Environmental Product Declaration

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

Coated aluminium coils

from

VINALOPO ALUMINIO COLOR SL.

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products, based on a representative product
EPD registration number:	EPD-IES-0027309:001
Version date:	2026-01-22
Validity date:	2031-01-22
	An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

The EPD covers multiple products. The combination of the two alloy series with the five types of finishing coatings results in a total of 15 references evaluated in this EPD:
- 3000 alloy series: 3000-HDPE (a & b types); 3000-PE (a & b types); 3000-PUPA (a & b types); 3000-PVDF (a & b types); 3000-FEVE (a & b types);
- 5000 alloy series: 5000-HDPE; 5000-PE; 5000-PUPA; 5000-PVDF; 5000-FEVE.

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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Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *Construction products, 2019:14 version 2.0.1*
PCR review was conducted by: *The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com. The review panel may be contacted via support@environdec.com. Chairs of the PCR review: Rober Rouwette (chair), Noa Meron (co-chair).*
c-PCR, if applicable: *N/A*

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: CERTINALIA, Anardi Area Aldea, 5, 20730 Azpeitia, Guipuzkoa (Spain) Accredited by: ENAC nº125/C-PR283. Auditor: Maria Feced.
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 published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: VINALOPO ALUMINIO COLOR SL
Address: Calle Embaladoras (Poligono Industrial La Bulilla),3408, Villena, Alicante, Spain.
Contact: Alicia Peralta, alicia.peralta@vialco.es

Address and contact information of the LCA practitioner commissioned by the EPD owner: Packaging, Transport and Logistics Center ITENE. Parque Tecnológico C/ Albert Einstein, 1 46980 Paterna Valencia - Spain
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Description of the organisation: VINALOPO ALUMINIO COLOR SL (hereinafter abbreviated as VIALCO) was established with the objective of becoming an international reference in lacquering of aluminium coils. The company is based in Villena (Alicante, Spain), and specializes in the production of custom coated aluminium coils, designed to meet the most demanding requirements across a wide range of industrial sectors, such as construction, manufacture of window roller shutter, vehicle bodies, decoration or manufacture of composite panels (ACP) among others.

Product-related or management system-related certifications: VIALCO has the following certifications applied to the processing of metallic materials in coil form: cleaning, coating with paint or film, cutting, and palletizing:

- ISO 9001:2015. “Quality management systems. Requirements”.
- ISO 14001:2015. “Environmental management systems. Requirements with guidance for use”
- ISO 45001:2018. “Occupational health and safety management systems. Requirements with guidance for use”.
- Member of ECCA (European Coil Coating Association) Prepainted metal.
- Registry of carbon footprint, offsetting and CO_2 removal of VIALCO organization scope 1 and 2 for year 2022 in *Ministerio para la Transición Ecológica y el Reto Demográfico*.

PRODUCT INFORMATION

Product name: Coated aluminium coils.

Product identification: The product considered is a coated aluminium coil which is used as intermediate product for the subsequent production of roller shutters (main market) and also for construction panels, isolation/decorative systems as well as for roof panels and roof elements like spouts. At VIALCO, the process begins with the selection of the most suitable aluminium alloy for each application, in accordance with the customer specifications. The production lines are capable of processing aluminium coils with **thicknesses** ranging from **0.18 mm to 2.0 mm**. Depending on customer requirements, aluminium coils are processed and cut to the exact **size**, starting from **1000 mm up to a maximum sheet width of 1550 mm**. In addition, it will be possible to cut in straps from 50 mm onwards by a slitting machine. Moreover, cut in sheets is also possible ranging from 1000 mm to 4000 mm, up to 1500 mm of width.

