Environmental Product Declaration

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

NATURE closing system

from

KLEIN®

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): Construction Products, PCR 2019:14, 2020-09-14 (version 1.1) and C-PCR-006 (TO PCR 2019:14) Wood and Wood-based products for use in construction ((based on EN 16485:2014) (version 2019-12-20).
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Damien PRUNEL from LCIE Bureau Veritas Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☐ No

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

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

Company information

Owner of the EPD: KLEIN Ibérica S.A.U.

Contact: Noel Almagro, Product Manager (productmg@klein.es)

Description of the organisation:

At KLEIN®, we feel proud to be a family company with an international scope. Without ever losing sight of our Austrian origins, we have been able to maintain an upward trajectory that has taken us from a small metallurgy workshop, to implementing the most innovative production systems in our modern Klein building in Barcelona.

We have achieved all this thanks to the shared efforts of all the people who, since 1931, have contributed to building a brand that is much more than the products it manufactures. A brand that pursues excellence through the quality and reliability of its products and services. It is Klein's teamwork with installers, architects and interior designers that has increased the company's standing so much.

Over more than 89 years, we have gone from curtain rails—starting with a very simplest one, then innovating to develop an extensible model—to the sophistication of our most modern telescopic and sliding glass system. Innovation, service and commitment have been the driving forces that have kept us motivated, and allow us to continue improving day after day.

From day one, our goal has always been to achieve excellence. Today, we want our systems to be perfect, both in their use and installation, an invisible part of the space into which they are integrated.

We are experts in the design and manufacturing of sliding and folding interior architectural systems with high added value. Our mission is to guarantee excellence for professionals in the fields of architecture and construction by providing them with inspiring applications and comprehensive service.

We strive to design and create transformable spaces, powerful rooms capable of adapting to the lives and feelings of their users.

We carry out all design testing, modelling, manufacturing and post-production at our factory in Barcelona, as well as all assembly. We are proud of a job well done and achieve this important feat by focusing on invisible details that truly make a difference.

¡IMMER BESSER!

Product-related or management system-related certifications:

Our expertise is backed by the most stringent international design certifications, a product of 89 years of experience and constant innovation. KLEIN® systems are tested to over 100,000 cycles. We offer a 5-year warranty for our systems and braking mechanisms.

Certificates and Warranties

Name and location of production site(s): KLEIN Building, Polígono industrial Can Cuyás
08110 Montcada i Reixac (Barcelona, Spain).

Product information

Product name: NATURE

Product identification: NATURE, a system of glass partitions with wooden profiles.

Product description:

NATURE is a glass partition system that combines fixed panels and sliding doors with wooden profiles. It allows to create and divide interior spaces using materials that take care of the environment and the users who occupy them.

The wood of all tracks is European Oak and comes from sustainably managed forests regarding PEFC and FSC certifications. The laminated timber technology allows great material savings, and dimensional stability. The water-based and low-emission varnish covers this noble material and ensures great aesthetics.

NATURE follows the same intuitive assembly processes as other partition systems since wooden tracks are standard, making it accessible to all professionals.

In addition, it offers a wide variety of designs thanks to the combinations of materials and vertical profiles.

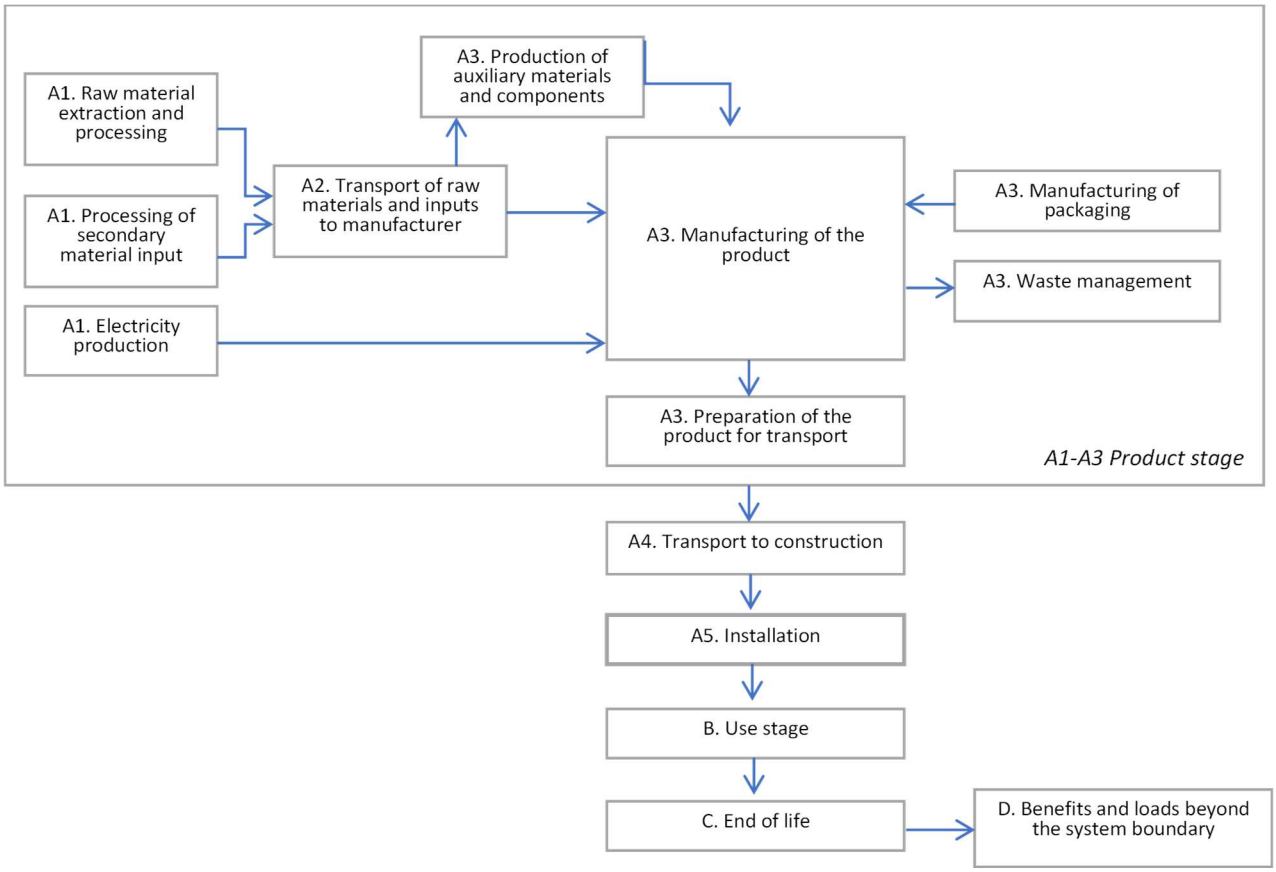
- Door weight up to 100 kg.
- Height adjustment.
- Soft Closing System (KSC).
- Simplicity of assembly.
- Fixed and mobile glass width of 12mm.
- Individual tracks for configurations with or without frames.
- Non-threaded components.
- Available with or without varnish.
- KLEIN warranty 5 years.

