02E-01	2.54E+01	0	1.35E-01	2.9E-01	4.54E-02	8.56E-01	8.56E-01	-3.72E+01	-2.93E+01
PERM	MJ	4E-01	0	-4E-01	0	0	0	0	0	0	0	0	0
PERT	MJ	2.08E+02	2.69E-01	2.63E-03	2.54E+01	0	1.35E-01	2.9E-01	4.54E-02	8.56E-01	8.56E-01	-3.72E+01	-2.93E+01



PENRE	MJ	1.06E+03	4.75E+00	1.22E-01	1.76E+02	0	2.37E+00	8.54E+01	8.41E+01	5.71E+00	5.71E+00	-2.61E+02	-3.19E+02
PENRM	MJ	8.39E+01	0	-1.1E-01	0	0	0	-8.38E+01	-8.38E+01	0	0	0	0
PENRT	MJ	1.15E+03	4.75E+00	1.15E-02	1.76E+02	0	2.37E+00	1.59E+00	3.29E-01	5.71E+00	5.71E+00	-2.61E+02	-3.19E+02
SM	kg	1.28E+01	0	0	0	0	0	0	0	0	0	1.02E+01	1.15E+01
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0	0
FW	m <sup>3</sup>	3.5E-01	3.05E-04	1.3E-04	3.85E-02	0	1.52E-04	1.45E-02	5.91E-04	1.45E-03	1.45E-03	-1.66E-01	-1.71E-01

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = 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; 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 Janisol 2 El30 door (59.18 kg/m2)

Parameter	Unit	A1-A3	A4	A5	B6	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
HWD	kg	1.26E-07	2.27E-11	1.12E-12	1.26E-08	0	1.14E-11	1.62E-10	8.27E-12	2.93E-10	2.93E-10	4E-09	1.02E-09
NHWD	kg	4.42E+00	6.81E-04	7.35E-04	3.74E-02	0	3.4E-04	7.93E-02	1.5E-02	2.92E+01	2.92E+01	3.77E-01	4.38E-01
RWD	kg	3.38E-02	5.85E-06	6.55E-07	2.92E-02	0	2.92E-06	6.78E-05	8.71E-06	6.36E-05	6.36E-05	-7.82E-03	-4.59E-03
CRU	kg	0	0	0	0	0	0	0	0	0	0	0	0
MFR	kg	6.07E-01	0	0	0	0	0	2.74E+01	3E+01	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0	0
EEE	MJ	0	0	5.55E-02	0	0	0	1.13E+01	1.28E-01	0	0	0	0
EET	MJ	0	0	9.94E-02	0	0	0	2.03E+01	2.66E-01	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 Janisol 2 El30 door (59.18 kg/m2)

This dansen danisor a block door (do. to kg/mz)													
Parameter	Unit	A1-A3	A4	A5	В6	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
PM	Disease incidence	3.58E-06	2.04E-09	4.78E-11	1.09E-07	0	1.02E-09	9.51E-09	1.96E-09	3.8E-08	3.8E-08	-8.06E-07	-8.12E-07
IR	kBq U235 eq	5.32E+00	8.57E-04	1.07E-04	4.28E+00	0	4.29E-04	1.07E-02	1.19E-03	7.06E-03	7.06E-03	-1.15E+00	-5.61E-01
ETP-fw	CTUe	1.82E+03	3.29E+00	5.27E-03	5.39E+01	0	1.64E+00	7.21E-01	2.25E-01	3.2E+00	3.2E+00	-4.28E+01	-8.25E+01
HTP-c	CTUh	8.99E-08	6.63E-11	3.46E-13	9.91E-10	0	3.31E-11	4.59E-11	5.56E-12	4.88E-10	4.88E-10	-9.96E-09	-1.1E-08
HTP-nc	CTUh	3.44E-06	3.43E-09	1.3E-11	5.04E-08	0	1.71E-09	1.72E-09	2.73E-10	5.4E-08	5.4E-08	-3.14E-07	-3.86E-07
SQP	SQP	2.07E+02	1.63E+00	3.32E-03	1.61E+01	0	8.15E-01	3.85E-01	8.4E-02	1.19E+00	1.19E+00	-8.51E+00	-5.2E+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**