The aluminium products are made of 3000 and 5000 aluminium alloys series with 3 different coatings: PE-group (HDPE and PE), PUPA-group and Fluorinated-group (PVDF and FEVE). Within 3000 series, slight differences in alloys are possible, so that two types were considered (a & b). Therefore, the difference between aluminium products is based on the alloy-type and the type of finishing coating materials employed. The combination of two alloys series with the five types of finishes coatings results in a total of **15 references evaluated in this EPD:**

- **3000 alloy series**: 3000-HDPE (a & b types); 3000-PE (a & b types); 3000-PUPA (a & b types); 3000-PVDF (a & b types); 3000-FEVE (a & b types);
- **5000 alloy series**: 5000-HDPE; 5000-PE; 5000-PUPA; 5000-PVDF; 5000-FEVE.

Product specifications are variable as function of the type of coating and finishing applied and customers requirements, so it is not possible to provide a threshold for such properties. All product specification is based on the standard UNE-EN 13523:2024 on coil coated metals, being measured properties like thickness, gloss, color, hardness, resistance to cracking and abrasion, adhesion and resistance to solvents.

This EPD declare the results of one representative of the included products. The choice of the representative product has been made based on the **production volumes**: the most relevant alloy in terms of purchases (3000 alloy series type a) and the most common type of coating produced at VIALCO (PUPA).

Visual representation of the product:

UN CPC code: 415. Semi-finished products of copper, nickel, aluminium, lead, zinc and tin or their alloys.

Product description:
Thanks to continuous voltage control with closed-loop feedback, the aluminium voltages are the same both at the input and at the output of the line. In this way, it is possible to obtain a constant thickness throughout the coil, a total absence of wrinkles especially in thin thicknesses, and a coil without deformations or colour variations.
Aluminium is a durable and resistant material, avoiding complex repairs and maintenance. Lifespan of the product can be more than 25-30 years since is a high-durable product with a proper maintenance.
The properties of the product are determined by various UNE standards as described above.

Name and location of production site: The name and location of the production site is VINALOPO ALUMINIO COLOR SL. Calle Embaladoras (Polígono Industrial La Bulilla),3408, Villena, Alicante, Spain.

References to any relevant websites for more information or explanatory materials: VIALCO corporate website: https://vialco.es/en/.

CONTENT DECLARATION

- The mass (weight) of one unit of a product, per declared unit: 1,000 kg of coated aluminium coil manufactured by VIALCO. **The content declaration is based on the content of the representative product**, based on the **production volumes**: the most relevant alloy in terms of purchases (3000 alloy series type a) and the most common type of coating produced at VIALCO (PUPA) in white colour.

- Content of the product in the form of a list of materials and substances, and their mass:

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Aluminium alloy	892.20	18.67%	0.00%	0.00
Topcoat	80.90	0.00%	0.00%	0.00
Primer	26.10	0.00%	0.00%	0.00
Back coating	0.80	0.00%	0.00%	0.00
TOTAL	**1,000**	**16.66%**	**0.00%**	**0.00**

- The mass and the content of shipping packaging to customers are detailed below and it is based on the representative product.

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/product or declared unit
Wood (pallet)	22.22	2.22%	10.48
Cardboard	3.10	0.31%	1.33
Protective fibre	0.56	0.06%	0
Polypropylene strap	0.09	0.01%	0
Polyethylene corner protectors	2.10E-03	0.00%	0
Plastic Film[1]	4.20E-03	0.00%	0
TOTAL	**25.98**	**2.54%**	**11.82**

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

- Other information on substances with hazardous and toxic properties: no Hazardous substances from the candidate list of SVHC have been used during the product's life cycle.

[1] Protective film is added upon request by the customer; not all references use this film.

LCA INFORMATION

The LCA has been performed in accordance with the current life cycle assessment standards ISO 14040:2006 and ISO 14044:2006, as well as with the requirements of EN 15804+A2, PCR 2019:14 for Construction Products and JRC characterization factors (EF3.1).

Declared unit: 1,000 kg of coated aluminium coil manufactured by VIALCO.

