EXTRUSIONADOS GALICIA, S.A.U. (GALICIA EXTRUDATES)

ENVIRONMENTAL PRODUCT DECLARATION

EN ISO 14025:2010
UNE-EN 15804:2012 +A2:2020

Profiles of raw aluminum, anodized and lacquered without and with thermal bridge break

Program: The Environmental Footprint Program
Program Operator: The Environmental Footprint Institute www.environmentalfootprintinstitute.org
EPD registration number: REF:221114EPD
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Geographic Scope: Global

1. INTRODUCTION

This report contains the environmental characteristics of the primary aluminum extrusion manufacturing process developed by EXTRUSIONADOS GALICIA (EXTRUGASA).

This Environmental Product Declaration (EPD) has been developed using the Life Cycle Assessment (LCA) methodology. The calculated environmental impact value refers to one kilogram of aluminum profile. The assessed life cycle includes all stages of the "cradle to gate" aluminum extrusion manufacturing process. The LCA covers from the production of all raw materials (aluminum billet, chemical products, etc.), extrusion, coating or anodizing, and all other manufacturing processes to distribution to end customers.

EXTRUGASA profiles can be sold raw (without treatment), painted, or anodized and with various finishes. Each of them can be marketed with or without thermal break (RPT). This EPD covers all six product groups.

This EPD has been developed in accordance with the Environmental Footprint Institute standards and has been certified and registered by the Environmental Footprint Institute. The EPD regulation is a system for international use of Type III Environmental Declarations, according to ISO 14025:2010. In the General Instructions of the Programmer (GIP) not only the system is described, but also its applications.

This report has been made following the specifications given in the European standard EN 15804:2012+A2:2019.

The direct and indirect emissions and corresponding environmental impacts calculated in the life cycle analysis and reported in this DAP include the value of calculating the CO2 footprint, water footprint and other environmental impacts on air, soil, and water.

This EPD is a complete and objective overview of the environmental impact of the production process and distribution of EXTRUGASA aluminum profiles.

2. PROGRAM INFORMATION
This EPD has been prepared and certified in accordance with the rules of the international program of environmental declarations The Environmental Footprint Program. The EPD is registered with the Environmental Footprint Institute and is available in English and Spanish on the institute's websites www.environmentalfootprintinstitute.org and www.huellaambiental.org. EPD regulation under the Environmental Footprint scheme is a system for international use based on Type III environmental declarations and ISO 14025:2010. Both the system and its application are described in the Programmer's General Indications (GIP) of The Environmental Footprint Institute. The system and its use are described in the Environmental Footprint Institute Programmer's General Guidelines (GIP).
COMPARABILITY
EPDs used in the same product category but in different applications may not be comparable. If a construction product does not comply with EN 15804, its EPD may not be comparable. The holder of this DAP, EXTRUSIONADOS GALICIA, SAU has sole ownership, liability, and responsibility for this DAP.

VERIFICATION DATA	
MANUFACTURER INFORMATION	
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PROGRAM USED FOR LCA STUDY	
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EXTERNAL VERIFIER	
NAME	The Environmental Footprint Institute
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WEBSITE	www.environmentalfootprintinstitute.org

3. COMPANY INFORMATION

EXTRUGASA is a family company with more than 50 years of experience (born in 1965), pioneers of the aluminum world.

It has more than 700 employees and has the following production lines at its headquarters:

- 6 extrusion presses.
- 4 anodized plants.
- 4 lacquer plants.

The production facility is located at the following address:

LG. CAMPAÑA S/N
36645 VALGA - PONTEVEDRA

SUSTAINABLE PRACTICES

EXTRUGASA's production facility in Valga has implemented an environmental management system, which is constantly updated and certified by a recognized organization according to the international standard ISO 14001:2015.

