Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Stainless steel building profile

from

Jual A/S

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-12086
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EPD of multiple custom made products, based on worst-case results

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
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction products, 2019:14, Version 1.3.1
PCR review was conducted by: *The Technical Committee of the International EPD® System.* Claudia A. Peña*. Contact via info@environdec.com*
Life Cycle Assessment (LCA)
LCA accountability: *Amy Stockwell, CarbonZero AB*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Vladimír Kočí, LCA Studio* 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 registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: JUAL A/S
Contact: Rasmus Jensen rje@jual.dk
Description of the organisation: JUAL A/S is a modern metal company located in Juelsminde in Denmark, which produces accessories for roofs and facades for the construction industry in Denmark and large parts of Europe. Our standard assortment is broad and we also produce special products in large quantities.
Name and location of production site(s): Denmark

Product information

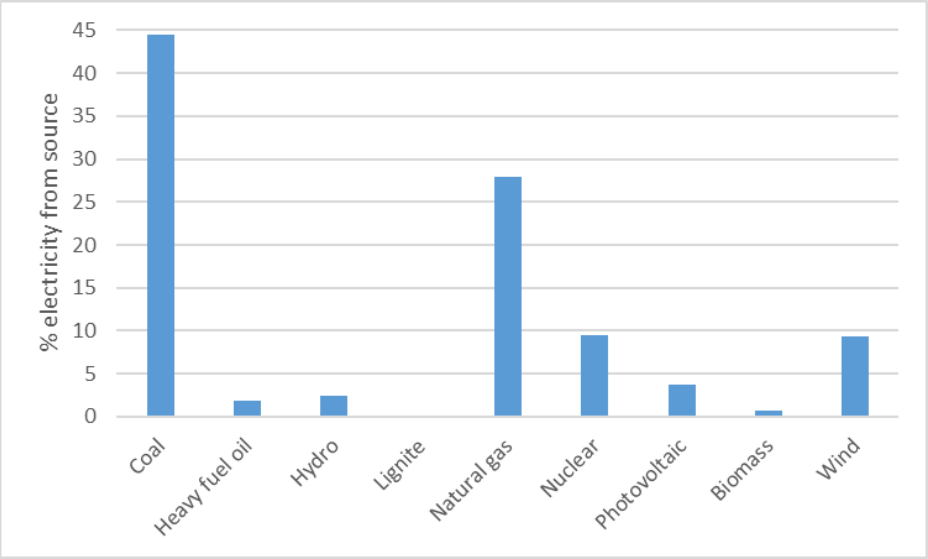
Product name: Stainless steel building profile
Product description: JUAL's building profiles include a wide range of standard products but also the option of custom-made profiles according to the customer's wishes. The profiles vary in a wide range of materials, designs and surface treatments so that it suits the purpose desired with the accessories on the roof or facade.
The building profiles are manufactured from a thin sheet of material in a wide range of dimensions and thicknesses. During manufacture, the raw material sheet is cut or punched out, after which the adapted item is bent so that it has the desired design for the building profile.

UN CPC code: 41532
Geographical scope: The product is made in Denmark. It was assumed to be sold in Denmark and Danish statistics were used to calculate the end of life scenario.

LCA information

Functional unit / declared unit: 1 kg stainless steel building profile
Reference service life: Not applicable. There is a large variation in the conditions in which the product is used, so no RSL can be estimated.
Time representativeness: 2022
Database(s) and LCA software used: LCA for Experts v 10.7.1.28 (GaBi) and Ecoinvent 3.8
Description of system boundaries: Cradle to gate with options: A1-A3, A4, A5 modules C1–C4 and module D.

