

DAPcons®.100.215

DECLARACIÓN AMBIENTAL DE PRODUCTO
ENVIRONMENTAL PRODUCT DECLARATION

According to the standards:
ISO 14025 and UNE-EN 15804:2012+A2:2020/AC:2021

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dapcons®

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GENERAL INFORMATION

Product

MILL FINISHED/COATED/ANODISED ALUMINIUM PROFILES WITH/WITHOUT THERMAL BREAK – Average EPD for products and production plants

Company

Product description

This EPD reports the average environmental performance of Aluminios Cortizo extruded aluminium profiles manufactured from European aluminium billet. The different finishes of the aluminium profiles, raw profiles, coated profiles and anodised profiles with and without RPT have been taken into account.

Reference RCP

RCP 100 (version 3.2 - 21/12/2023) Construction products in general

Production plant

The production of aluminium profiles is carried out in the CORTIZO facilities in Padrón - Spain, Chemillé - France, Radomsko - Poland and Nová Baňa - Slovakia.

Validity

From: 17/01/2025 Until: 17/01/2030

The validity of DAPcons®.100.215 is subject to the conditions of the regulation DAPcons®. The current edition of this DAPcons® is the one that appears in the registry maintained by Cateb; for informational purposes, it is included on the Program website www.dapcons.com

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EXECUTIVE SUMMARY

MILL FINISHED/COATED/ANODISED ALUMINIUM PROFILES WITH/WITHOUT THERMAL BREAK – Average EPD for products and production plants

	DAPconstruction® Programme Operator Environmental Product Declarations in the Construction sector www.csostenible.net
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	Author of the Life cycle assessment: Idnovam Ichaso 3, 28041 - MADRID, España

Declared product

MILL FINISHED/COATED/ANODISED ALUMINIUM PROFILES WITH/WITHOUT THERMAL BREAK – Average EPD for products and production plants

Geographic representation

The materials of aluminium profiles are manufactured in Spain and Europe and are mainly marketed in the EU.

Variability between different products

In this EPD the results of an average aluminium profiles obtained from five family are stated.

Declaration number

DAPcons®.100.215

Issue date

06/11/2024

Validity

This verified declaration authorizes its holder to carry the logo of the operator of the ecolabelling program DAPconstruction®. The declaration is applicable exclusively to the mentioned product and for five years from the date of registration. The information contained in this statement was provided under the responsibility of: **ALUMINIOS CORTIZO, S.A.U.**

Programme Administrator Signature

Celestí Ventura Cisternas. President of Cateb

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Lorena Pereda Pereda. Fundación Centro Tecnológico de Miranda de Ebro. Verifier accredited by the administrator of the DAPcons® Programme

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ENVIRONMENTAL PRODUCT DECLARATION

1. PRODUCT DESCRIPTION AND USE

This EPD covers several aluminium extrusion products manufactured by CORTIZO:
- Mill finished aluminium profile
- Coated aluminium profile
- Anodised aluminium profile
- Thermal break coated aluminium profile
- Thermal break anodised aluminium profile

It includes operations such as machining and packaging.
Aluminium profiles consist of extruded aluminium from billets (the main component). In addition, profiles may contain powder coating, a durable lacquer finish for aesthetics and corrosion resistance, and thermal break, polyamide strip inserted between the aluminium sections to reduce thermal conductivity and improve energy efficiency.
The results are an average representative of all aluminium profiles produced by CORTIZO. Average is obtained by arithmetic mean of the five family products.
The variation of the impact values of the maximum and minimum with respect to the mean value is in some cases more than 10%.

1.1 Content information

Product components

The technical characteristics of the products as well as their composition are shown below.

Packaging materials

The packaging of the aluminium profile consists of cardboard, plastic film, plastic strap and wood.

Property	Value	
Young's modulus	68 - 80 GPa	UNE-EN ISO 6892
Yield strength (elastic limit)	95 - 610	Mpa UNE-EN ISO 6892
Tensile strength	180 - 620 MPa	UNE-EN ISO 6892
Hardness - Vickers	60 - 160 HV	UNE-EN ISO 6507
Fatigue strength (10^7 cycles)	57 - 210 Mpa	UNE 7118
Density	2550 – 2900 kg/m3	
Melting point	495 - 640 °C	
Thermal conductivity	118 - 174 W/m.°C	
Specific heat capacity	890 - 1020 J/kg.°C	

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		Mill finished profile	Anodized profile	Thermal break anodized profile	Coated profile	Thermal break coated profile
Product	Aluminium profile	**100%**	**100%**	**87,1%**	**95,6%**	**82,7%**
	Aluminium	93-96%				
	Magnesium	0,5-1,5 %				
	Silicon	0,5-1,5 %				
	Other	<0,2%				
	Postconsumer material	37,8%				
	Preconsumer material	25,5%				
	Renewable material	0%				
	Coating powder	-	-	-	**4,4%**	**4,4%**
	Postconsumer material	0%				
	Renewable material	0%				
	TBB	-	-	**12,9%**	-	**12,9%**
	Postconsumer material	0%				
	Renewable material	0%				
Packaging	Wood	2,37E-02 kg				
	Cardboard	1,70E-02 kg				
	Polyester	5,71E-03 kg				
	Plastic film	3,49E-03 kg				