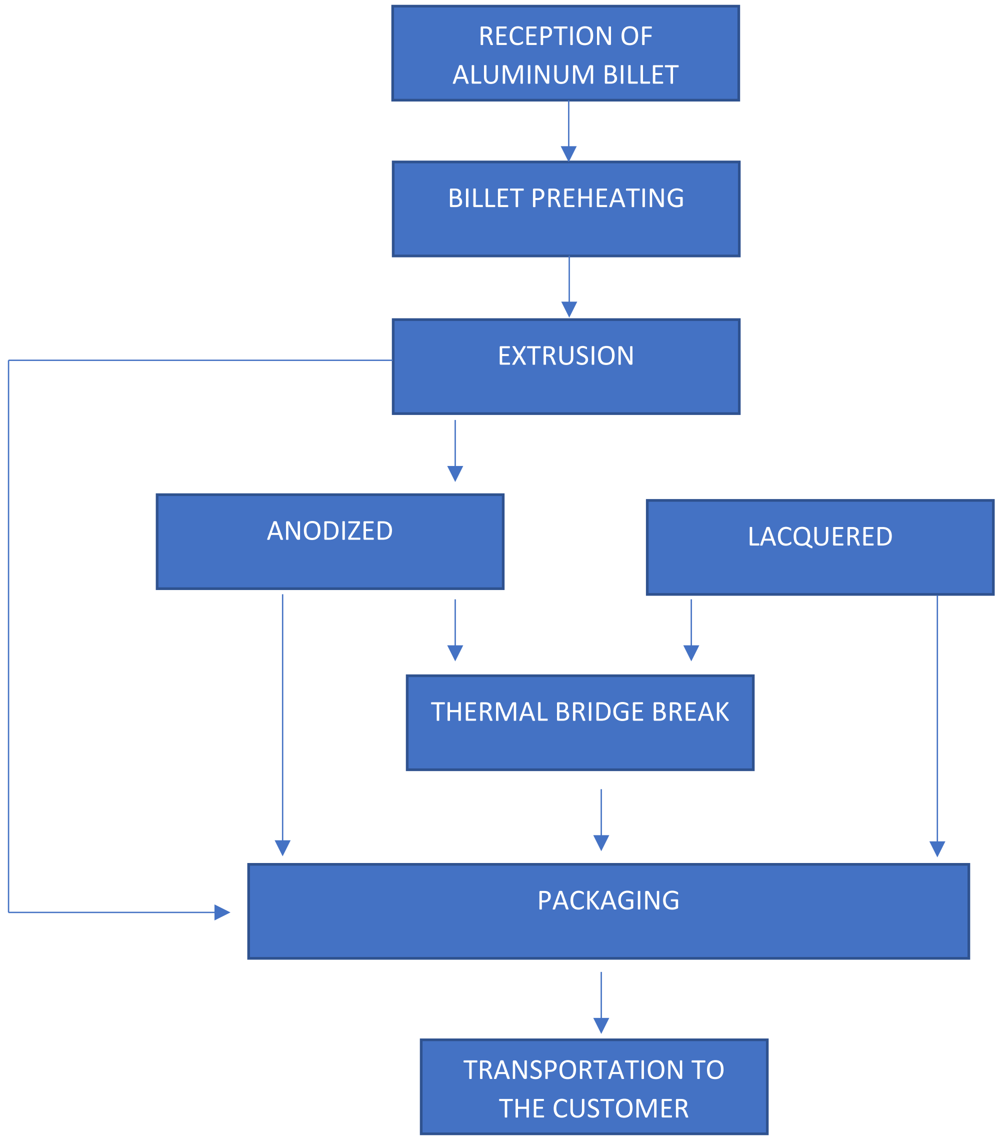
4. PRODUCT INFORMATION

The systems evaluated in this Environmental Product Declaration (EPD) cover the entire life cycle of extruded aluminum profiles with different surface treatments.

- Raw aluminum profile without thermal break
- Raw aluminum profile with thermal break
- Lacquered aluminum profile without thermal break
- Lacquered aluminum profile with thermal break
- Anodized aluminum profile without thermal break
- Lacquered aluminum profile with thermal break

The assessment was carried out using the 2020 production data at the EXTRUGASA factory in Valga.

