Environmental Product Declaration

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

ALUMINIUM COILS

Version 1.0.

From **Sistemas Técnicos del Accesorio y Componentes S.L. (STAC)**

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

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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ISO standard ISO 21930 and CEN standard EN 15804 serve as the core Product Category Rules (PCR)

Product category rules (PCR): PCR 2019:14 Construction products (EN 15804:A2) Version 1.25

PCR review was conducted by: The Technical Committee of the International EPD®System. See www.environdec.com/TCfor a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

Independent third-party verification of the declaration and data, according to ISO 14025:2006:
☒ External ☐ Internal
Covering
☐ EPD process certification ☒ EPD verification

Third party verifier:

Tecnalia R&I Certificacion, SL
info@tecnaliacertificacion.com
Accredited by: ENAC nº125/C-PR283.

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: Sistemas Técnicos del Accesorio y Componentes S.L.
Description of the organisation: STAC, Sistemas Técnicos del Accesorio y Componentes S. L., Technical Systems of Accessory and Components Ltd, is a company that specialises in the manufacturing of products for the aluminium fenestration sector.

In each of its 5 divisions, STAC adopts absolute precision in design, trying to meet the actual market demands in quality and innovation requirements. Consequently, we retain not only the best facilities, which adapt and adhere to the different production lines, but also a specialised technical team whose vast experience has firmly positioned them as one of leaders in this sector. These divisions are:

- STAC HARDWARE DIVISION: Ironworks and Accessories
- STAC SEALING PROFILES DIVISION: Manufacture of extruded and co-extruded polymer profiles
- STAC INSULATING PROFILES DIVISION: Production of polyamide profiles
- STACBOND COMPOSITE DIVISION: Composite panel fabrication
- STACBOND COIL COATING DIVISION: Coil coating and processing

STACBOND® is the leading company in the composite panel market in Spain. Since 2001 STAC has been developing products focused on carpentry and curtain wall systems, as well as polyamide profiles and joints. STAC has the following standards and certifications:

- ISO9001
- ISO14001
- Zero Waste

Figure 1. ISO 9001, ISO 14001 and Zero Waste Certification

Name and location of production site(s): C/ Isaac Prado Bodelón, Parcela 2 Polígono Industrial de La Rozada, Viladecanes 24516, Parandones, León, Spain

Contact: For more information about these or other products, contact: Antonio López Merino**.** Quality and Environment Manager. E-mail: epd@stac.es

Product information

Product name: Aluminium coils
Product description: The aluminium coils are composed of aluminium sheets lacquered with the highest quality paint, offering the highest resistance to aging. The paint finishes can be in the following finishes:

- PVDF
- PE
- HDPE
- PU
- FEVE
- HDPU

The manufacture of the aluminium coils follows a controlled process through rigorous testing and quality controls. The aluminium coils have different uses: Composite panels, other building materials, automotive industry, etc…

Figure 2. Aluminium coils

The technical characteristics of the aluminium coils are the following:

Width (min / max)	mm	1000/2000
thickness (min / max)	mm	0.45/2
Hardening steel	mm	H12/H14/H16/H18/H22/H28

UN CPC code: According to the UN-CPC product classification system, the code corresponding to the product manufactured by STAC is CPC 4153 – "Semi-finished products of aluminium or aluminium alloys".

LCA information

Declared unit: The declared unit is the baseline reference for which all information is collected. In this study, the declared unit is "1 kg of aluminium coil" for the for the following lacquered finishes:

- PVDF
- PE
- HDPE
- PU
- FEVE
- HDPU

Given that the difference in impacts is more than 10% between the different versions of the product, the results are declared for the worst case, in this case the aluminium coil lacquered in PVDF.

Reference service life: Not relevant for this EPD.

Geographical scope: The geographical scope of this EPD is global.