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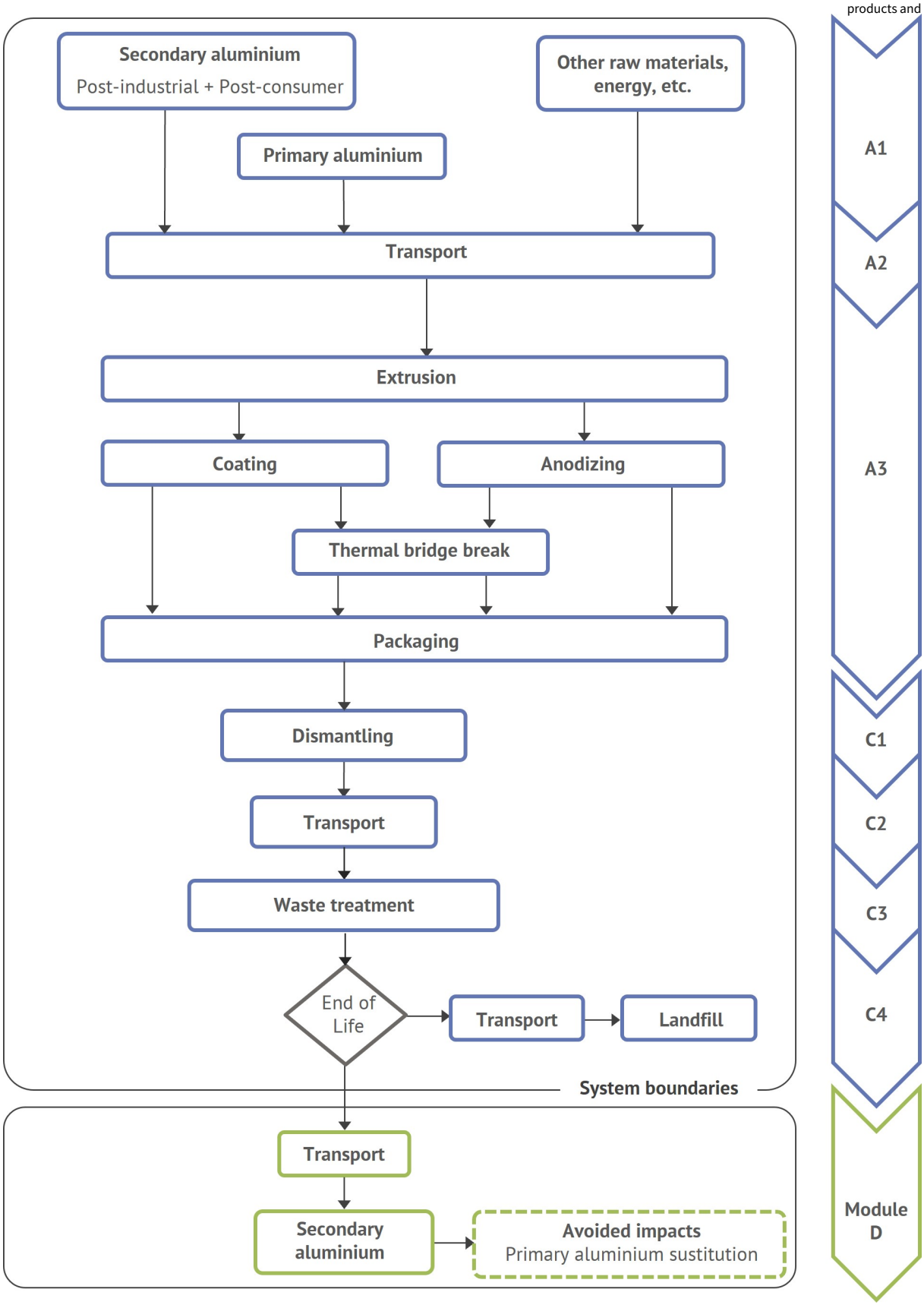
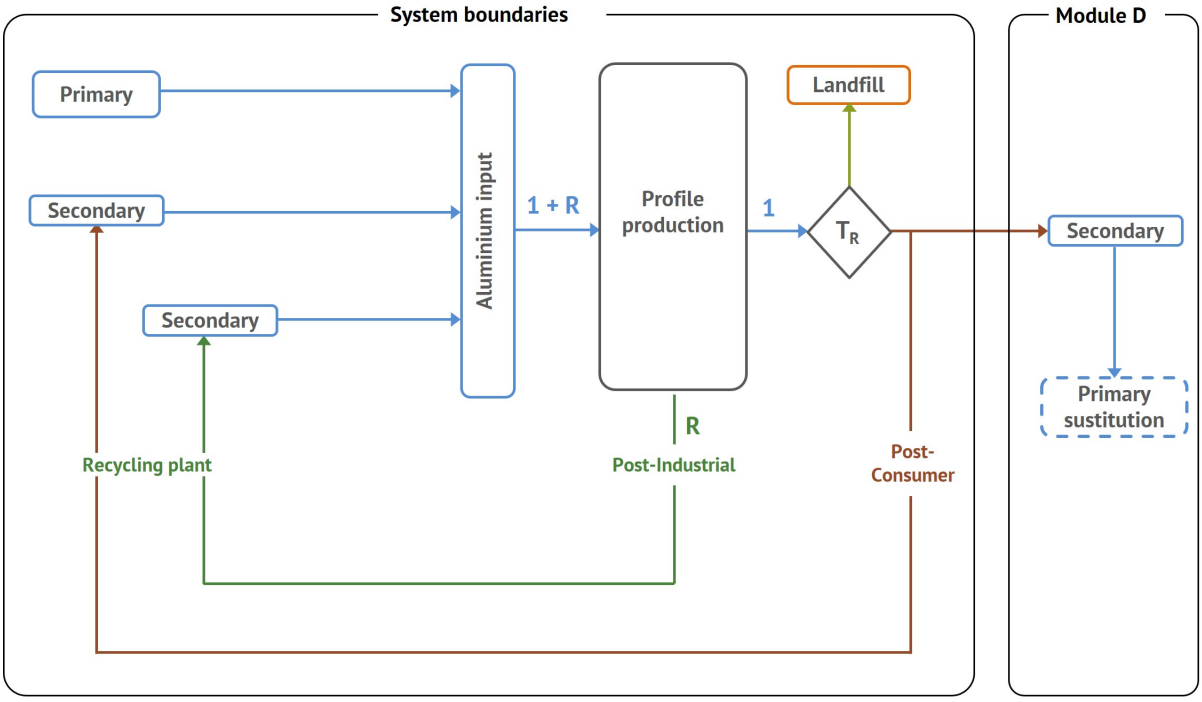

Secondary aluminium
Post-industrial + Post-consumer
Other raw materials, energy, etc.
Primary aluminium
Transport
Extrusion
Coating
Anodizing
Thermal bridge break
Packaging
Dismantling
Transport
Waste treatment
End of Life
Transport
Landfill
System boundaries
Transport
Secondary aluminium
Avoided impacts
Primary aluminium sustitution
A1
A2
A3
C1
C2
C3
C4
Module D



R – Process losses T_R – Recovery Rate

Variation of results with respect to average value (A1+A2+A3) - Min - Max
Variación de resultados con recpecto a valor medio (A1+A2+A3) - Min - Max

Parámetro/ Paramater	Unidad/Unit	Maximun	Minimum
Cambio climático - total (GWP-total)	kg CO2 eq	19%	-11%
Cambio climático - fósil (GWP-fossil)	kg CO2 eq	19%	-11%
Cambio climático - biogénico (GWP-biogenic)	kg CO2 eq	41%	-37%
Cambio climático - uso del suelo y cambios del uso del suelo (GWP-luluc)	kg CO2 eq	20%	-36%
Agotamiento de la capa de ozono (ODP)	kg CFC-11 eq	42%	-67%
Acidificación (AP)	mol H+ eq	23%	-9%
Eutrofización del agua dulce (EP-freshwater)	kg P eq	22%	-19%
Eutrofización del agua marina (EP-marine)	kg N eq	16%	-13%
Eutrofización terrestre (EP-terrestrial)	mol N eq	24%	-10%
Formación ozono fotoquímico (POCP)	kg NMVOC eq	20%	-9%
Agotamiento de los recursos abióticos - minerales y metales (ADP-minerals&metals)	kg Sb eq	23%	-67%
Agotamiento de recursos abióticos - combustibles fósiles (ADP-fossil)	MJ, valor calorífico neto	20%	-19%
Consumo de agua (WDP)	m3 mundial eq. privada	53%	-45%

2. DESCRIPTION OF THE STAGES OF THE LIFE CYCLE

2.1. Manufacturing (A1, A2 y A3)

Raw Materials and transport (A1 y A2)

The manufacture of aluminium profiles begins with the extraction and processing of minerals for the production of primary aluminium which constitutes, together with secondary aluminium, the main input. CORTIZO receives primary and secondary aluminium from national and European suppliers, producing also secondary aluminium in its installations in Padrón and Mieres. The rest of the raw materials necessary for the manufacture of the profiles (thermal bridge break strips, coating powder, etc.) are also received.

CORTIZO selects and receives the raw materials from national and european suppliers.

Manufacturing (A3)

Aluminium profiles are produced by extrusion of preheated aluminium billets which, due to plastic deformation, are forced to pass through a die in order to produce profiles with different sections. The extruded profiles are then cooled while the ends are clamped in order to straighten them during the cooling. Later they are cut to the desired length and go to a ripening oven to increase their hardness.

Los perfiles pueden tener distintos acabados superficiales: anodizado y lacado. El anodizado es un proceso llevado a cabo por electrólisis mediante el cual se produce la oxidación de la superficie de aluminio. Previamente, hay que preparar la superficie de aluminio sumergiendo los perfiles en varios baños que contienen distintas sustancias químicas (desengrasantes, neutralizantes, etc.). Tras el anodizado, los perfiles también se someten a otros baños con sustancias químicas disueltas para mejorar la durabilidad de la capa de óxido formada (sellado), así como para cambiar su color (coloración).

In coating the profiles are subjected to baths in different solutions to prepare the surface for the application of the paint (degreasing, acid attack, toning and conversion). Later, coating powder is electrostatically applied to the surface of the profile and then hardened by means of polymerization in ovens at a temperature of around 200 ° C.

Optionally, a thermal break can be included to improve the thermal characteristics of the profiles, consisting of a plastic strip.

Finally, aluminium profiles are mechanized and packaged.

2.2. Construction process stage (A4 y A5)

Transport to the building site (A4)

Undeclared

Product installation process and construction (A5)

Undeclared

2.3. Product use (B1-B7)

Use (B1)

Undeclared

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

Operational energy use (B6)

Undeclared

Operational water use (B7)

Undeclared

2.4. End of life (C1-C4)

Deconstruction and demolition (C1)

No information was found in the life cycle databases consulted on the dismantling operations of aluminium elements, nor bibliography on the inputs or wastes generated during these operations. In many cases, these operations are carried out manually, as is the case, for example, with aluminium windows and doors in a building. In any case, they are not estimated to be significant in the life cycle of the products. Therefore, there are no contribution to the impact categories of this module.

Transport to waste processing (C2)

A distance of 200 km has been assumed for transport to the waste treatment centre.

Waste processing for reuse, recovery and/or recycling (C3)

This module reports the operations related to the treatment of post-consumer aluminium scrap, i.e. collection, sorting, cleaning and pressing.