MANUFACTURING PROCESS



COMPOSITION											
The aluminum alloys used in EXTRUGASA have the following composition, according to UNE-EN 573-3:2020:											
Yes	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ga	V	aluminum
0,30-0,60	0,15-0,35	0,10	0,15	0,6-0,9	0,05	-	0,15	0,10	-	-	Remnant

Aluminum profiles do not contain substances that exceed the registration limits set by the European Chemicals Agency regarding the “Candidate List of Substances of Very High Concern (SVHC) for authorization”.

The final composition of the aluminum profile is as follows:

RAW PROFILE WITHOUT BREAK	
SUBSTANCE	Percentage
Aluminum profile	100%
RAW PROFILE WITH BREAK	
SUBSTANCE	Percentage
Aluminum profile	~ 87,8%
Polyamide	~12,2%
ANODIZED PROFILE WITHOUT BREAK	
SUBSTANCE	Percentage
Aluminum profile	~99%
Anodizing Chemicals	<1%
ANODIZED PROFILE WITH BREAK	
SUBSTANCE	Percentage
Aluminum profile	~ 87%
Polyamide	~12,2%
Anodizing Chemicals	<1%
LACQUERED PROFILE WITHOUT BREAK	
SUBSTANCE	Percentage
Aluminum profile	~95,2%
Paint	~4,8%
LACQUERED PROFILE WITH BREAK	
SUBSTANCE	Percentage
Aluminum	~83%
Polyamide	~12,2%
Paint	~4,8%

5. LCA INFORMATION

DECLARED UNIT

EXTRUGASA produces and distributes aluminum profiles with various finishes. To standardize the results of this environmental study, the functional unit of LCA is one kilogram (1 kg) aluminum profile. All direct and indirect environmental impacts as well as resource use are reported with reference to this unit.
This EPD presents the impacts separately for the following six types of aluminum profiles:

- Raw aluminum profile without thermal break
- Raw aluminum profile with thermal break
- Lacquered aluminum profile without thermal break
- Lacquered aluminum profile with thermal break
- Anodized aluminum profile without thermal break
- Lacquered aluminum profile with thermal break

SYSTEM LIMITS

	A1 to 3			A4-5		B1 to 5							C1 to 4				D
	Product stage			Construction process stage		Usage stage							End of life stage				Benefits and charges beyond the system
	Supply of raw materials	Transportation	Manufacturing	Transportation	Construction/Installation Process	Use	Maintenance	Repair	Substitution	Rehabilitation	Use of energy in service	Use of water in service	Deconstruction, demolition	Transportation	Waste treatment	Waste disposal	Potential for reuse recovery and recycling
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Geography	GLO	GLO	GLO	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Specific use of data	> 95% GWP			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	< 10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation- plants	1 place. No variants			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: Declared module ND: Not Declared module

PHASES AND PROCESSES

The primary raw material, raw aluminum billet, is produced by a third party. The same happens with auxiliary raw materials (paints, chemical products from the anodizing process,...) (Module A1)

Aluminum billets are transported by ship from the supplier to the port in the province and from there by truck to the EXTRUGASA factory. Auxiliary raw materials are transported by truck. (Module A2)

The production process (module A3) starts with pressing the aluminum bar in a press. Profiles are heated and formed according to the structure to be made using different molds for different processes.

Once this step is done, part of the profiles can receive different treatments:

- An anodizing surface treatment that increases surface hardness by immersing the part in an electrolysis bath. Aluminum acts as an anode when immersed in a sulfuric acid solution with a direct current.
- Paint surface treatment: Provides surface protection of aluminum profiles and increases the aesthetic effect when painted.

The next step is to place the insulation and then package the product for delivery to the customer.

The impact assessment also includes environmental impacts related to fuel extraction and production, as well as indirect impacts related to electricity (Spain's national electricity structure) and natural gas production.

TECHNICAL INFORMATION

CALCULATION METHOD

This EPD is a type III environmental declaration according to ISO 14025 2010.

The Life Cycle Assessment (LCA) has been developed following the ISO 14040 International Standard.

The method of calculating environmental impacts reported in this EPD follows the ILCD rev 2.0 methodology developed by the European Commission in April 2018. The report has been made following the specifications given in the UNE-EN 15804:2012+A2:2019 standard: Sustainability in construction. Environmental product declarations. Basic product category rules for construction products.