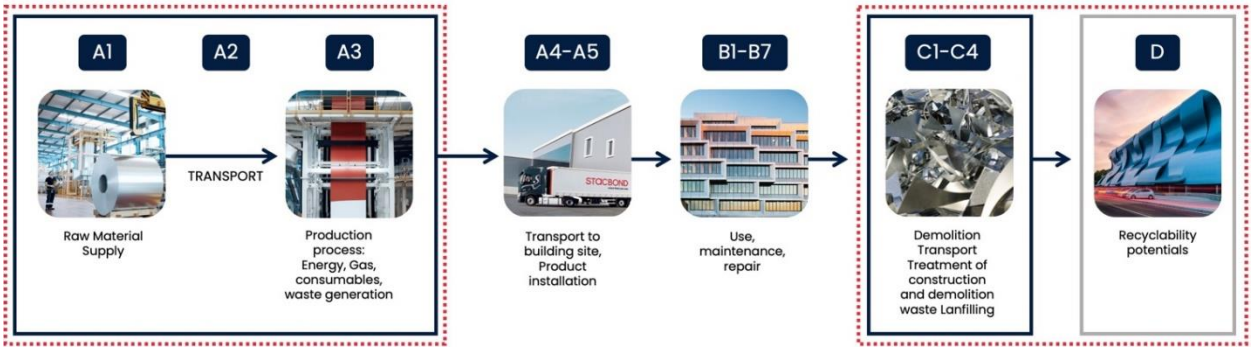
Time representativeness: The data collection from factory (primary data) and electricity mix are from 2021/01/01 to 2021/12/31. In this study, no datasets older than 10 years were used.

Database(s) and LCA software used: All the data used to model the process and obtain the Life Cycle Inventory are specific data and have been obtained by measurements made during the period from 2021/01/01 to 2021/12/31. They are representative of the different processes implemented during the manufacturing process. The data has been measured directly at the company's own premises. In addition, the most complete and highest quality European life cycle inventory database, Ecoinvent 3.8, has been used, as this database contains the most extensive and updated information and its scope coincides with the geographical, technological and temporal area of the project. The LCA was modelled with Simapro 9.3.0.3.

Description of system boundaries: According to the standard UNE-EN 15804_2012+A2_2020 (MARCH 2020) and PCR 2019:14 CONSTRUCTION PRODUCTS (version 1.25) the system boundary is cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). The life cycle stages A4-A5, B1-B7 were excluded from the LCA study.

System diagram:

System Limits
Benefits and loads beyond the system boundary
Study Limits



Manufacturing process:

The aluminium sheets are supplied in coils. They are treated to remove the oxidized layer on the surface and lacquered according to the required finish. Once painted the sheets are re-wound into aluminium coils and palletised.

Author of the Life Cycle Assessment:

IK ingeniería
Av. Cervantes 51, Edif. 10, panta 5, dpto.
48970 Basauri, Bizkaia (Spain)

Data quality

The environmental impact of the aluminium coils has been calculated. It is based on the international standards established for the development of environmental product declarations, such as ISO 14025 for the preparation of the environmental product declaration, ISO 14040 and ISO 14044 for the preparation of the life cycle analysis, UNE-EN 15804:2012+A2:2020 (MARCH 2020) and the Product Category Rules PCR - "2019:14 Construction products " (Version 1.25).

Data has been collected from 2021/01/01 to 2021/01/31 and is representative of that year. Data for raw material supply, transport to fabrication plant and production (A1-A3) is based on specific consumption data for the factory at Parandones. Generic background datasets were used for the downstream processes. SimaPro v9.3.0.3. software was used to prepare the life cycle analysis together with the Ecoinvent 3.8 database. Characterization factors from EN15804: 2012 + A2:2019. The geographical coverage is global. Technological coverage is typical or average

Assumptions

The modularity principle, as well as the polluter-payer principle have been followed. The following assumptions have been made in this EPD:

- ✓ It does not include the manufacturing processes of the capital goods or spare parts and/or maintenance with a life of more than three years.
- ✓ The environmental impact of infrastructure for general management, office, and headquarters operations is not included.
- ✓ The impact caused by people (common activities, travel for work...) will not be considered.
- ✓ It does not include the consumption of natural gas for sanitary hot water from showers and heating system for the comfort of people.
- ✓ The processes associated with fuel production are intrinsically included in the indicators in ECOINVENT's database used in carrying out the LCA.

- ✓ The environmental impact of external transport has been calculated using lorries from the ECOINVENT 3.8 database, EURO 5. These lorries have been selected to reflect the most realistic scenario possible.

Cut-off rules

The standard ISO 14025 and the PCR -"2019:14 CONSTRUCTION PRODUCTS" indicate that the life cycle inventory data should include a minimum of 95% of the total inputs (materials and energy) for each stage. This cut-off rule does not apply for hazardous materials and substances. No such cut-off criteria have been taken into account in this study.

Allocation

Where necessary, such us waste generation and energy consumption, an allocation based in mass has been used.

Greenhous gas emission from the use of electricity in the manufacturing phase

Specific electricity mix, low voltage (direct emissions and losses in grid) electricity is considered for the manufacturing process. and is based on data for the year 2021.