Disposal (C4)

Recovery rates for aluminium during building dismantling are modelled based on figures reported by the European Aluminium Association (see references). It was assumed a 95% for recovery rate while the remaining 5% goes to landfill. Similar, or ever higher figures for recovery rates can be achieved in other sectors.

2.5. Reuse/recovery/recycling potential (D)

In Module D, the environmental burdens and benefits of recycling of material streams that are recovered at the end of life of the products are declared. The environmental aspects have been assessed up to the point of functional equivalence, i.e. obtaining raw materials similar to the starting materials.

3. LIFE CYCLE ASSESSMENT

The life cycle analysis on which this declaration is based has been carried out in accordance with ISO 14040 and

ISO 14044. Similarly, UN EN 15804:2012+A2:2020. This EPD is of the "cradle to gate with options" type, stating the stages of product manufacture, transport to site, product installation and end of life.
Specific data from the CORTIZO plant for the year 2023 have been used for the manufacture of aluminium profiles.

3.1. Declared Unit

The declared unit is 1 kg of average aluminium profile including mill finished profiles, coated and anodised profiles with and without thermal bridge break, manufactured only from billet of European origin in Padrón - Spain, Chemillé - France, Radomsko - Poland and Nová Baňa - Slovakia.

Additional comments

The average declared product represents the production in the plants in Padrón (Spain), France, Poland and Slovakia. of the following families of profiles:
- Mill finished aluminium profile
- Coated aluminium profile
- Anodised aluminium profile
- Thermal break coated aluminium profile
- Thermal break anodised aluminium profile

Specific results for each of these products are shown in the annex to this EPD

3.2. Scope and modules that are declared

Table 2. Declared modules

Product stage			Construction Process Stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw materials supply	Transport	Manufacturing	Transport	Construction - Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse, recovery, recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

X = Declared module **MND** = Undeclared module

3.3. LCA results of potential environmental impact referred to the declared unit (ACV)

Table 3. Parameters of environmental impact

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Climate change - total (GWP-total)	kg CO2 eq	4,84E+00	4,20E-02	4,74E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,27E-02	2,54E-01	1,19E-03	-2,81E+00
Climate change - fossil (GWP-fossil)	kg CO2 eq	4,83E+00	4,20E-02	4,72E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,27E-02	2,53E-01	1,18E-03	-2,81E+00
Climate change - biogenic (GWP-biogenic)	kg CO2 eq	1,33E-02	1,64E-05	1,46E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,35E-05	1,27E-03	7,66E-06	-7,25E-04
Climate change - land use and changes in land use (GWP-luluc)	kg CO2 eq	1,25E-03	1,69E-05	5,77E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,16E-05	8,95E-05	1,50E-07	-5,46E-04
Ozone layer depletion (ODP)	kg CFC 11 eq	1,09E-07	9,70E-09	7,59E-08	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,43E-09	1,63E-08	8,93E-11	-4,29E-11
Acidification (AP)	mol H+ eq	3,06E-02	3,97E-04	1,68E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,38E-05	8,22E-04	-1,66E-06	-2,05E-02
Eutrophication of fresh water (EP-freshwater)	kg P eq	1,02E-03	3,00E-07	1,89E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,61E-07	5,30E-06	3,24E-09	-6,20E-04
Eutrophication of sea water (EP-marine)	kg N eq.	4,49E-03	9,41E-05	3,19E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,86E-05	1,59E-04	-1,74E-06	-2,62E-03
Terrestrial eutrophication (EP-terrestrial)	mol N eq.	4,30E-02	1,05E-03	3,30E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,08E-04	1,81E-03	-8,64E-06	-2,38E-02
Photochemical ozone formation (POCP)	kg NMVOC eq	1,38E-02	3,03E-04	9,61E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,96E-05	4,92E-04	-1,98E-06	-9,02E-03
Depletion of abiotic resources - minerals and metals (ADP-minerals&metals)	kg Sb eq	5,26E-06	7,63E-07	6,88E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	9,02E-07	1,47E-06	1,14E-08	-1,65E-06
Depletion of abiotic resources - fossil fuels (ADP-fossil)	MJ, net calorific value	6,27E+01	6,38E-01	3,70E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,94E-01	1,73E+00	-5,72E-04	-2,88E+01
Water consumption (WDP)	m3 worldwide eq. private	1,05E+00	1,79E-03	3,22E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,40E-03	1,12E-02	1,63E-05	-3,55E-01
The Indicador includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This Indicador is thus equal to the GWP Indicador originally defined in EN 15804:2012+A1:2013. Can be obtained from IPCC characterization factors.																		
Global Warming Potential (GHG)	kg CO2 eq	4,84E+00	4,20E-02	4,74E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,27E-02	2,54E-01	1,19E-03	-2,81E+00

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

Table 4. Parameters for the use of resources, waste and output material flows

Parameter	Unit	Life cycle stage																Module D
		Product stage			Construction Process Stage		Use stage							End of life stage				
		A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ, net calorific value	2,46E+01	7,64E-03	1,13E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,07E-03	1,47E-01	-6,27E-05	-1,98E+01
Use of renewable primary energy used as raw material	MJ, net calorific value	0,00E+00	0,00E+00	6,65E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	2,46E+01	7,66E-03	1,13E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	7,08E-03	1,47E-01	-6,26E-05	-1,98E+01
Non-renewable primary energy use, excluding non-renewable primary energy resources used as feedstock	MJ, net calorific value	7,10E+01	6,22E-01	3,65E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,82E-01	1,85E+00	-6,61E-04	-3,76E+01
Use of non-renewable primary energy used as raw material	MJ, net calorific value	0,00E+00	0,00E+00	2,64E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy (primary energy and renewable primary energy resources used as feedstock)	MJ, net calorific value	7,10E+01	6,22E-01	3,65E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	4,82E-01	1,85E+00	-6,61E-04	-3,76E+01
Use of secondary materials	kg	4,61E-01	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of freshwater resources	m3	1,38E+00	3,24E-02	1,27E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,81E-02	4,36E-01	-5,89E-03	-1,12E-01
Hazardous waste removed	kg	2,76E-01	1,40E-06	2,38E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	1,29E-06	6,27E-03	1,69E-08	-2,27E-01
Non-hazardous waste eliminated	kg	1,19E+00	3,92E-02	6,21E-02	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	2,40E-02	2,73E-02	3,73E-03	-8,51E-01
Radioactive waste disposed of	kg	4,92E-03	4,37E-06	1,47E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	3,36E-06	8,44E-06	4,54E-08	-4,67E-03
Components for reuse	kg	0,00E+00	0,00E+00	3,31E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
Materials for energy recovery (energy recovery)	kg	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ by energy vector	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

A1 Supply of raw materials. **A2** Transport to waste processing. **A3** Manufacturing. **A4** Transport to waste processing. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport to waste processing. **C3** Waste management for reuse, recovery and recycling. **C4** Fine removal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Undeclared module.

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Table 5. Kg of biogenic carbon

Carbon content (biogenic) - packaging	0,64
Carbon content (biogenic) - product	0,0

3.4. Recommendations of this EPD

Comparison of construction products can only be made under the same functional unit and once the product is performing its function within the building throughout its complete life cycle.
This EPD does not contain comparative claims and its results are not comparable with other EPDs when these do not comply with the requirements set out in EN 15804. On the other hand, EPDs with the same product category, but from different programmes, may not be comparable. This EPD is representative of the products covered.
The holder of this Declaration is responsible for its content and for keeping the supporting documentation on which the statements and data contained therein are based during the period of validity of this EPD.

3.5. Cut-off rules

All raw materials and packaging are included in the analysis as well as the energy for manufacturing. In the same way, all manufacturing waste (including hazardous waste) is accounted for. The modules A4 and A5, and from B1 to B7 are excluded.
Similarly, the following sources of emissions have not been included:
- Construction/production of capital goods
- Maintenance and support activities (employee facilities, etc.)
- Production of packaging of raw materials and auxiliary materials
- Human resources and travel of employees.

3.6. Additional environmental information

The product does not contain substances included on the European Chemicals Agency's Candidate List of Substances of Very High Concern for Authorization.