REPORTED IMPACTS, MODELS USED AND REPORTING UNITS. ASSIGNMENT RULES. CUTTING CRITERIA. SCENARIO FOR OPTIONAL MODULES (END OF LIFE- CD)

The Air.e LCA™ software in its version 3.12 has been used with the Ecoinvent™ 3.7.1 database, to model the LCA and to calculate impacts. The following characterization models have been used:

IMPACT	MODEL	UNIT
Global climate change	IPCC 100-year baseline model (based on IPCC 2013)	Kg CO2 eq
Fossil Climate change	IPCC 100-year baseline model (based on IPCC 2013)	Kg CO2 eq
Biogenic climate change	IPCC 100-year baseline model (based on IPCC 2013)	Kg CO2 eq
Climate change, land use and land use change	IPCC 100-year baseline model (based on IPCC 2013)	Kg CO2 eq
Ozone layer depletion	Stable regimen ODPs, WMO 2014	Kg CO 11 eq
Acidification	Accumulated surplus (Seppälä et al. 2006, Posch et al, 2008)	Mol H eq
eutrophication of fresh water	EUTREN Model, Struijs et al., 2009b, as implemented in ReCiPe	kg PO4 eq
Eutrophication of seawater	EUTREN Model, Struijs et al., 2009b, as implemented in ReCiPe	KG N eq
Terrestrial eutrophication	Accumulated surplus (Seppälä et al. 2006, Posch et al, 2008)	mol N eq
Photochemical ozone formation	LOTOS-EUROS Model (Van Zelm et al, 2008) as applied in ReCiPe 2008	Kg NMVOC eq
Depletion of abiotic resources – minerals and metals	CML 2002 (Guinée et al., 2002) & van Oers et al. 2002	Kg Sb eq
Depletion of abiotic resources – fossil fuels	CML 2002 (Guinée et al., 2002) & van Oers et al. 2002	MJ, net calorific value
Water consumption	Remaining water availability (AWARE) Bouyal et al., 2016	world m3 eq. private

All processes related to the product have been included in this analysis.
Some components that contribute less than 1% or use by-products without significant economic value are excluded from this analysis (according to EN 15804:2012+A2:2019).

All shipments and components are included based on actual loads and distances traveled with materials used between January 2020 and December 2020. Operations in the port have been excluded)

Road distances are calculated using Google Maps and sea distances are calculated using the MarineTraffic Voyage Planner.

The criteria for assigning flows have been, as far as possible, the direct calculation for each process. This is for both inputs and outputs.

There are no separate electricity and gas consumption meters in the facility. The allocation of each process considers the estimates of the company's technical staff, and the same allocation ratio is used for cost accounting. Each process has been assigned a percentage of the company's actual consumption data. General process consumption is included and not directly related to production; they are distributed according to the same rules.

The same applies to water consumption during painting and anodizing, as the consumption in other processes is not significant.

Cutting rule: Material or energy consumption has not been excluded. Meets criteria that include at least 99% of the total weight of the product used to declare the unit. The transportation of employees has been excluded. The production and maintenance of the equipment has also been excluded.

The product analyzed is representative of its manufacturing plant.

The principles of Modularity and "the polluter pays" have been followed.

For modules C and D, the results of a Delft University of Technology study published by the European Aluminum Association (EAA) in an Environmental Fact Sheet. Life-Cycle inventory data for aluminum production and transformation processes in Europe. February 2018". As the report concludes, the recycling rate of various profiles is 95% after the use phase in the construction industry. The study also found that 61% of profiles were reused to produce recycled aluminum.

This assumption is also accepted by the Spanish aluminum association Environdec sector EPD for anodized and painted aluminum extrusion no. SP-01409. In both, it is established that the aluminum recovery rate is 95%, so only 5% goes to landfill.

EMISSION FACTORS AND TOOLS

Emission factors and environmental impacts for life cycle elements not controlled by EXTRUGASA and direct emissions not measured or calculated are from the database.
Ecoinvent in its version 3.7.1, using the "cut-off" criteria of said database.