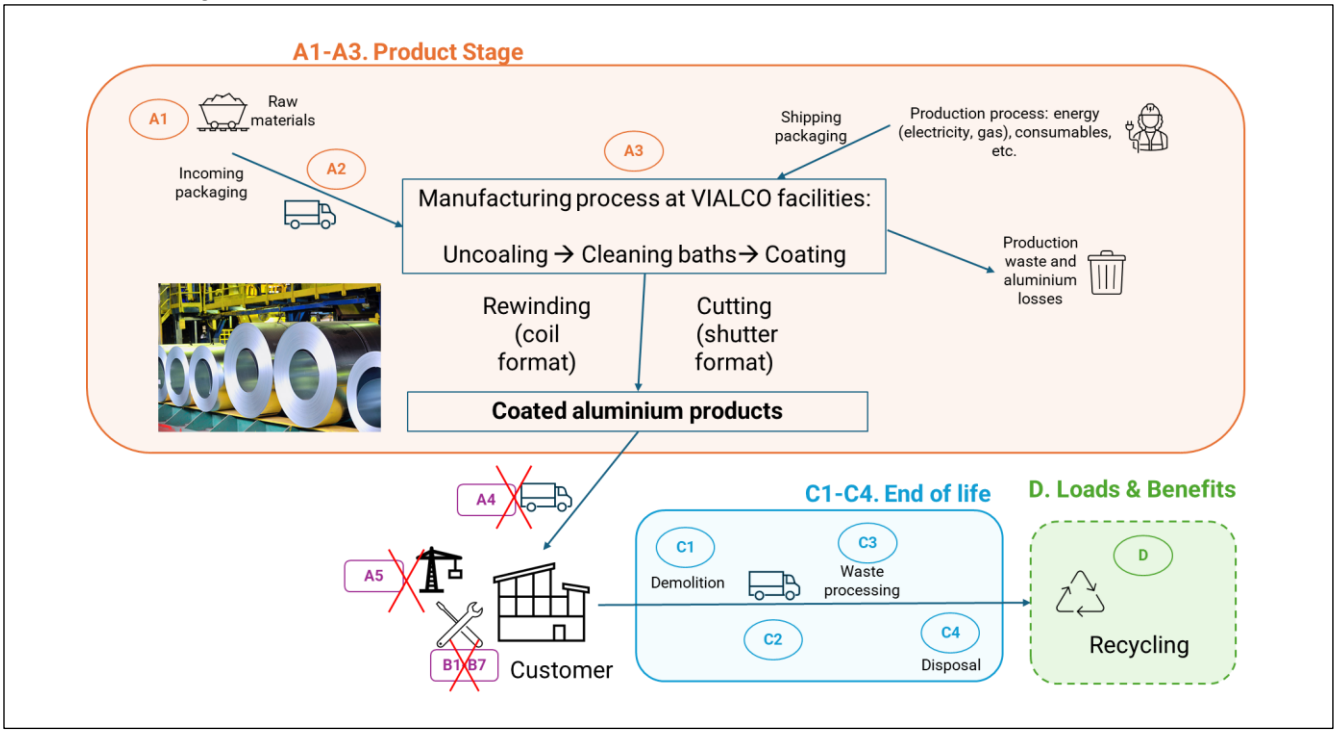
Time representativeness: The data used covers 2024 period.

Geographical scope: The production is carried out in Spain. The scope of this EPD is Europe, as the products are mainly sold on the European market.

Database(s) and LCA software used: SimaPro 10.2.0.0 with Ecoinvent 3.11 allocation, cut-off, EN 15804+A2 database. The life cycle impact assessment method EN15804 +A2 has been used.

Description of system boundaries: The EPD system boundaries are: Cradle to gate with modules C1-C4 and module D (A1-A3 + C + D).

Process flow diagram:



Manufacturing process: The manufacturing process at VIALCO begins with the arrival of the raw material at the unloading dock, where the coils are unpacked, weighed, and undergo a first quality check. The surface layer of aluminium affected by dirt is removed. From this point, the aluminium is uncoiled, and the process continues in a continuous and automated manner. The coils then undergo washing treatment in cleaning baths, followed by the application of the coating. After colour verification with a colorimeter, the final product can be obtained in two different formats: coil format through rewinding and roller shutter format through cutting. Both formats are packaged before shipment to the customer.