UN CPC code: 42120 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium.

LCA information

Functional unit / declared unit: The declared unit is 1 kit of NATURE from KLEIN, including 4 m of upper and bottom profiles for an interior glass partition with a set of accessories for a sliding glass door. The total weight (excluding packaging) of the NATURE 4m kit is 30.7 kg in its framed configuration and 18.8 kg in its frameless configuration.
Reference service life: 50 years (tested for more than 100.000 cycles according to EN1527 standard).
Time representativeness: Specific data used for the LCA calculations refer to year 2019.
Database(s) and LCA software used: Ecoinvent v3.5 (allocation, cut-off by classification) database and SimaPro 9 software have been used for the LCA calculations.
Description of system boundaries: the EPD covers cradle to gate with module C1–C4, module D and with optional modules (A4-A5, B1-B7).

System diagram:



More information about the product is available at www.klein-europe.com

The underlying LCA study has been carried out by Marcel Gómez Consultoría Ambiental (info@marcelgomez.com). The complete bill of materials of both profiles and accessories (including packaging) have been collected, as well as the electricity and water consumption and waste generated for producing part of the components at KLEIN.
The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process.

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

	Product stage		Construction process stage			Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	GLO	GLO	ES	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO
Specific data	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	One product declared (two configurations)					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Manufactured in one site					-	-	-	-	-	-	-	-	-	-	-	-

A1-A3 Product stage:

- **A1 Supply of raw materials:** extraction and processing of raw materials and energy that is produced prior to the manufacturing process. The main raw materials used as indication are: laminated wood and aluminium.

- **A2 Transport of raw materials:** transport of the different raw materials from the raw materials supplier to the factory where the final product is assembled. The specific distance and type of truck used in each transport has been considered.

- **A3 Manufacture:** consumption of energy, water and packaging materials used during the manufacturing process of the product. The transport and management of waste generated at the production site is also included.

A4 Transport

SCENARIO INFORMATION	VALUE/DESCRIPTION
Vehicle type used for transport	Long distance truck Transoceanic ship
Vehicle load capacity	24 tones (truck)
Fuel type and consumption	51.62 liters of diesel per 100 km (truck)
Distance to construction site	446 km truck 638 km ship
Capacity utilisation (including empty returns)	49.9% as assumed in Ecoinvent
Bulk density of transported products	0.75 kg/dm^3 for profiles 0.5 kg/ dm^3 for accessories
Volume capacity utilisation factor	< 1

A5 Construction/Instalation

SCENARIO INFORMATION	VALUE/DESCRIPTION
Ancillary materials for installation	No needed
Water use	No needed
Other resource use	Electricity consumption to make 44 holes for fixing the system
Quantitative description of the energy type and consumption during the preparation and installation process	350 W x 16/60 h = 91.8 Wh of electricity mix
Direct emissions to ambient air, soil and water	None
Waste materials on the building site, generated by the product's installation	5.83 kg of recyclable packaging waste
Output materials as result of waste processing at the construction site	Recycling

B Use stage: the product does not require any use (B1), maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), operational energy use (B6) or operational water use (B7) during its Reference Service Life.

C End of life stage: recycling rates for post-consumer waste in Europe from the document "Annex_C_Transition_CFF" have been considered (95% for aluminum building sheets). Small metal parts and plastic elements are considered non recyclable as its recovery will require manual dissambly. Based on Eurostat data, collection and valorisation rates have been calculated for wood (43.5% recycling, 41.8% energy recovery, 0.9% landfill and 13.8% incineration).