The LCA has been developed using the Air.e LCA v3.12 software.

DATA QUALITY

In terms of data quality, it has been assessed against the quality parameters set by the European Commission's Environmental Footprint:

- Completeness: more than 90% of system data and input covered: Score

- Methodological suitability and consistency: Score 3
- Temporal representativeness: Data from the year 2020 is used, which is a representative year. There are no significant changes compared to previous or future years. The raw material data comes from the database and reasonably meets the standard: Score 2
- Technical representativeness: Most of the data comes from machines, although some data comes from databases. Score 2
- Geographic Representation: Most data come from machines, although some data comes from databases. Score 2
- Data uncertainty very low. All consumption data comes from the facilities themselves. Material data and weights are also facility data. Score 1

Based on this, the Data Quality Score (DQR) data: 11/6=1.83, the data quality is very good.

6. ENVIRONMENTAL PERFORMANCE

6.1. RAW PROFILE

		WITHOUT BREAK			WITH BREAK		
Impact category	Unit	A1-A3	C4	D	A1-A3	C4	D
BASIC IMPACT PARAMETERS							
Global climate change	Kg CO2 eq	3,83E+00	3,83E+00	3,83E+00	4,40E+00	4,40E+00	4,40E+00
Fossil Climate change	Kg CO2 eq	3,78E+00	3,78E+00	3,78E+00	4,35E+00	4,35E+00	4,35E+00
Biogenic climate change	Kg CO2 eq	1,40E-02	1,40E-02	1,40E-02	1,46E-02	1,46E-02	1,46E-02
Climate change, land use and land use change	Kg CO2 eq	3,97E-02	3,97E-02	3,97E-02	3,99E-02	3,99E-02	3,99E-02
Ozone layer depletion	Kg CO 11 eq	3,69E-07	3,69E-07	3,69E-07	3,78E-07	3,79E-07	3,79E-07
Acidification	Mol H eq	3,00E-02	3,00E-02	3,00E-02	3,24E-02	3,24E-02	3,24E-02
Eutrophication of fresh water	kg PO4 eq	2,41E-03	2,41E-03	2,41E-03	2,47E-03	2,47E-03	2,47E-03
Eutrophication of seawater	KG N eq	5,24E-03	5,24E-03	5,24E-03	6,01E-03	6,01E-03	6,01E-03
Terrestrial eutrophication	mol N eq	4,95E-02	4,95E-02	4,95E-02	5,34E-02	5,34E-02	5,34E-02
Photochemical ozone formation	Kg NMVOC eq	1,79E-02	1,79E-02	1,79E-02	1,92E-02	1,92E-02	1,92E-02
Depletion of abiotic resources – minerals and metals	Kg Sb eq	7,63E-04	7,63E-04	7,63E-04	7,64E-04	7,64E-04	7,64E-04
Depletion of abiotic resources – fossil fuels	MJ, net calorific value	5,62E+01	5,62E+01	5,62E+01	6,53E+01	6,53E+01	6,53E+01
Water consumption	world m3 eq. private	6,40E+00	6,40E+00	6,40E+00	7,10E+00	7,10E+00	7,10E+00
ADDITIONAL IMPACT PARAMETERS							
Particulate Matter Emissions	Disease incidence	ND	ND	ND	ND	ND	ND
Ionizing radiation, human health	kBq U235 eq	ND	ND	ND	ND	ND	ND
Ecotoxicity	CTUe	ND	ND	ND	ND	ND	ND
Human toxicity, carcinogenic effects	CTUh	ND	ND	ND	ND	ND	ND
Human toxicity, non-carcinogenic effects	CTUh	ND	ND	ND	ND	ND	ND
Impacts associated with the use and quality of the soil	dimensionless	ND	ND	ND	ND	ND	ND