The phases included in the EPD are briefly described below:

- **A1-A3. Product stage** includes all the processes needed for:

A1. Raw materials supply. Extraction of raw materials (aluminium and alloy metals, including aluminium productions losses) for the coils production and extraction of raw materials for the packaging and consumables production. It should be noted that two different types of packaging have been considered in the LCA: incoming packaging for receiving raw materials and shipping packaging for finished products to customers.

A2. **Transport**. Consists of the transport of the raw materials and packaging from providers to VIALCO facilities.

A3. **Manufacturing**. Energy consumption and water for the manufacturing process, and treatment of waste generated in the factory during the manufacturing process, including aluminium productions

losses and cuts from the manufacture of shutters. The electricity energy source mix has been modelled based on the residual mix of VIALCO´s different electricity suppliers in 2024, using data published by the Spanish National Commission on Markets and Competition (CNMC).
The products manufactured at VIALCO are shipped to customers in two different formats: as coils or roller shutter format.

- **C1-C4. End of life stage** consisting of: Deconstruction, demolition (C1), transport (C2), waste processing (C3) and disposal (C4).
  Once the building has been demolished, it is assumed that aluminium in C3 stage is 94% recycled, while the remaining 6% goes to landfill (C4 stage).

The following stages have been considered exclusions from this study for the reasons outlined below:

- **A4. Transport of the product to the customers site** because it depends on the location of each customer.
- **A5. Construction process stage.** Installation on-site because it depends on the application sector (construction site or intermediate transformer that manufactures roller shutters).
- **B. Use stage**, including use (B1), maintenance (B2), repair (B3), replacement (B4), refurbishment (B5), operational energy use (B6) and operational water use (B7).
  The usage phase is excluded due to the lack of maintenance requirements. Although aluminium products, such as roller shutter, do have a functional role (opening and closing of the roller shutters) and may occasionally require the replacement of individual slats, the likelihood of this occurring is extremely low, making their impact negligible. So, it has been considered that the products are passive, maintenance-free components with no emissions, energy use, and very low chance of replacement needs during the building's lifetime.

More information:
The quantity of weighted recycled content as function of the purchased amount in weight from each alloy type were modelled in Simapro for the recycling content of each one of the alloy series used. It should be noted that the **recycled aluminium** does not contribute more than 10% in the **GWP-GHG** impact category, with a contribution of 4.03%.
All equipment with a useful life of more than 3 years, as well as the construction of plant equipment, infrastructure and other capital goods, have not been included in the LCA calculations.
The end of life has been modelled according to the prescriptions of the report from Pristera et al (2024) "Techno-economic and environmental assessment of construction and demolition waste management in the European Union" (https://publications.jrc.ec.europa.eu/repository/handle/JRC135470) that considers "*that nearly all steel and aluminium are collected for recycling, regardless of the demolition method*" and "*Even with conventional demolition practices that generates mixed CDW, advanced sorting technologies can efficiently recover metals*".
For aluminium, the document indicates 10% preparing for reuse, 84% recycling, and 6% landfill. In this case, as it concerns shutters and other construction products such as roofs, it has been assumed that 6% will go to landfill and the rest (94%) will be recycled, without the possibility of reuse due to possible damage during dismantling at the end of their useful life.
In line with the findings of the European Commission's JRC report, the sectoral EPD (EPD-IES-0013514:002)[2] from the Spanish Aluminium and Surface Treatment Association (Asociación Española de Aluminio -AEA) states: "*A collection rate for aluminium products next to 95% is well documented in construction sector and included as default value in EN 17213*".
To this end, the default values provided by the PCR 2019:14 were used for waste processing (C3 stage), specifically regarding the power, fuel an electricity consumption as well as transport (C2 stage) during end-of-life operations. The assumption is made that the waste from the aluminium products is transported to a construction and demolition waste (CDW) management facility located approximately 80 km away. This distance represents a reasonable and conservative estimate based on the average proximity of authorized CDW management facilities in the region.