3.7. Other data

For all processes included in the LCA study, the Ecoinvent 3.8 database was used and evaluated with the Simapro 9.6. The LCA study was carried out using a model based on excel templates. For the life cycle impact assessment (LCIA) of the mentioned processes, the characterisation factors of the EC-JRC EF 3.0 method.
Specific regional databases have been used to include electricity, natural gas or diesel consumption in the life cycle inventory. For transport, feedstock production or end-of-life processes, databases were chosen according to their technological and geographical representativeness of the actual process. Technological and geographical representativeness is ensured for all processes included in the LCA, including those most relevant to the final result. For example, for climate change, the technological representativeness of the processes that contribute 92% of the total value has been rated as very good or good according to Annex E of the UNE EN 15804 standard (table E1). The environmental databases used are less than 3 years old.

The extrusion process generates both useful profile and pre-consumer scrap, which has a considerable residual value and has therefore been considered as a co-product. An allocation criterion based on economic value has

been used between both fractions, extruded profile and pre-consumer scrap in this process. Pre-consumer scrap is not only generated in the extrusion process, but also in the anodising, powder coating and TBB inclusion processes. In all these processes, an allocation factor based on the economic value of each of the material flows has also been applied.

4. ADDITIONAL TECHNICAL INFORMATION AND SCENARIOS

4.1. Transport to the building site (A4)

Undeclared

4.2. Installation processes (A5)

Undeclared

4.3. Reference life (B1)

Undeclared

4.4. Maintenance (B2), Repair (B3), Replacement (B4), or Refurbishment (B5)

Maintenance (B2)

Undeclared

Repair (B3)

Undeclared

Replacement (B4)

Undeclared

Refurbishment (B5)

Undeclared

4.6. Operational energy use (B6) and operational water use (B7)

Undeclared

4.7. End of life (C1-C4)

	Process				
	Collection processes (specified by types)	Recovery systems (specified by type)			Elimination
	kg collected with mixed construction waste	kg for reuse	kg for recycling	kg for energy recovery	kg for final disposal
	1	0	0.95	0	0.05
Assumptions for scenario development	The scenarios have been described in modules C3 and D of section 2. The default values of the UNE EN 17213:2020 standard have been chosen.				

5. ADDITIONAL INFORMATION

6. PCR AND VERIFICATION

This statement is based on Document

RCP 100 (version 3.2 - 21/12/2023) Construction products in general

Independent verification of the declaration and data, in accordance with ISO 14025 and IN RCP 100 (version 3.2 - 21/12/2023)

☑ External

Third party Verifier

Lorena Pereda Pereda
Accredited by the administrator of the DAPcons® Programme

Verification date:

17/01/2025

References

• Instrucciones Generales del Programa Operador DAPconstrucción® de Declaraciones Ambientales de Producto en el Sector de la Construcción– Version 5 – 21-12-2023.
• RCP 100 v3.2 21/12/2023 Construction products in general
• EN 15804:2012+A2:2019 - Sustainability of construction works - Environmental Product Declarations – Core rules for the product category of construction products
• EN 17213:2019 - Windows and doors - Environmental Product Declarations - Product category rules for windows and pedestrian doorsets
• ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental
• ISO 14040-44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment-Principles

• Aluminium Recycling in LCA – European Aluminium Association, 2013.
• Tackling recycling aspects in EN15804 - Christian Leroy, Jean-Sebastien Thomas, Nick Avery, Jan Bollen, and Ladji Tikana. International Symposium on Life Cycle Assessment and Construction, 2012.
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• K. Peeters, C. Spirinckx, LOT 32 / Ecodesign of Window Products Task 2-Market Analysis, 2015.
• UNE-EN 16449:2014. Madera y productos derivados de la madera. Cálculo del contenido en carbono biogénico de la madera y conversión en dióxido de carbono.

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Mill finished profile/Perfil en crudo

Parámetros de impacto ambiental/ Environmental impact parameters

Parámetro/ Paramater	Unidad/Unit	Etapa del ciclo de vida/Life Cycle Stage										
		Fabricación/Manufacture			Construcción/Constructio		Uso/Use	Fin de vida/End of Life				
		A1	A2	A3	A4	A4-A5	B1-B7	C1	C2	C3	C4	D
Cambio climático - total (GWP-total)	kg CO2 eq	4,54E+00	3,71E-02	1,95E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,23E-03	-3,03E+00
Cambio climático - fósil (GWP-fossil)	kg CO2 eq	4,53E+00	3,70E-02	1,94E-01	MND	MND	MND	0	3,27E-02	2,53E-01	1,22E-03	-3,02E+00
Cambio climático - biogénico (GWP-biogenic)	kg CO2 eq	8,21E-03	1,43E-05	9,92E-04	MND	MND	MND	0	1,35E-05	1,27E-03	8,20E-06	-7,81E-04
Cambio climático - uso del suelo y cambios del uso del suelo (GWP-luluc)	kg CO2 eq	9,81E-04	1,52E-05	1,88E-04	MND	MND	MND	0	1,16E-05	8,95E-05	1,45E-07	-5,88E-04
Agotamiento de la capa de ozono (ODP)	kg CFC-11 eq	3,71E-08	8,64E-09	1,76E-08	MND	MND	MND	0	7,43E-09	1,63E-08	8,10E-11	-4,62E-11
Acidificación (AP)	mol H+ eq	2,93E-02	4,17E-04	5,12E-04	MND	MND	MND	0	9,38E-05	8,22E-04	-2,06E-06	-2,21E-02
Eutrofización del agua dulce (EP-freshwater)	kg P eq	1,12E-03	2,55E-07	7,26E-06	MND	MND	MND	0	2,61E-07	5,30E-06	3,02E-09	-6,68E-04
Eutrofización del agua marina (EP-marine)	kg N eq	4,04E-03	1,00E-04	1,20E-04	MND	MND	MND	0	1,86E-05	1,59E-04	-1,95E-06	-2,82E-03
Eutrofización terrestre (EP-terrestrial)	mol N eq	4,02E-02	1,11E-03	1,31E-03	MND	MND	MND	0	2,08E-04	1,81E-03	-1,02E-05	-2,56E-02
Formación ozono fotoquímico (POCP)	kg NMVOC eq	1,31E-02	3,17E-04	3,73E-04	MND	MND	MND	0	7,96E-05	4,92E-04	-2,40E-06	-9,71E-03
Agotamiento de los recursos abióticos - minerales y metales (ADP-minerals&metals)	kg Sb eq	2,36E-06	5,54E-07	1,33E-06	MND	MND	MND	0	9,02E-07	1,47E-06	1,12E-08	-1,78E-06
Agotamiento de recursos abióticos - combustibles fósiles (ADP-fossil)	MJ, valor calorífico neto	5,23E+01	5,66E-01	1,65E+00	MND	MND	MND	0	4,94E-01	1,73E+00	-1,62E-03	-3,10E+01
Consumo de agua (WDP)	m3 mundial eq. privada	5,45E-01	1,61E-03	4,62E-02	MND	MND	MND	0	1,40E-03	1,12E-02	-8,19E-06	-3,83E-01
Emisión de partículas	Incidencia enfermedades	3,80E-07	2,66E-09	5,73E-09	MND	MND	MND	0	2,08E-09	1,21E-08	1,22E-11	-2,92E-07
Radiación ionizante	kBq U235 eq	7,30E-01	2,46E-03	9,78E-03	MND	MND	MND	0	2,16E-03	7,77E-03	8,23E-06	-5,01E-01
Ecotoxicidad de agua dulce	CTUe	1,52E+00	4,31E-01	3,52E+00	MND	MND	MND	0	3,98E-01	3,75E+00	-5,21E-03	-1,59E-01
Toxicidad humana – efectos cancerígenos	CTUh	7,54E-09	1,42E-11	1,54E-10	MND	MND	MND	0	1,11E-11	7,69E-11	-3,61E-12	-5,76E-09
Toxicidad humana – efectos no cancerígenos	CTUh	1,93E-07	4,47E-10	1,46E-09	MND	MND	MND	0	4,19E-10	3,64E-09	3,02E-12	-1,49E-07
Uso del suelo	Pt	1,35E+00	5,17E-01	6,71E+00	MND	MND	MND	0	3,45E-01	2,82E-01	4,32E-03	-8,27E-01

Potencial de Calentamiento Global (GHG)	kg CO2 eq	4,54E+00	3,71E-02	1,95E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,23E-03	-3,03E+00

Parámetros de uso de recursos, residuos y flujos materiales de salida/Parameters of resource use, waste and material ouput outflows