SCENARIO INFORMATION	VALUE/DESCRIPTION
Collection process specified by type	Frame configuration: 30.7 kg of product collected mixed with construction waste Frameless configuration: 18.8 kg of product collected mixed with construction waste
Recovery system specified by type	Frame configuration: 0.98 kg of aluminium recycled, 12.5 kg of wood recycled and 12 kg of wood energy-recovered Frameless configuration: 0.96 kg of aluminium recycled, 7.3 kg of wood recycled and 7 kg of wood energy-recovered
Disposal specified by type	Frame configuration: 1.22 kg of mixed materials to landfill and 4 kg of wood to incineration Frameless configuration: 1.1 kg of mixed materials and 2.3 kg of wood to incineration
Assumptions for scenario development (e.g. transport)	Lorry of the size class 16-32 metric tons gross; Euro VI emissions class Average load: 5.79 tones Diesel Fuel consumption: 25.5 l/100 Km Distance: 50 km

Content information

4 m profiles	Weight, kg (Framed)	Weight, kg (Frameless)	Post-consumer material, weight-%	Renewable material, weight-%
Wood	28.755	16.830	0	100
Aluminium	1.035	1.010	15	0
Subtotal (4 m profiles)	29.79	17.84	-	-
Accessories	**Weight, kg (Framed)**	**Weight, kg (Frameless)**	**Post-consumer material, weight-%**	**Renewable material, weight-%**
Aluminum	0.406	0.411	15	0
Steel	0.243	0.243	0	0
Polyoxymethylene (POM)	0.096	0.100	0	0
Other materials	0.162	0.162	0	0
Subtotal (accessories)	0.908	0.917	-	-
TOTAL (profiles and accessories)	**30.698**	**18.757**	-	-
Packaging materials	**Weight, kg (Framed)**	**Weight, kg (Frameless)**	**Weight-% (versus the product)**	
Cardboard and paper	5.812	5.812	15.91% - 23.64%	
Plastics	0.018	0.019	0.05% - 0.08%	
TOTAL (packaging)	5.740	5.740	15.96% – 23.71%	

During the life cycle of the product no hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has been used in a percentage higher than 0.1% of the weight of the product.

Environmental Information – NATURE, FRAMED

Potential environmental impact – mandatory indicators according to EN 15804

Results per declared unit (1 kit)

Indicator	Unit	Tot.A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	5.28E+01	5.38E+00	3.92E-01	0	0	0	0	0	0	0	0	1.90E+00	1.90E-03	4.19E-02	-1.34E+01
GWP-biogenic	kg CO_2 eq.	3.97E-01	1.28E-03	1.08E-04	0	0	0	0	0	0	0	0	1.47E-04	3.39E-06	1.80E-04	-1.34E-02
GWP-luluc	kg CO_2 eq.	2.82E-01	1.61E-03	2.96E-04	0	0	0	0	0	0	0	0	3.96E-05	3.12E-06	2.66E-06	-5.37E-02
GWP-total	kg CO_2 eq.	5.35E+01	5.38E+00	3.93E-01	0	0	0	0	0	0	0	0	1.90E+00	1.91E-03	4.21E-02	-1.34E+01
ODP	kg CFC 11 eq.	5.10E-06	1.23E-06	8.73E-08	0	0	0	0	0	0	0	0	4.42E-07	8.47E-11	3.18E-09	-5.75E-07
AP	mol H^+ eq.	3.34E-01	2.36E-02	2.59E-03	0	0	0	0	0	0	0	0	1.21E-02	9.81E-06	5.73E-04	-8.39E-02
EP-freshwater	kg PO_4^{3-} eq.	2.31E-03	4.95E-05	1.85E-06	0	0	0	0	0	0	0	0	1.80E-06	9.92E-08	2.18E-07	-3.33E-04
EP-freshwater	kg P eq	2.35E-03	4.97E-05	1.85E-06	0	0	0	0	0	0	0	0	1.80E-06	9.92E-08	2.18E-07	-3.33E-04
EP-marine	kg N eq.	5.62E-02	7.15E-03	9.53E-04	0	0	0	0	0	0	0	0	4.81E-03	1.83E-06	2.88E-04	-1.27E-02
EP-terrestrial	mol N eq.	6.32E-01	7.94E-02	1.05E-02	0	0	0	0	0	0	0	0	5.28E-02	2.09E-05	3.06E-03	-1.42E-01
POCP	kg NMVOC eq.	2.01E-01	2.30E-02	3.66E-03	0	0	0	0	0	0	0	0	1.86E-02	5.48E-06	7.29E-04	-4.20E-02
ADP-minerals&metals*	kg Sb eq.	2.59E-04	7.69E-06	1.12E-09	0	0	0	0	0	0	0	0	3.61E-09	1.51E-11	5.89E-09	3.22E-04
ADP-fossil*	MJ	7.88E+02	7.94E+01	5.84E+00	0	0	0	0	0	0	0	0	2.72E+01	2.33E-02	3.41E-01	-1.50E+02
WDP	m^3	3.09E+01	4.62E-01	3.89E-02	0	0	0	0	0	0	0	0	1.13E-01	2.76E-04	-4.38E-02	-1.69E+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 declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	5.31E+01	5.38E+00	3.93E-01	0	0	0	0	0	0	0	0	1.90E+00	1.91E-03	4.19E-02	-1.34E+01

Additional voluntary indicators no declared.