[2] Link: https://www.environdec.com/library/epd13514.

For this EPD, C1 stage (deconstruction/demolition) are reported as zero contribution, since deconstruction and demolition operations are carried out manually; therefore, their emissions are assumed to be zero. The environmental loads related to dismantling activities, their subsequent transport to recycling plants or landfilling, and their treatment are accounted for in stages C2,C3 and C4, in accordance with the PCR guidelines.

The following tables, based on table 15 of the standard EN 15804, summarise the end-of-life stage assumed scenarios.

Combined scenario: considers 94% will go to recycling and the rest (6%) will be landfilled after the building is demolished.

Processes	Description	Quantity per declared unit (kg)
Collection process	kg collected separately	1,000
	kg collected with mixed construction waste	0.00
Recovery system	kg for effective recycling of aluminium without coatings	838.67
	kg for re-use	0.00
	kg for energy recovery	0.00
Disposal specified by type	kg product or material for final deposition	53.53
Assumptions for scenario development	Average distance to End-of-life	For transportation to waste management plant (C2 stage), it has been assumed an average scenario of 80 km. A 16–32 metric ton lorry has been used.
	Coatings	For the coatings (107.80 kg), it is assumed that there is a remelting process where the paint is burnt and there will be incineration emissions.

100% recycling scenario: considers 100% of the aluminium product will be recycled.

Processes	Description	Quantity per declared unit (kg)
Collection process	kg collected separately	1,000
	kg collected with mixed construction waste	0.00
Recovery system	kg for effective recycling of aluminium without coatings	892.20
	kg for re-use	0.00
	kg for energy recovery	0.00
Disposal specified by type	kg product or material for final deposition	0.00
Assumptions for scenario development	Average distance to End-of-life	For transportation to waste management plant (C2 stage), it has been assumed an average scenario of 80 km. A 16–32 metric ton lorry has been used.
	Coatings	For the coatings (107.80 kg), it is assumed that there is a remelting process where the paint is burnt and there will be incineration emissions.

100% landfilling scenario: considers 100% of the aluminium product will be landfilled.

Processes	Description	Quantity per declared unit (kg)
Collection process	kg collected separately	1,000
	kg collected with mixed construction waste	0.00
Recovery system	kg for effective recycling of aluminium without coatings	0.00
	kg for re-use	0.00
	kg for energy recovery	0.00
Disposal specified by type	kg product or material for final deposition	892.20
Assumptions for scenario development	Average distance to End-of-life	For transportation to waste management plant (C2 stage), it has been assumed an average scenario of 80 km. A 16–32 metric ton lorry has been used.
	Coatings	For the coatings (107.80 kg), it is assumed that they are also disposed of in landfills.

Module D, benefits and loads beyond the system boundary, considers the avoided impacts for recycling of aluminium, which avoids the production of these new virgin aluminium. Module D has been calculated for the content materials that have been declared in this EPD, and all the avoided materials are assumed

to substitute always virgin materials. The recycling rate (assumed as the 94% for the aluminium product) is based on the economic incentive at end-of-life, where the gap between product price and scrap value encourages collection and recycling. Therefore, the recycling rate applied in the life cycle assessment reflects the high probability that these products will be collected and recycled, in line with current market practices.

It has been considered a material efficiency factor (Y) of 1, since all the aluminium scrap substitutes the primary aluminium in virgin aluminium production (European Aluminium, 2013). In this sense, the recycling is considered as a closed-loop system in which no loss of value or relevant quality degradation occurs from a market perspective.

According to EN 15804, the materials to be substituted are calculated based on the net flux, which in this case corresponds to the quantity recycled ($M_{MR\ out}$) minus the recycling content of the material ($M_{MR\ in}$). The table details the value of $M_{MR\ in}$ (kg) and the quantity of material replaced by declared unit of the aluminium reference product and the dataset used to calculate this replacement.