Uso de energía primaria renovable excluyendo los recursos de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	2,71E+01	6,36E-03	1,01E+00	MND	MND	MND	0	7,07E-03	1,47E-01	-7,83E-05	-2,13E+01
Uso de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	7,26E-01	MND	MND	MND	0	0	0	0	0
Uso total de energía primaria renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	2,71E+01	6,38E-03	1,01E+00	MND	MND	MND	0	7,08E-03	1,47E-01	-7,82E-05	-2,13E+01
Uso de energía primaria no renovable, excluyendo los recursos de energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	6,13E+01	5,52E-01	1,63E+00	MND	MND	MND	0	4,82E-01	1,85E+00	-1,69E-03	-4,05E+01
Uso de la energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	2,68E-01	MND	MND	MND	0	0	0	0	0
Uso total de la energía primaria no renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	6,13E+01	5,52E-01	1,63E+00	MND	MND	MND	0	4,82E-01	1,85E+00	-1,69E-03	-4,05E+01
Uso de materiales secundarios	kg	4,61E-01	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios no renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso neto de recursos de agua dulce	m3	3,37E-01	2,77E-02	4,41E-01	MND	MND	MND	0	2,81E-02	4,36E-01	-6,37E-03	-1,21E-01
Residuos peligrosos eliminados	kg	3,10E-01	1,18E-06	3,35E-06	MND	MND	MND	0	1,29E-06	6,27E-03	1,62E-08	-2,44E-01
Residuos no peligrosos eliminados	kg	1,27E+00	3,82E-02	2,33E-02	MND	MND	MND	0	2,40E-02	2,73E-02	2,85E-04	-9,16E-01
Residuos radiactivos eliminados	kg	5,49E-03	3,88E-06	6,39E-06	MND	MND	MND	0	3,36E-06	8,44E-06	4,21E-08	-5,03E-03
Componentes para su reutilización	kg	0	0	3,42E-01	MND	MND	MND	0	0	0	0	0
Materiales para el reciclaje	kg	0	0	0	MND	MND	MND	0	0	9,50E-01	0	0
Materiales para la valorización energética (recuperación de energía)	kg	0	0	0	MND	MND	MND	0	0	0	0	0
Energía exportada	MJ por vector energético	0	0	0	MND	MND	MND	0	0	0	0	0

GWP - Total - (A1+A2+A3)	4,77 kg CO2 eq
Billet production	92,2%
Extrusion	6,76%
Anodizing	0%
Coating	0%
Thermal break	0%
Machining	0,27%
Packaging	0,80%

A1 Supply of raw materials. **A2** Transport. **A3** Manufacturing. **A4** Transport. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport. **C3** Waste management for reuse, recovery and recycling. **C4** Final disposal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Module not declared.

Anodised profile/ Perfil anodizado

Parámetros de impacto ambiental/ Environmental impact parameters

Parámetro/ Paramater	Unidad/Unit	Etapa del ciclo de vida/Life Cycle Stage										
		Fabricación/Manufacture			Construcción/Constructio		Uso/Use	Fin de vida/End of Life				
		A1	A2	A3	A4	A4-A5	B1-B7	C1	C2	C3	C4	D
Cambio climático - total (GWP-total)	kg CO2 eq	5,62E+00	3,72E-02	7,22E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,23E-03	-3,27E+00
Cambio climático - fósil (GWP-fossil)	kg CO2 eq	5,60E+00	3,71E-02	7,20E-01	MND	MND	MND	0	3,27E-02	2,53E-01	1,22E-03	-3,26E+00
Cambio climático - biogénico (GWP-biogenic)	kg CO2 eq	1,81E-02	1,43E-05	1,86E-03	MND	MND	MND	0	1,35E-05	1,27E-03	8,20E-06	-8,43E-04
Cambio climático - uso del suelo y cambios del uso del suelo (GWP-luluc)	kg CO2 eq	1,56E-03	1,53E-05	5,40E-04	MND	MND	MND	0	1,16E-05	8,95E-05	1,45E-07	-6,35E-04
Agotamiento de la capa de ozono (ODP)	kg CFC-11 eq	1,40E-07	8,66E-09	1,28E-07	MND	MND	MND	0	7,43E-09	1,63E-08	8,10E-11	-4,99E-11
Acidificación (AP)	mol H+ eq	3,69E-02	4,23E-04	2,86E-03	MND	MND	MND	0	9,38E-05	8,22E-04	-2,06E-06	-2,38E-02
Eutrofización del agua dulce (EP-freshwater)	kg P eq	1,23E-03	2,56E-07	3,16E-05	MND	MND	MND	0	2,61E-07	5,30E-06	3,02E-09	-7,21E-04
Eutrofización del agua marina (EP-marine)	kg N eq	5,09E-03	1,02E-04	5,18E-04	MND	MND	MND	0	1,86E-05	1,59E-04	-1,95E-06	-3,04E-03
Eutrofización terrestre (EP-terrestrial)	mol N eq	5,24E-02	1,13E-03	5,19E-03	MND	MND	MND	0	2,08E-04	1,81E-03	-1,02E-05	-2,77E-02
Formación ozono fotoquímico (POCP)	kg NMVOC eq	1,64E-02	3,21E-04	1,51E-03	MND	MND	MND	0	7,96E-05	4,92E-04	-2,40E-06	-1,05E-02
Agotamiento de los recursos abióticos - minerales y metales (ADP-minerals&metals)	kg Sb eq	2,71E-06	5,54E-07	1,17E-05	MND	MND	MND	0	9,02E-07	1,47E-06	1,12E-08	-1,92E-06
Agotamiento de recursos abióticos - combustibles fósiles (ADP-fossil)	MJ, valor calorífico neto	7,44E+01	5,68E-01	5,65E+00	MND	MND	MND	0	4,94E-01	1,73E+00	-1,62E-03	-3,35E+01
Consumo de agua (WDP)	m3 mundial eq. privada	7,64E-01	1,61E-03	-2,61E-02	MND	MND	MND	0	1,40E-03	1,12E-02	-8,19E-06	-4,13E-01
Emisión de partículas	Incidencia enfermedades	4,19E-07	2,66E-09	2,33E-08	MND	MND	MND	0	2,08E-09	1,21E-08	1,22E-11	-3,15E-07
Radiación ionizante	kBq U235 eq	9,63E-01	2,47E-03	2,50E-02	MND	MND	MND	0	2,16E-03	7,77E-03	8,23E-06	-5,41E-01
Ecotoxicidad de agua dulce	CTUe	7,39E+00	4,32E-01	1,28E+01	MND	MND	MND	0	3,98E-01	3,75E+00	-5,21E-03	-1,71E-01
Toxicidad humana – efectos cancerígenos	CTUh	8,24E-09	1,43E-11	2,38E-09	MND	MND	MND	0	1,11E-11	7,69E-11	-3,61E-12	-6,22E-09
Toxicidad humana – efectos no cancerígenos	CTUh	2,14E-07	4,48E-10	1,52E-08	MND	MND	MND	0	4,19E-10	3,64E-09	3,02E-12	-1,60E-07
Uso del suelo	Pt	1,87E+00	5,16E-01	8,04E+00	MND	MND	MND	0	3,45E-01	2,82E-01	4,32E-03	-8,93E-01

Potencial de Calentamiento Global (GHG)	kg CO2 eq	5,62E+00	3,72E-02	7,22E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,23E-03	-3,27E+00

Parámetros de uso de recursos, residuos y flujos materiales de salida/Parameters of resource use, waste and material ouput outflows