Use of resources

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.94E+03	6.30E-01	1.96E-01	0	0	0	0	0	0	0	0	4.83E-02	2.04E-03	2.71E-03	-7.86E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.94E+03	6.30E-01	1.96E-01	0	0	0	0	0	0	0	0	4.83E-02	2.04E-03	2.71E-03	-7.86E+01
PENRE	MJ	8.32E+02	8.43E+01	6.18E+00	0	0	0	0	0	0	0	0	2.88E+01	2.48E-02	3.75E-01	-1.59E+02
PENRM	MJ.	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.32E+02	8.43E+01	6.18E+00	0	0	0	0	0	0	0	0	2.88E+01	2.48E-02	3.75E-01	-1.59E+02
SM	kg	5.19E-01	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	7.97E-01	1.24E-02	8.11E-04	0	0	0	0	0	0	0	0	2.74E-03	1.06E-05	-1.02E-03	-5.78E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

[1] 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 equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste production and output flows

Waste production

Results per declared unit (1 kit)															
Indicator	**Unit**	**Tot.A1 -A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.58E-03	2.30E-03	3.83E-05	0	0	0	0	0	0	0	0	4.94E-06	3.21E-08	4.58E-07	7.23E-03
Non-hazardous waste disposed	kg	2.00E+00	2.11E-01	1.79E+00	0	0	0	0	0	0	0	0	4.83E-06	8.50E-10	2.05E-08	-4.39E-06
Radioactive waste disposed	kg	4.18E-03	3.81E-03	5.53E-04	0	0	0	0	0	0	0	0	1.96E-04	6.22E-08	4.34E-07	-4.24E-04

Output flows

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1 -A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	5.87E+00	0	5.83E+00	0	0	0	0	0	0	0	0	0	1.35E+01	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	1.20E+01	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.12E+01
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.21E+01

Information on biogenic carbon content

Results per declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	14.38
Biogenic carbon content in packaging	kg C	2.58

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

Environmental Information – NATURE, FRAMELESS

Potential environmental impact – mandatory indicators according to EN 15804:2012+A2:2019

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	4.21E+01	3.60E+00	3.92E-01	0	0	0	0	0	0	0	0	1.16E+00	1.16E+00	2.46E-02	-1.17E+01
GWP-biogenic	kg CO_2 eq.	3.72E-01	8.54E-04	1.08E-04	0	0	0	0	0	0	0	0	8.96E-05	8.96E-05	1.37E-04	-1.21E-02
GWP-luluc	kg CO_2 eq.	2.09E-01	1.08E-03	2.96E-04	0	0	0	0	0	0	0	0	2.42E-05	2.42E-05	1.60E-06	-4.37E-02
GWP-total	kg CO_2 eq.	4.27E+01	3.60E+00	3.93E-01	0	0	0	0	0	0	0	0	1.16E+00	1.16E+00	2.47E-02	-1.18E+01
ODP	kg CFC 11 eq.	3.70E-06	8.24E-07	8.73E-08	0	0	0	0	0	0	0	0	2.70E-07	2.70E-07	1.87E-09	-4.23E-07
AP	mol H^+ eq.	2.70E-01	1.58E-02	2.59E-03	0	0	0	0	0	0	0	0	7.40E-03	7.40E-03	3.36E-04	-7.37E-02
EP-freshwater	kg PO_4^{3-} eq.	1.98E-03	3.32E-05	1.85E-06	0	0	0	0	0	0	0	0	1.10E-06	1.10E-06	1.29E-07	-2.87E-04
EP-freshwater	kg P eq	2.01E-03	3.32E-05	1.85E-06	0	0	0	0	0	0	0	0	1.10E-06	1.10E-06	1.29E-07	-2.87E-04
EP-marine	kg N eq.	4.50E-02	4.79E-03	9.53E-04	0	0	0	0	0	0	0	0	2.94E-03	2.94E-03	1.69E-04	-1.12E-02
EP-terrestrial	mol N eq.	5.12E-01	5.31E-02	1.05E-02	0	0	0	0	0	0	0	0	3.23E-02	3.23E-02	1.79E-03	-1.23E-01
POCP	kg NMVOC eq.	1.59E-01	1.54E-02	3.66E-03	0	0	0	0	0	0	0	0	1.14E-02	1.14E-02	4.27E-04	-3.66E-02
ADP-minerals&metals*	kg Sb eq.	2.55E-04	5.14E-06	1.12E-09	0	0	0	0	0	0	0	0	2.21E-09	2.21E-09	3.45E-09	3.15E-04
ADP-fossil*	MJ	6.01E+02	5.31E+01	5.84E+00	0	0	0	0	0	0	0	0	1.66E+01	1.66E+01	2.00E-01	-1.22E+02
WDP	m^3	2.64E+01	3.09E-01	3.89E-02	0	0	0	0	0	0	0	0	6.88E-02	6.88E-02	-2.57E-02	-1.20E+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 declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[2]	kg CO_2 eq.	4.23E+01	3.60E+00	3.93E-01	0	0	0	0	0	0	0	0	1.16E+00	1.16E+00	2.46E-02	-1.18E+01

Additional voluntary indicators no declared.