ND: Not declared

USE OF RESOURCES							
		WITHOUT BREAK			WITH BREAK		
Impact category	Unit	A1-A3	C4	D	A1-A3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ	1,38E+01	1,38E+01	1,38E+01	1,41E+01	1,41E+01	1,41E+01
Use of renewable primary energy used as raw material	MJ	0	0	0	0	0	0
Total use of primary renewable energy (primary energy and primary renewable energy resources used as raw materials)	MJ	1,38E+01	1,38E+01	1,38E+01	1,41E+01	1,41E+01	1,41E+01
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ	5,62E+01	5,62E+01	5,62E+01	6,53E+01	6,53E+01	6,53E+01
Use of renewable primary energy used as raw material	MJ	0	0	0	0	0	0
Total use of primary renewable energy (primary energy and primary renewable energy resources used as raw materials)	MJ	5,62E+01	5,62E+01	5,62E+01	6,53E+01	6,53E+01	6,53E+01
Use of secondary materials	Kg	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of non-renewable secondary fuels	M3	1,57E+03	1,57E+03	1,57E+03	1,57E+03	1,57E+03	1,57E+03

WASTE DISPOSED. The data refer to manufacturing steps A1-A3.		WITHOUT BREAK	WITH BREAK
Hazardous waste disposed	Kg/functional unit	8,91E-02	1,80E-01
Non-hazardous waste disposed	Kg/functional unit	4,78E-02	5,60E-02
Radioactive waste disposed	Kg/functional unit	0	0

OUTPUT FLOWS. The data refer to manufacturing steps A1-A3.		WITHOUT BREAK	WITH BREAK
Components for reuse (aluminum remains and sludge from the water treatment plant)	Kg/functional unit	5,96E-03	1,11E-02
Materials for recycling (90% of aluminum is recycled)	Kg/functional unit	0,90	0,90
Materials for energy recovery	Kg/functional unit	0	0

6.2. ANODIZED PROFILE

		WITHOUT BREAK			WITH BREAK		
Impact category	Unit	A1-A3	C4	D	A1-A3	C4	D
Global climate change	Kg CO2 eq	4,26E+00	4,26E+00	4,26E+00	4,83E+00	4,84E+00	4,84E+00
Fossil Climate change	Kg CO2 eq	4,20E+00	4,20E+00	4,20E+00	4,77E+00	4,78E+00	4,78E+00
Biogenic climate change	Kg CO2 eq	1,76E-02	1,76E-02	1,76E-02	1,82E-02	1,82E-02	1,82E-02
Climate change, land use and land use change	Kg CO2 eq	3,98E-02	3,98E-02	3,98E-02	3,99E-02	3,99E-02	3,99E-02
Ozone layer depletion	Kg CO 11 eq	4,42E-07	4,43E-07	4,43E-07	4,52E-07	4,52E-07	4,52E-07
Acidification	Mol H eq	3,07E-02	3,07E-02	3,07E-02	3,31E-02	3,31E-02	3,31E-02
Eutrophication of fresh water	kg PO4 eq	2,44E-03	2,44E-03	2,44E-03	2,50E-03	2,50E-03	2,50E-03
Eutrophication of seawater	KG N eq	5,43E-03	5,44E-03	5,44E-03	6,20E-03	6,21E-03	6,21E-03
Terrestrial eutrophication	mol N eq	5,16E-02	5,16E-02	5,16E-02	5,55E-02	5,55E-02	5,55E-02
Photochemical ozone formation	Kg NMVOC eq	1,85E-02	1,85E-02	1,85E-02	1,98E-02	1,99E-02	1,71E-02
Depletion of abiotic resources – minerals and metals	Kg Sb eq	7,65E-04	7,65E-04	7,65E-04	7,66E-04	7,66E-04	7,66E-04
Depletion of abiotic resources – fossil fuels	MJ, net calorific value	6,45E+01	6,46E+01	6,46E+01	7,36E+01	7,36E+01	7,36E+01
Water consumption	world m3 eq. private	6,60E+00	6,60E+00	6,60E+00	7,30E+00	7,31E+00	7,31E+00
ADDITIONAL IMPACT PARAMETERS							
Particulate Matter Emissions	Disease incidence	ND	ND	ND	ND	ND	ND
Ionizing radiation, human health	kBq U235 eq	ND	ND	ND	ND	ND	ND
Ecotoxicity	CTUe	ND	ND	ND	ND	ND	ND
Human toxicity, carcinogenic effects	CTUh	ND	ND	ND	ND	ND	ND
Human toxicity, non-carcinogenic effects	CTUh	ND	ND	ND	ND	ND	ND
Impacts associated with the use and quality of the soil	dimensionless	ND	ND	ND	ND	ND	ND