Uso de energía primaria renovable excluyendo los recursos de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	2,96E+01	6,37E-03	1,36E+00	MND	MND	MND	0	7,07E-03	1,47E-01	-7,83E-05	-2,30E+01
Uso de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	7,30E-01	MND	MND	MND	0	0	0	0	0
Uso total de energía primaria renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	2,96E+01	6,38E-03	1,36E+00	MND	MND	MND	0	7,08E-03	1,47E-01	-7,82E-05	-2,30E+01
Uso de energía primaria no renovable, excluyendo los recursos de energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	8,50E+01	5,54E-01	5,56E+00	MND	MND	MND	0	4,82E-01	1,85E+00	-1,69E-03	-4,37E+01
Uso de la energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	2,73E-01	MND	MND	MND	0	0	0	0	0
Uso total de la energía primaria no renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	8,50E+01	5,54E-01	5,56E+00	MND	MND	MND	0	4,82E-01	1,85E+00	-1,69E-03	-4,37E+01
Uso de materiales secundarios	kg	4,29E-01	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios no renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso neto de recursos de agua dulce	m3	9,88E-01	2,77E-02	2,03E+00	MND	MND	MND	0	2,81E-02	4,36E-01	-6,37E-03	-1,30E-01
Residuos peligrosos eliminados	kg	3,34E-01	1,18E-06	1,07E-03	MND	MND	MND	0	1,29E-06	6,27E-03	1,62E-08	-2,64E-01
Residuos no peligrosos eliminados	kg	1,40E+00	3,81E-02	1,02E-01	MND	MND	MND	0	2,40E-02	2,73E-02	2,85E-04	-9,89E-01
Residuos radiactivos eliminados	kg	6,02E-03	3,89E-06	2,19E-05	MND	MND	MND	0	3,36E-06	8,44E-06	4,21E-08	-5,43E-03
Componentes para su reutilización	kg	0	0	3,69E-01	MND	MND	MND	0	0	0	0	0
Materiales para el reciclaje	kg	0	0	0	MND	MND	MND	0	0	9,50E-01	0	0
Materiales para la valorización energética (recuperación de energía)	kg	0	0	0	MND	MND	MND	0	0	0	0	0
Energía exportada	MJ por vector energético	0	0	0	MND	MND	MND	0	0	0	0	0

GWP - Total - (A1+A2+A3)	6,38 kg CO2 eq
Billet production	79,0%
Extrusion	5,72%
Anodizing	14,45%
Coating	0%
Thermal break	0%
Machining	0,22%
Packaging	0,66%

A1 Supply of raw materials. **A2** Transport. **A3** Manufacturing. **A4** Transport. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport. **C3** Waste management for reuse, recovery and recycling. **C4** Final disposal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Module not declared.

Coated profile/Perfil lacado

Parámetros de impacto ambiental/ Environmental impact parameters

Parámetro/ Paramater	Unidad/Unit	Etapa del ciclo de vida/Life Cycle Stage										
		Fabricación/Manufacture			Construcción/Constructio		Uso/Use	Fin de vida/End of Life				
		A1	A2	A3	A4	A4-A5	B1-B7	C1	C2	C3	C4	D
Cambio climático - total (GWP-total)	kg CO2 eq	4,63E+00	3,48E-02	4,81E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,20E-03	-2,91E+00
Cambio climático - fósil (GWP-fossil)	kg CO2 eq	4,62E+00	3,48E-02	4,78E-01	MND	MND	MND	0	3,27E-02	2,53E-01	1,20E-03	-2,91E+00
Cambio climático - biogénico (GWP-biogenic)	kg CO2 eq	1,01E-02	1,34E-05	1,50E-03	MND	MND	MND	0	1,35E-05	1,27E-03	7,85E-06	-7,52E-04
Cambio climático - uso del suelo y cambios del uso del suelo (GWP-luluc)	kg CO2 eq	1,23E-03	1,43E-05	9,79E-04	MND	MND	MND	0	1,16E-05	8,95E-05	1,49E-07	-5,66E-04
Agotamiento de la capa de ozono (ODP)	kg CFC-11 eq	1,00E-07	8,10E-09	7,04E-08	MND	MND	MND	0	7,43E-09	1,63E-08	8,64E-11	-4,45E-11
Acidificación (AP)	mol H+ eq	3,06E-02	3,95E-04	1,51E-03	MND	MND	MND	0	9,38E-05	8,22E-04	-1,80E-06	-2,13E-02
Eutrofización del agua dulce (EP-freshwater)	kg P eq	1,06E-03	2,39E-07	1,67E-05	MND	MND	MND	0	2,61E-07	5,30E-06	3,17E-09	-6,43E-04
Eutrofización del agua marina (EP-marine)	kg N eq	4,10E-03	9,48E-05	3,10E-04	MND	MND	MND	0	1,86E-05	1,59E-04	-1,81E-06	-2,72E-03
Eutrofización terrestre (EP-terrestrial)	mol N eq	4,13E-02	1,05E-03	3,20E-03	MND	MND	MND	0	2,08E-04	1,81E-03	-9,18E-06	-2,47E-02
Formación ozono fotoquímico (POCP)	kg NMVOC eq	1,35E-02	3,00E-04	9,34E-04	MND	MND	MND	0	7,96E-05	4,92E-04	-2,13E-06	-9,35E-03
Agotamiento de los recursos abióticos - minerales y metales (ADP-minerals&metals)	kg Sb eq	6,76E-06	5,19E-07	6,58E-06	MND	MND	MND	0	9,02E-07	1,47E-06	1,13E-08	-1,71E-06
Agotamiento de recursos abióticos - combustibles fósiles (ADP-fossil)	MJ, valor calorífico neto	5,82E+01	5,31E-01	3,48E+00	MND	MND	MND	0	4,94E-01	1,73E+00	-9,40E-04	-2,99E+01
Consumo de agua (WDP)	m3 mundial eq. privada	7,50E-01	1,50E-03	1,99E-02	MND	MND	MND	0	1,40E-03	1,12E-02	7,67E-06	-3,68E-01
Emisión de partículas	Incidencia enfermedades	3,70E-07	2,49E-09	1,34E-08	MND	MND	MND	0	2,08E-09	1,21E-08	1,50E-11	-2,81E-07
Radiación ionizante	kBq U235 eq	7,27E-01	2,31E-03	1,79E-02	MND	MND	MND	0	2,16E-03	7,77E-03	1,04E-05	-4,83E-01
Ecotoxicidad de agua dulce	CTUe	1,11E+01	4,04E-01	7,41E+00	MND	MND	MND	0	3,98E-01	3,75E+00	-4,54E-03	-1,53E-01
Toxicidad humana – efectos cancerígenos	CTUh	7,54E-09	1,33E-11	2,92E-10	MND	MND	MND	0	1,11E-11	7,69E-11	-3,44E-12	-5,55E-09
Toxicidad humana – efectos no cancerígenos	CTUh	1,87E-07	4,19E-10	8,31E-09	MND	MND	MND	0	4,19E-10	3,64E-09	3,27E-12	-1,43E-07
Uso del suelo	Pt	2,92E+00	4,83E-01	7,38E+00	MND	MND	MND	0	3,45E-01	2,82E-01	5,01E-03	-7,96E-01

Potencial de Calentamiento Global (GHG)	kg CO2 eq	4,63E+00	3,48E-02	4,81E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,20E-03	-2,91E+00

Parámetros de uso de recursos, residuos y flujos materiales de salida/Parameters of resource use, waste and material ouput outflows

Uso de energía primaria renovable excluyendo los recursos de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	2,58E+01	5,96E-03	1,19E+00	MND	MND	MND	0	7,07E-03	1,47E-01	-6,82E-05	-2,05E+01
Uso de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	7,10E-01	MND	MND	MND	0	0	0	0	0
Uso total de energía primaria renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	2,58E+01	5,98E-03	1,19E+00	MND	MND	MND	0	7,08E-03	1,47E-01	-6,81E-05	-2,05E+01
Uso de energía primaria no renovable, excluyendo los recursos de energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	6,66E+01	5,18E-01	3,42E+00	MND	MND	MND	0	4,82E-01	1,85E+00	-1,02E-03	-3,90E+01
Uso de la energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	2,66E-01	MND	MND	MND	0	0	0	0	0
Uso total de la energía primaria no renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	6,66E+01	5,18E-01	3,42E+00	MND	MND	MND	0	4,82E-01	1,85E+00	-1,02E-03	-3,90E+01
Uso de materiales secundarios	kg	4,60E-01	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios no renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso neto de recursos de agua dulce	m3	1,66E+00	2,59E-02	1,20E+00	MND	MND	MND	0	2,81E-02	4,36E-01	-6,06E-03	-1,16E-01
Residuos peligrosos eliminados	kg	2,89E-01	1,10E-06	5,48E-03	MND	MND	MND	0	1,29E-06	6,27E-03	1,67E-08	-2,35E-01
Residuos no peligrosos eliminados	kg	1,28E+00	3,57E-02	5,65E-02	MND	MND	MND	0	2,40E-02	2,73E-02	2,51E-03	-8,82E-01
Residuos radiactivos eliminados	kg	5,15E-03	3,64E-06	1,41E-05	MND	MND	MND	0	3,36E-06	8,44E-06	4,42E-08	-4,84E-03
Componentes para su reutilización	kg	0	0	3,38E-01	MND	MND	MND	0	0	0	0	0
Materiales para el reciclaje	kg	0	0	0	MND	MND	MND	0	0	9,50E-01	0	0
Materiales para la valorización energética (recuperación de energía)	kg	0	0	0	MND	MND	MND	0	0	0	0	0
Energía exportada	MJ por vector energético	0	0	0	MND	MND	MND	0	0	0	0	0

GWP - Total - (A1+A2+A3)	5,14 kg CO2 eq
Billet production	81,2%
Extrusion	5,92%
Anodizing	0%
Coating	11,93%
Thermal break	0%
Machining	0,25%
Packaging	0,72%

A1 Supply of raw materials. **A2** Transport. **A3** Manufacturing. **A4** Transport. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport. **C3** Waste management for reuse, recovery and recycling. **C4** Final disposal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Module not declared.