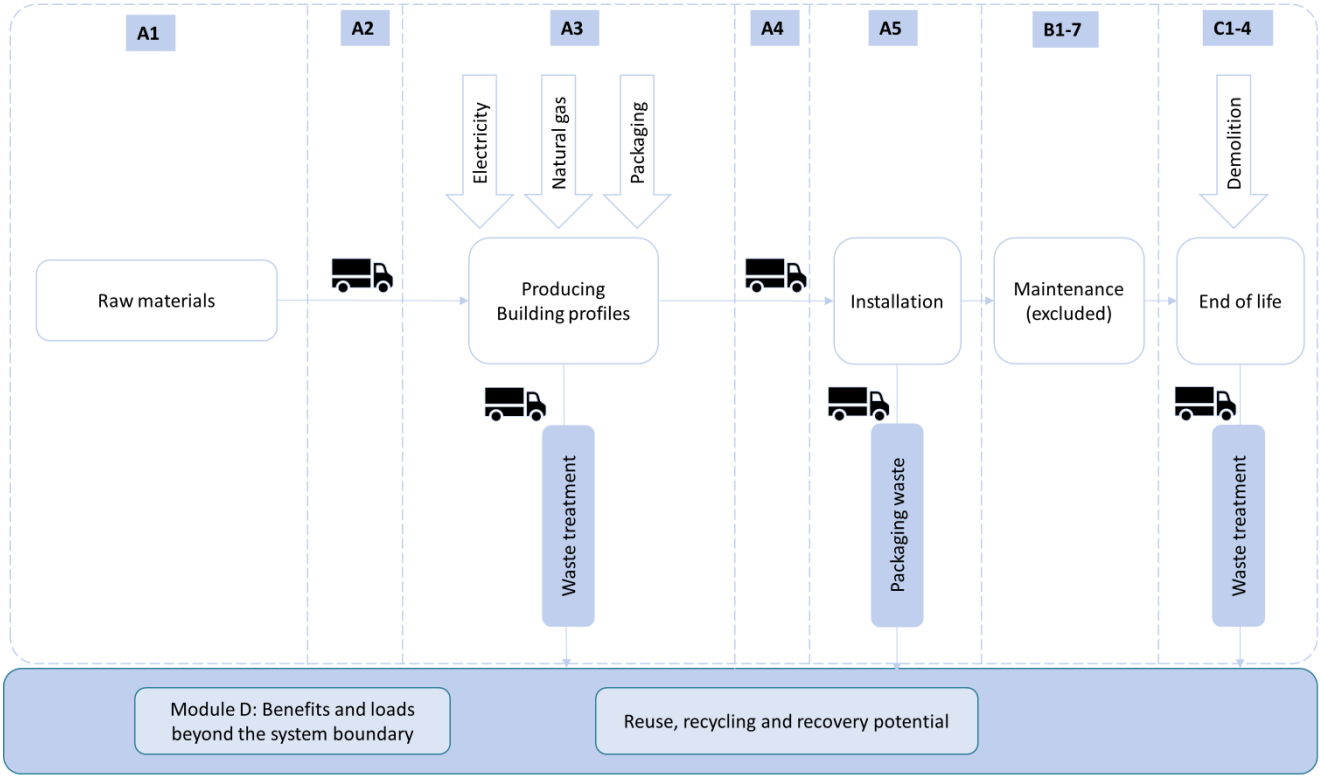
Module A3: From AIB, the 2022 Danish electricity grid mix has a GWP-GHG impact of 5.22E-01 kg CO_2e per kWh. The grid mix is shown in the figure below:



Module A5:it is assumed that the products are installed by hand, so the impact is negligible. It is assumed that the packaging is either reused or recycled. As there are no recycling datasets available, the impact is assumed to be 0. However, the impact of balancing the biogenic carbon of the packaging is included.

Modules C and D: Based on data from Danish Statistics 2020, almost 100% of metal in construction is recycled. No waste is sent to landfill, instead C4 was used to balance the biogenic carbon.

System diagram:



More information:
A range of stainless steel alloys are used and products can vary in the amount of waste produced (due to the shape and number of holes in the product). In this report, the worst case scenario is reported, which includes 38% waste.

It is discouraged to use the results of modules A1-A3 (A1-A5 for services) without considering the results of module C.

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

X=included, - = excluded

	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
Geography	DK	DK	DK	DK	DK	-	-	-	-	-	-	-	DK	DK	DK	DK	DK
Specific data used	Specific data from factories used			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-32 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	**Weight, kg**	**Post-consumer material, weight-%**	**Biogenic material, weight-% and kg C/kg**
Stainless steel	1	70%	0
TOTAL	1	70%	0
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Cardboard	2.52E-02	3%	1.12E-02
PE film	3.00E-03	0.3%	0
PP	4.34E-04	0.04%	0
Pallet	1.88E-01	19%	7.82E-02
TOTAL	2.17E-01	22%	8.93E-02