Use of resources

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.30E+03	4.22E-01	1.96E-01	0	0	0	0	0	0	0	0	2.95E-02	2.95E-02	1.62E-03	-4.99E+01
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.30E+03	4.22E-01	1.96E-01	0	0	0	0	0	0	0	0	2.95E-02	2.95E-02	1.62E-03	-4.99E+01
PENRE	MJ	6.36E+02	5.64E+01	6.18E+00	0	0	0	0	0	0	0	0	1.76E+01	1.76E+01	2.20E-01	-1.29E+02
PENRM	MJ.	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	6.36E+02	5.64E+01	6.18E+00	0	0	0	0	0	0	0	0	1.76E+01	1.76E+01	2.20E-01	-1.29E+02
SM	kg	5.15E-01	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	6.99E-01	8.33E-03	8.11E-04	0	0	0	0	0	0	0	0	1.68E-03	1.68E-03	-5.98E-04	-4.93E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

[2] 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 equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste production and output flows

Waste production

Results per declared unit (1 kit)															
Indicator	**Unit**	**Tot.A1 -A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	9.36E-03	2.22E-03	2.56E-05	0	0	0	0	0	0	0	0	3.02E-06	3.02E-06	2.69E-07	7.10E-03
Non-hazardous waste disposed	kg	1.33E+00	1.32E-01	1.20E+00	0	0	0	0	0	0	0	0	2.95E-06	2.95E-06	1.20E-08	-3.45E-06
Radioactive waste disposed	kg	3.12E-03	2.75E-03	3.70E-04	0	0	0	0	0	0	0	0	1.20E-04	1.20E-04	2.55E-07	-2.82E-04

Output flows

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1 -A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	5.87E+00	0	5.83E+00	0	0	0	0	0	0	0	0	0	8.29E+00	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.24E+01
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.46E+01

Information on biogenic carbon content

Results per declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	16.83
Biogenic carbon content in packaging	kg C	5.73

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

Information related to sector EPD

This is an individual EPD®.

Differences versus previous versions

This is the first version of the EPD®.

Additional information

Instructions for a proper installation of the product are available in www.klein-europe.com.

The product has been tested according to EN 1527 for more than 100.000 cycles of use.

Metal (aluminium) and wood parts can be recycled at the end of life of the product.

References

General Programme Instructions of the International EPD® System. Version 3.01.
PCR 2019:14. Construction Products. 2020-09-14 (version 1.1)
C-PCR-006 (TO PCR 2019:14) Wood and Wood-based products for use in construction (based on EN 16485:2014). Version: 2019-12-20.
CEN (2019): EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products.

EPD®

www.environdec.com

Environmental Product Declaration

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

ROLLGLASS+ 100

from

KLEIN®

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-02937
Publication date:	2021-02-10
Valid until:	2026-02-09

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

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): Construction Products, PCR 2019:14, 2020-09-14 (version 1.1).
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: Damien PRUNEL from LCIE Bureau Veritas Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

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

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

Company information

Owner of the EPD: KLEIN Ibérica S.A.U.

Contact: Noel Almagro, Product Manager (productmg@klein.es)

Description of the organisation:

At KLEIN®, we feel proud to be a family company with an international scope. Without ever losing sight of our Austrian origins, we have been able to maintain an upward trajectory that has taken us from a small metallurgy workshop, to implementing the most innovative production systems in our modern Klein building in Barcelona.

We have achieved all this thanks to the shared efforts of all the people who, since 1931, have contributed to building a brand that is much more than the products it manufactures. A brand that pursues excellence through the quality and reliability of its products and services. It is Klein's teamwork with installers, architects and interior designers that has increased the company's standing so much.

Over more than 89 years, we have gone from curtain rails—starting with a very simplest one, then innovating to develop an extensible model—to the sophistication of our most modern telescopic and sliding glass system. Innovation, service and commitment have been the driving forces that have kept us motivated, and allow us to continue improving day after day.

From day one, our goal has always been to achieve excellence. Today, we want our systems to be perfect, both in their use and installation, an invisible part of the space into which they are integrated.

We are experts in the design and manufacturing of sliding and folding interior architectural systems with high added value. Our mission is to guarantee excellence for professionals in the fields of architecture and construction by providing them with inspiring applications and comprehensive service.

We strive to design and create transformable spaces, powerful rooms capable of adapting to the lives and feelings of their users.

We carry out all design testing, modelling, manufacturing and post-production at our factory in Barcelona, as well as all assembly. We are proud of a job well done and achieve this important feat by focusing on invisible details that truly make a difference.

¡IMMER BESSER!

Product-related or management system-related certifications:

Our expertise is backed by the most stringent international design certifications, a product of 89 years of experience and constant innovation. KLEIN® systems are tested to over 100,000 cycles. We offer a 5-year warranty for our systems and braking mechanisms.

Certificates and Warranties

Name and location of production site(s): KLEIN Building, Polígono industrial Can Cuyás 08110 Montcada i Reixac (Barcelona, Spain).

Product information

Product name: ROLLGLASS+ 100

Product identification: closing system for panes starting at 80 cm width.