ND: Not declared

USE OF RESOURCES

		WITHOUT BREAK			WITH BREAK		
Impact category	Unit	A1-A3	C4	D	A1-A3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ	1,40E+01	1,40E+01	1,40E+01	1,43E+01	1,43E+01	1,43E+01
Use of renewable primary energy used as raw material	MJ	0	0	0	0	0	0
Total use of primary renewable energy (primary energy and primary renewable energy resources used as raw materials)	MJ	1,40E+01	1,40E+01	1,40E+01	1,43E+01	1,43E+01	1,43E+01
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ	6,45E+01	6,46E+01	6,46E+01	7,36E+01	7,36E+01	7,36E+01
Use of renewable primary energy used as raw material	MJ	0	0	0	0	0	0
Total use of primary renewable energy (primary energy and primary renewable energy resources used as raw materials)	MJ	6,45E+01	6,46E+01	6,46E+01	7,36E+01	7,36E+01	7,36E+01
Use of secondary materials	Kg	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of non-renewable secondary fuels	M3	9,32E+03	9,32E+03	9,32E+03	9,32E+03	9,32E+03	9,32E+03

WASTE DISPOSED. The data refer to manufacturing steps A1-A3.		WITHOUT BREAK	WITH BREAK
Hazardous waste disposed	Kg/functional unit	1,59E-01	6,40E-01
Non-hazardous waste disposed	Kg/functional unit	4,41E+00	6,59E+01
Radioactive waste disposed	Kg/functional unit	0	0

OUTPUT FLOWS. The data refer to manufacturing steps A1-A3.		WITHOUT BREAK	WITH BREAK
Components for reuse (aluminum remains and sludge from the water treatment plant)	Kg/functional unit	9,93E-03	3,71E-02
Materials for recycling (90% of aluminum is recycled)	Kg/functional unit	0,90	0,90
Materials for energy recovery	Kg/functional unit	0	0

6.3. LACQUERED PROFILE

		WITHOUT BREAK			WITH BREAK		
Impact category	Unit	A1-A3	C4	D	A1-A3	C4	D
Global climate change	Kg CO2 eq	3,98E+00	3,98E+00	3,98E+00	4,55E+00	4,55E+00	4,55E+00
Fossil Climate change	Kg CO2 eq	3,93E+00	3,93E+00	3,93E+00	4,49E+00	4,49E+00	4,49E+00
Biogenic climate change	Kg CO2 eq	1,46E-02	1,46E-02	1,46E-02	1,52E-02	1,52E-02	1,52E-02
Climate change, land use and land use change	Kg CO2 eq	3,98E-02	3,98E-02	3,98E-02	3,99E-02	3,99E-02	3,99E-02
Ozone layer depletion	Kg CO 11 eq	3,95E-07	3,95E-07	3,95E-07	4,04E-07	4,04E-07	4,04E-07
Acidification	Mol H eq	3,02E-02	3,02E-02	3,02E-02	3,26E-02	3,26E-02	3,26E-02
Eutrophication of fresh water	kg PO4 eq	2,41E-03	2,41E-03	2,41E-03	2,47E-03	2,47E-03	2,47E-03
Eutrophication of seawater	KG N eq	5,30E-03	5,30E-03	5,30E-03	6,07E-03	6,07E-03	6,07E-03
Terrestrial eutrophication	mol N eq	5,01E-02	5,02E-02	5,02E-02	5,40E-02	5,41E-02	5,41E-02
Photochemical ozone formation	Kg NMVOC eq	1,81E-02	1,81E-02	1,81E-02	1,94E-02	1,94E-02	1,94E-02
Depletion of abiotic resources – minerals and metals	Kg Sb eq	7,64E-04	7,64E-04	7,64E-04	7,64E-04	7,64E-04	7,64E-04
Depletion of abiotic resources – fossil fuels	MJ, net calorific value	5,89E+01	5,89E+01	5,89E+01	6,79E+01	6,80E+01	6,80E+01
Water consumption	world m3 eq. private	6,44E+00	6,45E+00	6,45E+00	7,15E+00	7,15E+00	7,15E+00
ADDITIONAL IMPACT PARAMETERS							
Particulate Matter Emissions	Disease incidence	ND	ND	ND	ND	ND	ND
Ionizing radiation, human health	kBq U235 eq	ND	ND	ND	ND	ND	ND
Ecotoxicity	CTUe	ND	ND	ND	ND	ND	ND
Human toxicity, carcinogenic effects	CTUh	ND	ND	ND	ND	ND	ND
Human toxicity, non-carcinogenic effects	CTUh	ND	ND	ND	ND	ND	ND
Impacts associated with the use and quality of the soil	dimensionless	ND	ND	ND	ND	ND	ND