No substances that appear in the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) are present or used in the product concerning this EPD.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	4.85E+00	3.06E-02	1.80E-04	6.12E-04	7.18E-03	0	0	-3.02E+00
GWP-biogenic	kg CO_2 eq.	-3.99E-01	0.00E+00	3.27E-01	-8.30E-06	0.00E+00	0	7.17E-02	1.49E-02
GWP-luluc	kg CO_2 eq.	9.51E-03	2.82E-04	1.66E-06	5.56E-06	6.63E-05	0	0	-5.92E-03
GWP-total	kg CO_2 eq.	4.45E+00	3.09E-02	3.27E-01	6.09E-04	7.25E-03	0	7.17E-02	-3.01E+00
ODP	kg CFC 11 eq.	1.05E-08	2.67E-15	1.57E-17	7.81E-17	6.27E-16	0	0	-6.84E-15
AP	mol H^+ eq.	3.31E-02	5.76E-05	2.07E-07	3.14E-06	1.35E-05	0	0	-2.13E-02
EP-freshwater	kg P eq.	2.84E-05	1.11E-07	6.54E-10	2.19E-09	2.61E-08	0	0	-3.82E-06
EP-marine	kg N eq.	4.71E-03	2.38E-05	7.12E-08	1.47E-06	5.60E-06	0	0	-2.96E-03
EP-terrestrial	mol N eq.	5.14E-02	2.72E-04	8.39E-07	1.63E-05	6.39E-05	0	0	-3.23E-02
POCP	kg NMVOC eq.	1.43E-02	5.14E-05	1.80E-07	4.11E-06	1.21E-05	0	0	-8.91E-03
ADP-minerals&metals*	kg Sb eq.	8.20E-05	1.98E-09	1.17E-11	3.98E-11	4.65E-10	0	0	-5.34E-05
ADP-fossil*	MJ	6.52E+01	4.15E-01	2.44E-03	8.18E-03	9.74E-02	0	0	-4.02E+01
WDP*	m^3	2.32E+00	3.51E-04	2.07E-06	7.25E-06	8.25E-05	0	0	-1.48E+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.*

Additional mandatory and voluntary impact category indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	4.86E+00	3.09E-02	1.82E-04	6.19E-04	7.26E-03	0	0	-3.03E+00
GWP *(EN 15804+A1)*[2]	kg CO_2 eq.	4.40E+00	2.99E-02	3.27E-01	6.00E-04	7.03E-03	0	0	-2.98E+00

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.
[2] This indictor is to allow for comparison with EPDs which follow EN 15804+A1

Resource use indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.56E+01	2.93E-02	1.73E-04	5.95E-04	6.89E-03	0	0	-8.61E+00
PERM	MJ	4.19E+00	0	0	0	0	0	0	0
PERT	MJ	1.98E+01	2.93E-02	1.73E-04	5.95E-04	6.89E-03	0	0	-8.61E+00
PENRE	MJ	6.51E+01	4.16E-01	2.45E-03	8.21E-03	9.76E-02	0	0	-4.02E+01
PENRM	MJ	1.59E-01	0	0	0	0	0	0	0
PENRT	MJ	6.52E+01	4.16E-01	2.45E-03	8.21E-03	9.76E-02	0	0	-4.02E+01
SM	kg	1.00E+00	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	7.82E-02	3.23E-05	1.90E-07	6.52E-07	7.59E-06	0	0	-5.02E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	3.13E-04	1.54E-12	9.05E-15	2.54E-14	3.61E-13	0	0	-2.05E-04
Non-hazardous waste disposed	kg	1.74E-01	5.99E-05	3.52E-07	1.25E-06	1.41E-05	0	0	-1.13E-01
Radioactive waste disposed	kg	2.26E-03	5.38E-07	3.16E-09	1.54E-08	1.26E-07	0	0	-1.43E-03

Output flow indicators

Results per 1 kg									
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	1.88E-01	0	1.88E-01	0	0	0	0	0
Material for recycling	kg	3.75E-01	0	2.52E-02	0	0	1.00E+00	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0	0	0

References

AIB 2023	European Residual Mixes 2022
EN 15804:2012+A2	Sustainability of construction works – Environmental product declaration – Core rules for the product category of constructions products
EPD International (2021)	General Programme Instructions of the International EPD® System, version 4.0
ISO 14020:2022	International Standard ISO 14020 – Environmental statements and programmes for products – Principles and general requirements
ISO 14025:2006	International Standard ISO 14025 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006	International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01.
ISO 14044:2006	International Standard ISO 14044: Environmental Management – Life cycle assessment – Requirements and Guidelines.
PCR 2019:14	PCR 2019:14 Construction products (EN 15804:A2) v1.3.1
Sea Rates	www.searates.com accessed 2023-12-06
Statbank (2020)	www.statbank.dk/statbank5a/selectvarval/saveselections.asp accessed 2023-10-17

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