Product description:
Rollglass+ 100 creates a glass front that combines fixed and mobile glass panels on a single track. It can be hidden in a drop ceiling for a completely minimalist effect. It has a light, elegant design. Versatile and flexible, it allows for various combinations, down to the smallest detail.
Rollglass+ 100 is formed by profiles and a set of accessories. Profiles are available in different lengths (2, 3, 4 and 6 m).

Relevant characteristics of the product are:

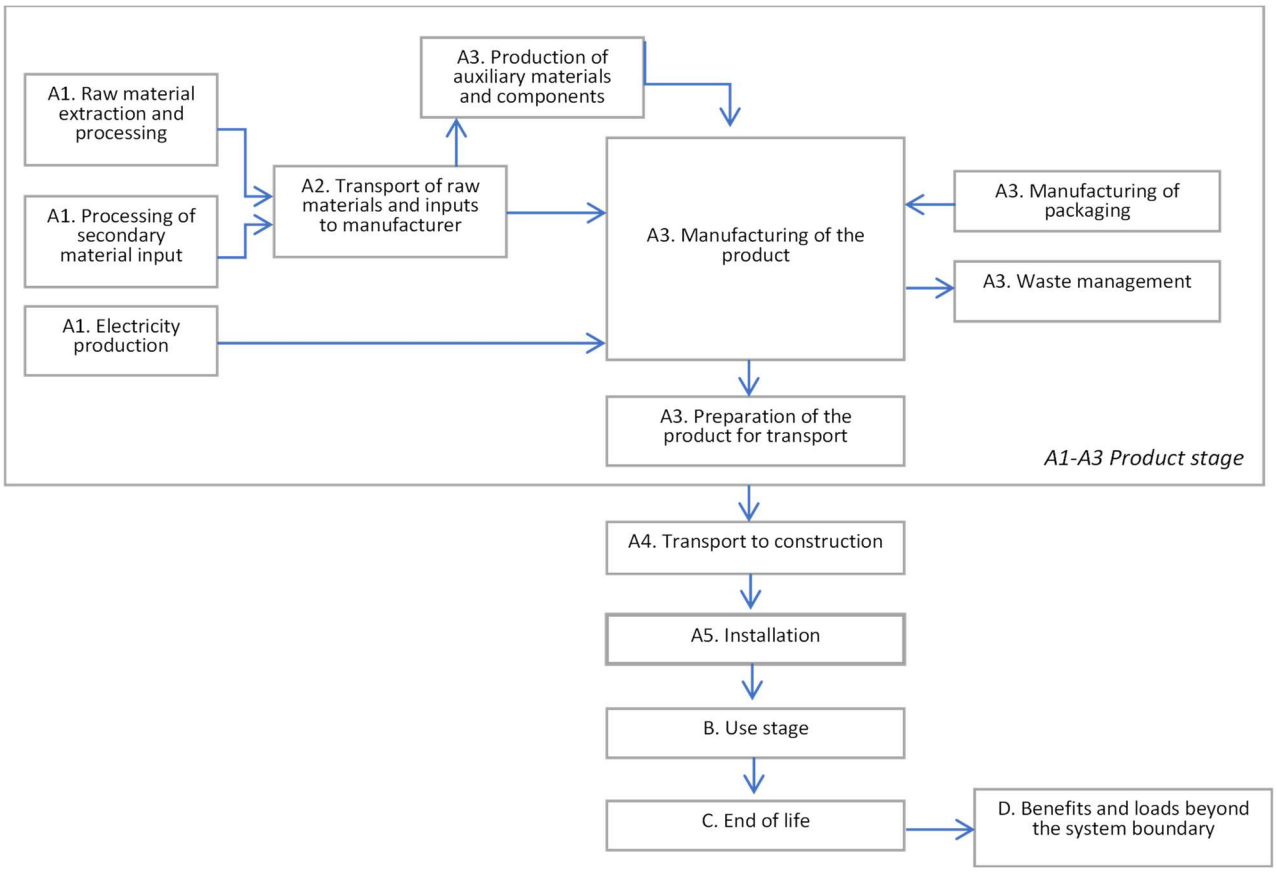
- Installation on ceiling or in drop ceiling.
- Special profile with hidden drop ceiling wings for maximum architectural integration.
- A new clamp which centralizes all features of the system: height adjustment, activation of the braking mechanism, and anti-derailing device.
- Fast and intuitive assembly for efficient implementation:
  - Direct access to the clamp.
  - System embedded in drop ceiling: two-phase assembly for easy installation.
  - Bottom profile in a double “L” shape for easy frontal insertion of the glass.
- Clean, innovative design.
- Absence of floor tracks, leaving a clear passage area.
- Available with or without bottom profile for the fixed glass.
- 10 or 12 mm glass, weighing up to 100 kg per sliding pane.
- Height adjustment of +/- 3 mm.
- Silver, Black and Bronze anodized aluminum profiles.
- Closing options: KSC (Klein Soft Closing) and KBS+ (Klein Brake System).
- Silent and effortless sliding.
- Smooth closing guaranteed, with no slamming.
- Five-year KLEIN® warranty.

UN CPC code: 42120 Doors, windows and their frames and thresholds for doors, of iron, steel or aluminium.