Thermal break anodized profile/Perfil anodizado con RPT

Parámetros de impacto ambiental/ Environmental impact parameters

Parámetro/ Paramater	Unidad/Unit	Etapa del ciclo de vida/Life Cycle Stage										
		Fabricación/Manufacture			Construcción/Constructio		Uso/Use	Fin de vida/End of Life				
		A1	A2	A3	A4	A4-A5	B1-B7	C1	C2	C3	C4	D
Cambio climático - total (GWP-total)	kg CO2 eq	4,83E+00	5,03E-02	5,50E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,16E-03	-2,40E+00
Cambio climático - fósil (GWP-fossil)	kg CO2 eq	4,81E+00	5,02E-02	5,48E-01	MND	MND	MND	0	3,27E-02	2,53E-01	1,15E-03	-2,40E+00
Cambio climático - biogénico (GWP-biogenic)	kg CO2 eq	1,92E-02	1,99E-05	1,57E-03	MND	MND	MND	0	1,35E-05	1,27E-03	7,18E-06	-6,20E-04
Cambio climático - uso del suelo y cambios del uso del suelo (GWP-luluc)	kg CO2 eq	1,33E-03	1,97E-05	4,25E-04	MND	MND	MND	0	1,16E-05	8,95E-05	1,55E-07	-4,67E-04
Agotamiento de la capa de ozono (ODP)	kg CFC-11 eq	1,50E-07	1,15E-08	1,01E-07	MND	MND	MND	0	7,43E-09	1,63E-08	9,66E-11	-3,67E-11
Acidificación (AP)	mol H+ eq	2,81E-02	3,76E-04	2,23E-03	MND	MND	MND	0	9,38E-05	8,22E-04	-1,32E-06	-1,75E-02
Eutrofización del agua dulce (EP-freshwater)	kg P eq	8,57E-04	3,71E-07	2,51E-05	MND	MND	MND	0	2,61E-07	5,30E-06	3,44E-09	-5,30E-04
Eutrofización del agua marina (EP-marine)	kg N eq	4,68E-03	8,72E-05	3,81E-04	MND	MND	MND	0	1,86E-05	1,59E-04	-1,56E-06	-2,24E-03
Eutrofización terrestre (EP-terrestrial)	mol N eq	4,20E-02	9,72E-04	3,99E-03	MND	MND	MND	0	2,08E-04	1,81E-03	-7,29E-06	-2,03E-02
Formación ozono fotoquímico (POCP)	kg NMVOC eq	1,32E-02	2,89E-04	1,17E-03	MND	MND	MND	0	7,96E-05	4,92E-04	-1,60E-06	-7,71E-03
Agotamiento de los recursos abióticos - minerales y metales (ADP-minerals&metals)	kg Sb eq	5,21E-06	1,09E-06	9,27E-06	MND	MND	MND	0	9,02E-07	1,47E-06	1,16E-08	-1,41E-06
Agotamiento de recursos abióticos - combustibles fósiles (ADP-fossil)	MJ, valor calorífico neto	6,82E+01	7,58E-01	4,61E+00	MND	MND	MND	0	4,94E-01	1,73E+00	3,47E-04	-2,47E+01
Consumo de agua (WDP)	m3 mundial eq. privada	1,56E+00	2,11E-03	8,44E-02	MND	MND	MND	0	1,40E-03	1,12E-02	3,79E-05	-3,04E-01
Emisión de partículas	Incidencia enfermedades	3,33E-07	3,29E-09	1,84E-08	MND	MND	MND	0	2,08E-09	1,21E-08	2,03E-11	-2,32E-07
Radiación ionizante	kBq U235 eq	7,29E-01	3,30E-03	2,15E-02	MND	MND	MND	0	2,16E-03	7,77E-03	1,46E-05	-3,98E-01
Ecotoxicidad de agua dulce	CTUe	1,53E+01	5,92E-01	9,63E+00	MND	MND	MND	0	3,98E-01	3,75E+00	-3,27E-03	-1,26E-01
Toxicidad humana – efectos cancerígenos	CTUh	7,55E-09	1,84E-11	1,90E-09	MND	MND	MND	0	1,11E-11	7,69E-11	-3,11E-12	-4,58E-09
Toxicidad humana – efectos no cancerígenos	CTUh	1,63E-07	6,16E-10	1,19E-08	MND	MND	MND	0	4,19E-10	3,64E-09	3,74E-12	-1,18E-07
Uso del suelo	Pt	2,30E+00	5,80E-01	6,55E+00	MND	MND	MND	0	3,45E-01	2,82E-01	6,32E-03	-6,57E-01

Potencial de Calentamiento Global (GHG)	kg CO2 eq	4,83E+00	5,03E-02	5,50E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,16E-03	-2,40E+00

Parámetros de uso de recursos, residuos y flujos materiales de salida/Parameters of resource use, waste and material ouput outflows

Uso de energía primaria renovable excluyendo los recursos de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	2,05E+01	9,70E-03	1,10E+00	MND	MND	MND	0	7,07E-03	1,47E-01	-4,90E-05	-1,69E+01
Uso de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	5,74E-01	MND	MND	MND	0	0	0	0	0
Uso total de energía primaria renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	2,05E+01	9,72E-03	1,10E+00	MND	MND	MND	0	7,08E-03	1,47E-01	-4,89E-05	-1,69E+01
Uso de energía primaria no renovable, excluyendo los recursos de energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	7,53E+01	7,39E-01	4,54E+00	MND	MND	MND	0	4,82E-01	1,85E+00	2,42E-04	-3,21E+01
Uso de la energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	2,59E-01	MND	MND	MND	0	0	0	0	0
Uso total de la energía primaria no renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	7,53E+01	7,39E-01	4,54E+00	MND	MND	MND	0	4,82E-01	1,85E+00	2,42E-04	-3,21E+01
Uso de materiales secundarios	kg	4,92E-01	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios no renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso neto de recursos de agua dulce	m3	1,60E+00	4,00E-02	1,61E+00	MND	MND	MND	0	2,81E-02	4,36E-01	-5,47E-03	-9,59E-02
Residuos peligrosos eliminados	kg	2,27E-01	1,77E-06	7,61E-04	MND	MND	MND	0	1,29E-06	6,27E-03	1,76E-08	-1,94E-01
Residuos no peligrosos eliminados	kg	9,78E-01	4,13E-02	7,89E-02	MND	MND	MND	0	2,40E-02	2,73E-02	6,76E-03	-7,27E-01
Residuos radiactivos eliminados	kg	4,06E-03	5,18E-06	1,83E-05	MND	MND	MND	0	3,36E-06	8,44E-06	4,83E-08	-4,00E-03
Componentes para su reutilización	kg	0	0	3,09E-01	MND	MND	MND	0	0	0	0	0
Materiales para el reciclaje	kg	0	0	0	MND	MND	MND	0	0	9,50E-01	0	0
Materiales para la valorización energética (recuperación de energía)	kg	0	0	0	MND	MND	MND	0	0	0	0	0
Energía exportada	MJ por vector energético	0	0	0	MND	MND	MND	0	0	0	0	0

GWP - Total - (A1+A2+A3)	5,43 kg CO2 eq
Billet production	69,4%
Extrusion	6,33%
Anodizing	11,91%
Coating	0%
Thermal break	11,50%
Machining	0,21%
Packaging	0,63%

A1 Supply of raw materials. **A2** Transport. **A3** Manufacturing. **A4** Transport. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport. **C3** Waste management for reuse, recovery and recycling. **C4** Final disposal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Module not declared.