Electricity mix	Amount	Units
Specific electricity mix	5,00E-01	Kg CO2-eqv/kWh

LCA Scenarios and additional technical information

Dismantling/demolition (module C1):

In this module, the energy consumption of the dismantling with a radial saw has been considered.

Transport (module C2):

With a collection rate of 100%, the transports are carried out by lorry (EURO 5) over 50 km.

Waste processing (modules C3 and C4):

A recycling ratio of 95% is considered in accordance with the recycling rate (R2) for building aluminium sheets, established in the Annex C of the Environmental Footprint Method. The remaining 5% is considered to be landfilled. These percentages are representative of the areas where the product is marketed.

Recyclability potentials (module D):

Coils are recycled by smelting. Recycling loads and benefits from substitution of virgin materials are taken into account.

LCA Scenarios for end of life

Processes	**Per Declared unit**	
Collection process specified by type	1,00E+00	Kg collected separatelly
	0,00E+00	Kg collected with mixed construction waste
Recovery system specified by type	0,00E+00	Kg for reuse
	9,50E-01	Kg for recycling
	0,00E+00	Kg for energy recovery
Disposal specified by type	5,00E-02	Kg for final disposal
Assumptions for scenario transportation	Lorry 16-32 metric ton, EURO5 Consumption: 0,03kg/km Distance:50 km	

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

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	EU	ND	ND	ND	ND	ND	ND	ND	ND	ND	GLO	GLO	GLO	GLO	GLO
Specific data		>90%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products		-12,34%		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites		0%		-	-	-	-	-	-	-	-	-	-	-	-	-	-

ND: Not declared EU: European Union GLO: Global

Content information

Product components	Per 1 m²		
	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Aluminium	9,07E-01	0,00%	0,00%
Lacquered	9,30E-02	0,00%	0,00%
TOTAL	1,00E+00	0,00%	0,00%

Packaging materials	Weight, kg	Weight-% (versus the product)
Cardboard	6,71E-03	0,67%
Film	4,26E-04	0,04%
Wood	5,76E-03	0,58%
TOTAL	1,29E-02	0,71%

Packaging: The product is transported to the clients in pallets.

No substances included in the Candidate List of Substances of Very High Concern for authorization under REACH Regulations are present in the analyzed aluminium coils manufactured by STACBOND, either above the threshold for registration with the European Chemicals Agency or above 0,1% (wt/wt).

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804:

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	7,50E+00	0,00E+00	8,30E-03	0,00E+00	6,54E-04	-9,13E+00
GWP-biogenic	kg CO_2 eq.	1,79E-02	0,00E+00	7,46E-06	0,00E+00	1,13E-04	-4,22E-02
GWP-luluc	kg CO_2 eq.	2,88E-02	0,00E+00	3,26E-06	0,00E+00	2,11E-07	-1,64E-01
GWP-total	kg CO_2 eq.	7,54E+00	0,00E+00	8,31E-03	0,00E+00	7,67E-04	-9,34E+00
ODP	kg CFC 11 eq.	4,47E-07	0,00E+00	1,92E-09	0,00E+00	1,85E-10	-6,95E-07
AP	mol H^+ eq.	4,30E-02	0,00E+00	3,37E-05	0,00E+00	5,29E-06	-6,77E-02
EP-freshwater	kg PO_4^{3-} eq.	7,66E-04	0,00E+00	1,79E-07	0,00E+00	2,30E-08	-1,18E-03
EP-freshwater	kg P eq.	2,49E-04	0,00E+00	5,82E-08	0,00E+00	7,49E-09	-3,83E-04
EP-marine	kg N eq.	6,87E-03	0,00E+00	1,00E-05	0,00E+00	1,98E-06	-8,19E-03
EP-terrestrial	mol N eq.	7,67E-02	0,00E+00	1,11E-04	0,00E+00	2,22E-05	-9,17E-02
POCP	kg NMVOC eq.	2,32E-02	0,00E+00	3,39E-05	0,00E+00	6,29E-06	-3,03E-02
ADP-minerals&metals*	kg Sb eq.	1,03E-04	0,00E+00	2,88E-08	0,00E+00	3,51E-09	-1,67E-05
ADP-fossil*	MJ	8,70E+01	0,00E+00	1,25E-01	0,00E+00	1,54E-02	-1,16E+02
WDP	m^3 eq	1,85E+00	0,00E+00	3,76E-04	0,00E+00	8,27E-05	-2,24E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