LCA information

Functional unit / declared unit: The declared unit is 1 kit of ROLLGLASS+ 100 from KLEIN, including 4 m of upper and bottom profiles for an interior glass partition with a set of accessories for a sliding glass door. The total weight of this 4 m kit is 16.57 kg, excluding packaging.
Reference service life: 50 years (tested for more than 100.000 cycles according to EN1527 standard).
Time representativeness: Specific data used for the LCA calculations refer to year 2019.
Database(s) and LCA software used: Ecoinvent v3.5 (allocation, cut-off by classification) database and SimaPro 9 software have been used for the LCA calculations.
Description of system boundaries: the EPD covers cradle to gate with module C1–C4, module D and with optional modules (A4-A5, B1-B7).

System diagram:



More information about the product is available at www.klein-europe.com

The underlying LCA study has been carried out by Marcel Gómez Consultoría Ambiental (info@marcelgomez.com). The complete bill of materials of both profiles and accessories (including packaging) have been collected, as well as the electricity and water consumption and waste generated for producing part of the components at KLEIN.
The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process.

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

	Product stage		Construction process stage			Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Geography	GLO	GLO	ES	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO	GLO
Specific data	>90% GWP-GHG					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	One product declared					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Manufactured in one site					-	-	-	-	-	-	-	-	-	-	-	-

A1-A3 Product stage:

- **A1 Supply of raw materials:** extraction and processing of raw materials and energy that is produced prior to the manufacturing process. The main raw materials used as indication are: aluminium, plastics and steel.

- **A2 Transport of raw materials:** transport of the different raw materials from the raw materials supplier to the factory where the final product is assembled. The specific distance and type of truck used in each transport has been considered.

- **A3 Manufacture:** consumption of energy, water and packaging materials used during the manufacturing process of the product. The transport and management of waste generated at the production site is also included.

A4 Transport

SCENARIO INFORMATION	VALUE/DESCRIPTION
Vehicle type used for transport	Long distance truck Transoceanic ship
Vehicle load capacity	24 tones
Fuel type and consumption	51.62 liters of diesel per 100 km
Distance to construction site	504 km truck 638 km ship
Capacity utilisation (including empty returns)	49.9% as assumed in Ecoinvent
Bulk density of transported products	0.3 kg/dm^3 for profiles 0.5 kg/ dm^3 for accessories
Volume capacity utilisation factor	< 1

A5 Construction/Instalation

SCENARIO INFORMATION	VALUE/DESCRIPTION
Ancillary materials for installation	No needed
Water use	No needed
Other resource use	Electricity consumption to make 28 holes for fixing the system
Quantitative description of the energy type and consumption during the preparation and installation process	350 W x 10/60 h = 58.3 Wh of electricity mix
Direct emissions to ambient air, soil and water	None
Waste materials on the building site, generated by the product's installation	4.954 kg of recyclable packaging waste
Output materials as result of waste processing at the construction site	Recycling

B Use stage: the product does not require any use (B1), maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), operational energy use (B6) or operational water use (B7) during its Reference Service Life.

C End of life stage: recycling rates for post-consumer waste in Europe from the document "Annex_C_Transition_CFF" have been considered (95% for aluminum and steel construction components). Small metal parts and plastic elements are considered non recyclable as its recovery will require manual dissambly.

SCENARIO INFORMATION	VALUE/DESCRIPTION
Collection process specified by type	16.568 kg of product collected mixed with construction waste
Recovery system specified by type	95% recycling rates for aluminium and steel: 12.855 kg of aluminium and 0.358 kg of steel for recycling
Disposal specified by type	3.355 kg of mixed materials to landfill
Assumptions for scenario development (e.g. transport)	Lorry of the size class 16-32 metric tons gross and Euro VI emissions class Average load: 5.79 tones Diesel Fuel consumption: 25.5 l/100 Km Distance: 50 km

Content information

4 m profiles	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Extruded aluminium	13.061	15	0
Polyvinyl chloride (PVC)	2.319	0	0
Polyethylene (PE)	0.050	0	0
Subtotal (4 m profiles)	15.430	-	-
Accessories	**Weight, kg**	**Post-consumer material, weight-%**	**Renewable material, weight-%**
Aluminum	0.471	0	0
Steel	0.377	0	0
Polyoxymethylene (POM)	0.129	0	0
Polyamide reinforced with glass fibre	0.081	0	0
Other plastics and resins	0.063	0	0
Nitrile	0.010	0	0
Brass	0.008	0	0
Subtotal (accessories)	1.138	-	-
TOTAL (profiles and accessories)	16.568	-	-
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	
Cardboard	4.844	29.24	
Paper	0.079	0.48	
Polyethylene (PE)	0.025	0.15	
Polyvinyl chloride (PVC)	0.004	0.02	
Adhesive	0.002	0.01	
TOTAL (packaging)	4.954	29.90	

During the life cycle of the product no hazardous substance listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorization” has been used in a percentage higher than 0.1% of the weight of the product.