Thermal break coated profile/Perfil lacado con RPT

Parámetros de impacto ambiental/ Environmental impact parameters

Parámetro/ Paramater	Unidad/Unit	Etapa del ciclo de vida/Life Cycle Stage										
		Fabricación/Manufacture			Construcción/Constructio		Uso/Use	Fin de vida/End of Life				
		A1	A2	A3	A4	A4-A5	B1-B7	C1	C2	C3	C4	D
Cambio climático - total (GWP-total)	kg CO2 eq	4,58E+00	5,08E-02	4,25E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,13E-03	-2,44E+00
Cambio climático - fósil (GWP-fossil)	kg CO2 eq	4,57E+00	5,08E-02	4,23E-01	MND	MND	MND	0	3,27E-02	2,53E-01	1,13E-03	-2,44E+00
Cambio climático - biogénico (GWP-biogenic)	kg CO2 eq	1,07E-02	2,02E-05	1,36E-03	MND	MND	MND	0	1,35E-05	1,27E-03	6,86E-06	-6,31E-04
Cambio climático - uso del suelo y cambios del uso del suelo (GWP-luluc)	kg CO2 eq	1,17E-03	1,98E-05	7,51E-04	MND	MND	MND	0	1,16E-05	8,95E-05	1,58E-07	-4,75E-04
Agotamiento de la capa de ozono (ODP)	kg CFC-11 eq	1,19E-07	1,16E-08	6,29E-08	MND	MND	MND	0	7,43E-09	1,63E-08	1,01E-10	-3,73E-11
Acidificación (AP)	mol H+ eq	2,79E-02	3,73E-04	1,31E-03	MND	MND	MND	0	9,38E-05	8,22E-04	-1,08E-06	-1,78E-02
Eutrofización del agua dulce (EP-freshwater)	kg P eq	8,28E-04	3,76E-07	1,40E-05	MND	MND	MND	0	2,61E-07	5,30E-06	3,57E-09	-5,39E-04
Eutrofización del agua marina (EP-marine)	kg N eq	4,53E-03	8,65E-05	2,67E-04	MND	MND	MND	0	1,86E-05	1,59E-04	-1,43E-06	-2,28E-03
Eutrofización terrestre (EP-terrestrial)	mol N eq	3,93E-02	9,64E-04	2,80E-03	MND	MND	MND	0	2,08E-04	1,81E-03	-6,39E-06	-2,07E-02
Formación ozono fotoquímico (POCP)	kg NMVOC eq	1,30E-02	2,88E-04	8,20E-04	MND	MND	MND	0	7,96E-05	4,92E-04	-1,35E-06	-7,84E-03
Agotamiento de los recursos abióticos - minerales y metales (ADP-minerals&metals)	kg Sb eq	9,28E-06	1,10E-06	5,52E-06	MND	MND	MND	0	9,02E-07	1,47E-06	1,17E-08	-1,43E-06
Agotamiento de recursos abióticos - combustibles fósiles (ADP-fossil)	MJ, valor calorífico neto	6,05E+01	7,68E-01	3,14E+00	MND	MND	MND	0	4,94E-01	1,73E+00	9,64E-04	-2,51E+01
Consumo de agua (WDP)	m3 mundial eq. privada	1,61E+00	2,15E-03	3,69E-02	MND	MND	MND	0	1,40E-03	1,12E-02	5,24E-05	-3,09E-01
Emisión de partículas	Incidencia enfermedades	3,31E-07	3,36E-09	1,16E-08	MND	MND	MND	0	2,08E-09	1,21E-08	2,28E-11	-2,36E-07
Radiación ionizante	kBq U235 eq	5,73E-01	3,35E-03	1,64E-02	MND	MND	MND	0	2,16E-03	7,77E-03	1,66E-05	-4,05E-01
Ecotoxicidad de agua dulce	CTUe	2,13E+01	6,01E-01	6,26E+00	MND	MND	MND	0	3,98E-01	3,75E+00	-2,66E-03	-1,28E-01
Toxicidad humana – efectos cancerígenos	CTUh	7,75E-09	1,85E-11	2,51E-10	MND	MND	MND	0	1,11E-11	7,69E-11	-2,96E-12	-4,65E-09
Toxicidad humana – efectos no cancerígenos	CTUh	1,61E-07	6,26E-10	7,59E-09	MND	MND	MND	0	4,19E-10	3,64E-09	3,97E-12	-1,20E-07
Uso del suelo	Pt	3,60E+00	5,96E-01	6,25E+00	MND	MND	MND	0	3,45E-01	2,82E-01	6,95E-03	-6,68E-01

Potencial de Calentamiento Global (GHG)	kg CO2 eq	4,58E+00	5,08E-02	4,25E-01	MND	MND	MND	0	3,27E-02	2,54E-01	1,13E-03	-2,44E+00

Parámetros de uso de recursos, residuos y flujos materiales de salida/Parameters of resource use, waste and material ouput outflows

Uso de energía primaria renovable excluyendo los recursos de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	2,00E+01	9,83E-03	1,01E+00	MND	MND	MND	0	7,07E-03	1,47E-01	-3,98E-05	-1,72E+01
Uso de energía primaria renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	5,88E-01	MND	MND	MND	0	0	0	0	0
Uso total de energía primaria renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	2,00E+01	9,85E-03	1,01E+00	MND	MND	MND	0	7,08E-03	1,47E-01	-3,96E-05	-1,72E+01
Uso de energía primaria no renovable, excluyendo los recursos de energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	6,67E+01	7,49E-01	3,10E+00	MND	MND	MND	0	4,82E-01	1,85E+00	8,49E-04	-3,27E+01
Uso de la energía primaria no renovable utilizada como materia prima	MJ, valor calorífico neto	0	0	2,55E-01	MND	MND	MND	0	0	0	0	0
Uso total de la energía primaria no renovable (energía primaria y recursos de energía primaria renovable utilizada como materia prima)	MJ, valorcalorífico neto	6,67E+01	7,49E-01	3,10E+00	MND	MND	MND	0	4,82E-01	1,85E+00	8,49E-04	-3,27E+01
Uso de materiales secundarios	kg	4,63E-01	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso de combustibles secundarios no renovables	MJ, valor calorífico neto	0	0	0	MND	MND	MND	0	0	0	0	0
Uso neto de recursos de agua dulce	m3	2,33E+00	4,06E-02	1,07E+00	MND	MND	MND	0	2,81E-02	4,36E-01	-5,18E-03	-9,76E-02
Residuos peligrosos eliminados	kg	2,18E-01	1,80E-06	4,57E-03	MND	MND	MND	0	1,29E-06	6,27E-03	1,80E-08	-1,97E-01
Residuos no peligrosos eliminados	kg	1,01E+00	4,26E-02	4,96E-02	MND	MND	MND	0	2,40E-02	2,73E-02	8,80E-03	-7,40E-01
Residuos radiactivos eliminados	kg	3,87E-03	5,25E-06	1,29E-05	MND	MND	MND	0	3,36E-06	8,44E-06	5,03E-08	-4,06E-03
Componentes para su reutilización	kg	0	0	2,94E-01	MND	MND	MND	0	0	0	0	0
Materiales para el reciclaje	kg	0	0	0	MND	MND	MND	0	0	9,50E-01	0	0
Materiales para la valorización energética (recuperación de energía)	kg	0	0	0	MND	MND	MND	0	0	0	0	0
Energía exportada	MJ por vector energético	0	0	0	MND	MND	MND	0	0	0	0	0

GWP - Total - (A1+A2+A3)	5,06 kg CO2 eq
Billet production	65,7%
Extrusion	6,38%
Anodizing	0%
Coating	10,28%
Thermal break	16,75%
Machining	0,23%
Packaging	0,67%

A1 Supply of raw materials. **A2** Transport. **A3** Manufacturing. **A4** Transport. **A5** Installation and construction processes. **B1** Use. **B2** Maintenance. **B3** Repair. **B4** Replacement. **B5** Refurbishment. **B6** Operational energy use. **B7** Operational water use. **C1** Deconstruction and demolition. **C2** Transport. **C3** Waste management for reuse, recovery and recycling. **C4** Final disposal. **D** Environmental benefits and burdens beyond the system boundary. **MND** Module not declared.