** Disclaimer. The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	7,43E+00	0,00E+00	8,25E-03	0,00E+00	5,74E-04	-9,29E+00

[1] *The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.*

Use of resources

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,07E+01	0,00E+00	1,77E-03	0,00E+00	2,86E-03	-4,07E+01
PERM	MJ	2,01E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,09E+01	0,00E+00	1,77E-03	0,00E+00	2,86E-03	-4,07E+01
PENRE	MJ	8,69E+01	0,00E+00	1,25E-01	0,00E+00	1,54E-02	-1,16E+02
PENRM	MJ.	4,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	8,70E+01	0,00E+00	1,25E-01	0,00E+00	1,54E-02	-1,16E+02
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	8,48E-02	0,00E+00	1,40E-05	0,00E+00	2,22E-05	-2,31E-01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste production and Output flows

Waste production

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5,98E-03	0,00E+00	3,28E-07	0,00E+00	1,88E-08	-7,12E-05
Non-hazardous waste disposed	kg	1,38E+00	0,00E+00	6,46E-03	0,00E+00	5,25E-02	-2,67E+00
Radioactive waste disposed	kg	2,60E-04	0,00E+00	8,48E-07	0,00E+00	1,06E-07	-4,71E-04

Output flows

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,78E-02	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Information on biogenic carbon content

Results per declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0,00E+00
Biogenic carbon content in packaging	kg C	0,00E+00

The product does not contain biogenic carbon and the mass of biogenic carbon-containing materials in the packaging is less than 5% of the total mass of the product, therefore the declaration of biogenic carbon content can be omitted.

VERIFICATION STATEMENT CERTIFICATE

CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD02605

TECNALIA R&I CERTIFICACION S.L., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:
TECNALIA *R&I CERTIFICACION S.L., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:*

SISTEMAS TÉCNICOS DEL ACCESORIO Y COMPONENTES, S.L. (STAC)
Polígono Industrial Picusa, s/n
15900 PADRON (A Coruña) - SPAIN

for the following product(s):
para el siguiente(s) producto(s):

ALUMINIUM COILS, lacquers: PVDF, HDPE, PE, HDPU, PU and FEVE.
BOBINAS DE ALUMINIO, acabados: PVDF, HDPE, PE, HDPU, PU y FEVE.

with registration number **S-P-08421** in the International EPD® System *(www.environdec.com).*
*con número de registro **S-P-08421** en el Sistema International EPD® (www.environdec.com).*

it´s in conformity with:
es conforme con:

- **ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations.**
- **General Programme Instructions for the International EPD® System v.4.0**
- **PCR 2019:14 Construction products (EN 15804:A2) v.1.2.5**
- **CPC 4153 Semi-finished products of aluminium or aluminium alloys.**

Issued date / *Fecha de emisión:*	02/03/2023
Update date / *Fecha de actualización:*	02/03/2023
Valid until / *Válido hasta:*	01/03/2028
Serial Nº / *Nº Serie:*	EPD0260500-E

Carlos Nazabal Alsua
Manager

ENAC
CERTIFICACIÓN
ISO 17065
Nº125 / C-PR283

This certificate is not valid without its related EPD.
Este certificado no es válido sin su correspondiente EPD.

El presente certificado está sujeto a modificaciones, suspensiones temporales y retiradas por TECNALIA R&I CERTIFICACION.
This certificate is subject to modifications, temporary suspensions and withdrawals by TECNALIA R&I CERTIFICACION.

El estado de vigencia del certificado puede confirmarse mediante consulta en www.tecnaliacertificacion.com.
The validity of this certificate can be checked through consultation in www.tecnaliacertificacion.com.

Additional information

For more information on these or other services, please visit the website: https://www.stac.es/descargas or contact us by email: epd@stac.es

Information related to Sector EPD

This is an individual EPD®

Differences versus previous versions

This is the first version of the EPD®.

References

- General Programme Instruction of the International EPD®System. Version 4.0.
- ISO 14020:2000 Environmental labels and declarations-General principles.
- ISO 14025:2010 Environmental labels and declarations-Type III Environmental Declarations-Principles and procedures.
- ISO 14040:2006 Environmental Management-Life Cycle Assessment-Principles and framework.
- ISO 14044:2006 Environmental Management-Life Cycle Assessment-Requirements and guidelines.
- PCR 2019:14 Construction products (EN 15804: A2) version 1.25
- EN 15804:2012+A2:2019 Sustainability of construction works-Environmental Product Declarations-Core rules for the product category of construction products.