#### EN 14351-1

EN 14351-1:2016, Windows and doors - Product standard, performance characteristics - Part 1: windows and external pedestrian doorsets

### EN 16034

EN 16034:2014, pedestrian doorsets, industrial, commercial, garage doors and openable windows - Product standard, performance characteristics - Fire resistance and/or smoke control characteristics

#### EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

#### ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

#### EN 12210

EN 12210: 2016 Windows and doors - Resistance to wind loads - classification

#### EN 12208

DIN EN 12208 Windows and doors - Watertightness - Classification

#### **EN ISO 10140**

EN ISO 10140-1: 2021 Acoustics - Laboratory measurement of sound insulation of building elements - Part 1: Application rulesfor specific products



#### **DIN EN ISO 10077-2**

DIN EN ISO 10077-2: 2017 Thermal performance of windows, doors and shutters - Calculation of thermal transmittance - Part2: Numerical method for frames

#### EN 12207

EN 12207: 2016 Windows and doors - Air permeability - Classification

#### EN 1192

EN 1192: 2000 Doors - Classification of strength requirements

#### EN 1191

EN 1191: 2012 Windows and doors - Resistance to repeated opening and closing - Test method

#### EN 1603

DIN EN 1603:2013-05 Thermal insulating products for building applications - Determination of dimensional stability under constant normal laboratory conditions

#### EN 13115

EN 13115: 2020 Windows - Classification of mechanical properties - Racking, torsion and operating forces.

#### **DIN EN 1634-1**

DIN EN 1634-1 Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware - Part 1: Fire resistance test for door and shutter assemblies and openable windows

#### EN 13501-2

EN 13501-2: 2021 Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance and/or smoke control tests, excluding ventilation services

# EN 1627

DIN EN 1627:2011-09 Pedestrian doorsets, windows, curtain walling, grilles and shutters - Burglar resistance - Requirements and classification

# **ECHA** candidate list

ECHA candidate list [BSJ1] - Substances of Very High Concern– SVHC (date 17.01.2023)
Candidate List of substances of very high concern for

Authorisation (published in accordance with Article 59(10) ofthe REACH Regulation)REGULATION (EU) No 528/2012REGULATION (EU) No 528/2012 OF THE EUROPEANPARLIAMENT AND OF THE COUNCIL, of 22 May 2012, concerning the making available on the market and use of biocidal products

#### **SBR 2011**

SBR life cycle guide [SBR 2011]

#### **Further References**

# Sphera LCA FE Software (GaBi ts)

GaBi ts dataset documentation for the software-system and databases, LBP, University of Stuttgart and thinkstep, Leinfelden-Echterdingen, 2023 (<a href="https://www.gabi-software.com/support/gabi">https://www.gabi-software.com/support/gabi</a>)

#### Sphera LCA Calculator Software (GaBi Envision)

GaBi Envision 5.0 Sphera Solution GmbH, the LCA, EPD and Ecodesign tool, <a href="http://www.gabi-software.com/international/software/gabi-envision/">http://www.gabi-software.com/international/software/gabi-envision/</a>, 2022

#### Jansen LCA tool

LCA tool for façades, windows & door LCA-Tool No.: IBU-JAN-202301-LT1-EN Developed by Sphera Solutions GmbH

#### **IBU 2021**

Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021

#### www.ibu-epd.com

### **PCR Part A**

PCR - Part A: Calculation rules for the Life Cycle Assessment and Requirements on the Background Report, version 1.3, Institut Bauen und Umwelt e.V., 08-2021.

### PCR Part B

PCR – Part B: Requirements on the EPD for Windows and doors, version 1.6, Institut Bauen und Umwelt e.V., 2022





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