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804:2012+A2:2019

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.23E+02	3.14E+00	3.27E-01	0	0	0	0	0	0	0	0	1.03E+00	2.57E-02	2.99E-04	-1.29E+02
GWP-biogenic	kg CO_2 eq.	2.24E+00	7.43E-04	7.48E-05	0	0	0	0	0	0	0	0	7.92E-05	4.58E-05	2.57E-04	-1.42E-01
GWP-luluc	kg CO_2 eq.	8.19E-01	9.41E-04	1.90E-04	0	0	0	0	0	0	0	0	2.13E-05	4.21E-05	3.41E-07	-4.07E-01
GWP-total	kg CO_2 eq.	2.26E+02	3.14E+00	3.27E-01	0	0	0	0	0	0	0	0	1.03E+00	2.58E-02	5.56E-04	-1.30E+02
ODP	kg CFC 11 eq.	7.92E-06	7.18E-07	7.35E-08	0	0	0	0	0	0	0	0	2.39E-07	1.14E-09	8.88E-12	-2.90E-06
AP	mol H^+ eq.	1.41E+00	1.38E-02	2.14E-03	0	0	0	0	0	0	0	0	6.54E-03	1.32E-04	1.23E-06	-8.21E-01
EP-freshwater	kg PO_4^{3-} eq.	9.09E-03	2.88E-05	1.25E-06	0	0	0	0	0	0	0	0	9.73E-07	1.34E-06	1.16E-08	-3.08E-03
EP-freshwater	kg P eq	9.13E-03	2.89E-05	1.25E-06	0	0	0	0	0	0	0	0	1.34E-06	1.17E-08	-3.08E-03	0.00E+00
EP-marine	kg N eq.	2.14E-01	4.18E-03	8.01E-04	0	0	0	0	0	0	0	0	2.59E-03	2.47E-05	3.24E-07	-1.24E-01
EP-terrestrial	mol N eq.	2.41E+00	4.64E-02	8.84E-03	0	0	0	0	0	0	0	0	2.85E-02	2.82E-04	2.75E-06	-1.35E+00
POCP	kg NMVOC eq.	6.92E-01	1.34E-02	3.08E-03	0	0	0	0	0	0	0	0	1.01E-02	7.38E-05	8.97E-07	-4.02E-01
ADP-minerals&metals*	kg Sb eq.	1.39E-03	4.46E-06	8.60E-10	0	0	0	0	0	0	0	0	1.95E-09	2.03E-10	1.68E-12	4.22E-03
ADP-fossil*	MJ	2.29E+03	4.63E+01	4.82E+00	0	0	0	0	0	0	0	0	1.47E+01	3.14E-01	2.66E-03	-1.13E+03
WDP	m^3	6.85E+01	2.69E-01	2.93E-02	0	0	0	0	0	0	0	0	6.07E-02	3.72E-03	3.23E-05	-7.20E+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 declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.24E+02	3.14E+00	3.27E-01	0	0	0	0	0	0	0	0	1.03E+00	2.57E-02	3.00E-04	-1.30E+02

Additional voluntary indicators no declared.

Use of resources

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	4.79E+02	3.67E-01	1.27E-01	0	0	0	0	0	0	0	0	2.61E-02	2.75E-02	2.28E-04	-1.28E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4.79E+02	3.67E-01	1.27E-01	0	0	0	0	0	0	0	0	2.61E-02	2.75E-02	2.28E-04	-1.28E+02
PENRE	MJ	2.44E+03	4.91E+01	5.10E+00	0	0	0	0	0	0	0	0	1.56E+01	3.34E-01	2.83E-03	-1.20E+03
PENRM	MJ.	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	2.44E+03	4.91E+01	5.10E+00	0	0	0	0	0	0	0	0	1.56E+01	3.34E-01	2.83E-03	-1.20E+03
SM	kg	1.96E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0	0	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.44E+00	7.25E-03	6.27E-04	0	0	0	0	0	0	0	0	1.48E-03	1.43E-04	1.21E-06	-5.16E-01
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															

[1] 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 equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Waste production and output flows

Waste production

Results per declared unit (1 kit)															
Indicator	**Unit**	**Tot.A1 -A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.08E-01	1.22E-02	2.23E-05	0	0	0	0	0	0	0	0	2.67E-06	4.33E-07	3.63E-09	9.54E-02
Non-hazardous waste disposed	kg	1.04E+00	5.25E-03	1.04E+00	0	0	0	0	0	0	0	0	2.61E-06	1.15E-08	8.19E-11	-2.93E-05
Radioactive waste disposed	kg	3.39E-03	4.59E-03	3.22E-04	0	0	0	0	0	0	0	0	1.06E-04	8.39E-07	6.33E-09	-1.12E-03

Output flows

Results per declared unit (1 kit)																
Indicator	**Unit**	**Tot.A1 -A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Material for recycling	kg	5.87E+00	0	4.95E+00	0	0	0	0	0	0	0	0	0	1.32E+01	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Information on biogenic carbon content

Results per declared unit (1 kit)		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0
Biogenic carbon content in packaging	kg C	2.18

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

Information related to sector EPD

This is an individual EPD®.

Differences versus previous versions

This is the first version of the EPD®.

Additional information

Instructions for a proper installation of the product are available in www.klein-europe.com.

The product has been tested according to IFT EN 1527 for more than 100.000 cycles of use.

Metal parts (aluminium) can be recycled at the end of life of the product.

References

General Programme Instructions of the International EPD® System. Version 3.01.
PCR 2019:14. Construction Products. 2020-09-14 (version 1.1)
CEN (2019): EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for product category of construction products.

EPD®

www.environdec.com