ND: Not declared

USE OF RESOURCES							
		WITHOUT BREAK			WITH BREAK		
Impact category	Unit	A1-A3	C4	D	A1-A3	C4	D
PARAMETERS THAT DESCRIBE THE USE OF RESOURCES							
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ	1,39E+01	1,39E+01	1,39E+01	1,42E+01	1,42E+01	1,42E+01
Use of renewable primary energy used as raw material	MJ	0	0	0	0	0	0
Total use of primary renewable energy (primary energy and primary renewable energy resources used as raw materials)	MJ	1,39E+01	1,39E+01	1,39E+01	1,42E+01	1,42E+01	1,42E+01
Use of renewable primary energy excluding renewable primary energy resources used as feedstock	MJ	5,89E+01	5,89E+01	5,89E+01	6,79E+01	6,80E+01	6,80E+01
Use of renewable primary energy used as raw material	MJ	0	0	0	0	0	0
Total use of primary renewable energy (primary energy and primary renewable energy resources used as raw materials)	MJ	5,89E+01	5,89E+01	5,89E+01	6,79E+01	6,80E+01	6,80E+01
Use of secondary materials	Kg	<0,01	<0,01	<0,01	<0,01	<0,01	<0,01
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of renewable secondary fuels	MJ	0	0	0	0	0	0
Use of non-renewable secondary fuels	M3	4,36E+03	4,36E+03	4,36E+03	4,36E+03	4,36E+03	4,36E+03

WASTE DISPOSED. The data refer to manufacturing steps A1-A3.		WITHOUT BREAK	WITH BREAK
Hazardous waste disposed	Kg/functional unit	1,67E-01	5,34E-01
Non-hazardous waste disposed	Kg/functional unit	3,68E+00	5,50E+01
Radioactive waste disposed	Kg/functional unit	0	0

OUTPUT FLOWS. The data refer to manufacturing steps A1-A3.		WITHOUT BREAK	WITH BREAK
Components for reuse (aluminum remains and sludge from the water treatment plant)	Kg/functional unit	1,03E-02	3,11E-02
Materials for recycling (90% of aluminum is recycled)	Kg/functional unit	0,90	0,90
Materials for energy recovery	Kg/functional unit	0	0

7. REFERENCES

- Software Air.e. v3 SOLID FOREST

- UNE-EN 15804:2012+A2:2019, Sustainability in construction. Environmental product declarations. Basic product category rules for construction products.

- UNE-EN ISO 14020:2002. Ecolabels and environmental declarations. General principles.

- UNE EN ISO 14025:2010. Environmental labels and declarations. Environmental declarations Type III. Principles and procedures.

- UNE EN ISO 14044: 2006. Environmental management. Life cycle analysis. Requirements and guidelines.
- European Life Cycle Database. ELCD 3.3. http://eplca.jrc.ec.europa.eu/ELCD3/index.xhtml?stock=default

- Ecoinvent Database. http://www.ecoinvent.org/database/.

- Life-Cycle inventory data for aluminum production and transformation processes in Europe. Environmental Profile Report. February 2018.