Avoided products	Dataset	Reference product: 3000-PUPA type a
Virgin aluminium production	Aluminium, primary, ingot {RoW}| aluminium production, primary, ingot | EN15804, U	$M_{MR\ out}$=892.20*0.94=838.67 kg $M_{MR\ in}$ =892.20*0.4853=432.98 kg $M_{MR\ out}$ - $M_{MR\ in}$= 405.68 kg

Module D has been modelled as a unique scenario for Europe, so that there were no additional scenarios for module D.

Allocation:

The allocation of packaging quantities per declared unit has been avoided, as VIALCO has provided the specific amounts of packaging (wooden pallet, cardboard core and protective cardboard, aluminium core, and plastic film and strapping) for finished products to customers.

Similarly, in the case of calculating the energy consumption of the declared unit, mass allocation has used. The amount per declared unit has been calculated by dividing the annual amount of energy consumed by VIALCO (diesel, gas natural and electricity) and water consumption by the total amount of aluminium processed during 2024, provided by VIALCO. This consumption has been allocated equally to all types of alloys analysed, according to available data. It should be noted that auxiliary electrical consumption associated with lighting, air conditioning, computers and other factory equipment, such as electric forklifts and overhead cranes, is included, as it is added to the total annual consumption.

Additionally, for the calculation of the amount of each type of waste generated per declared unit, the total amount of hazardous and non-hazardous waste generated at VIALCO was divided by the tons of aluminium processed in 2024. This information was provided directly by VIALCO and includes the production losses mainly consist of cuts from the manufacture of shutters or any other processes that generate aluminium waste like the external aluminium layer of the coil that is removed due to dirt before entering the uncoiling area. This aluminium is returned to suppliers for recycling. Therefore, both this transport and the recycling process have been modelled.

The recycled content and end-of-life recycling of aluminium are treated according to the allocation rules of EN 15804. This approach ensures that the environmental burdens of primary and secondary material production are consistently allocated, avoids double counting, and reflects both the use of recycled content in the packaging and the potential for material recovery at the end of life.

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

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	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 27	EU 27	ES	-	-	-	-	-	-	-	-	-	EU 27	EU 27	EU 27	EU 27	EU 27
Share of primary data	3.45%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0.00%-19.33%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data quality: Data type, sources and reference year for each module of the EPD are included in the following table. The assessment has been done using the data quality level and criteria schemes of UN Environment Global Guidance on LCA database development. As can be drawn from the table, all the data uses as refence year 2024 onwards, while only primary data comes from the manufacturing process, while the remaining data is based on well-known databases, so that data can be considered as enough quality.

The total share of primary data contributing to the declared GWP-GHG results of modules A1-A3, it is 3.45%. The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

The data quality assessment is analysed using the data quality level and criteria schemes of *UN Environment Global Guidance on LCA database development* (Table E.1 of Annex E of EN 15804).

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Raw materials-aluminium (A1)	Database	Ecoinvent 3.11 allocation, cut-off, EN 15804+A2	2024	Secondary data	0.00%
Raw materials-chemical products and paints for coating (A1)	Database Safety data sheets	Ecoinvent 3.11 allocation, cut-off, EN 15804+A2	2024	Secondary data	0.00%
Transport of raw materials to manufacturing site (A2)	Database	Ecoinvent 3.11 allocation, cut-off, EN 15804+A2	2024	Direct primary transport data on the km. The processes have been selected from Ecoinvent 3.11 (Secondary data)	0.45%
Manufacturing process (A3)	EPD owner	VIALCO	2024	Primary data	3.00%
Transport to waste management centre (C2)	Database	Ecoinvent 3.11 allocation, cut-off, EN 15804+A2	2024	Scenario: 80 km The processes have been selected from Ecoinvent 3.11 (Secondary data)	0.00%
Waste processing (C3-C4)	Database	Ecoinvent 3.11 allocation, cut-off, EN 15804+A2 PCR 2019:14	2024	Secondary data	0.00%
Total share of primary data, of GWP-GHG results for A1-A3					3.45%

Data compilation	01/01/2024-31/01/2024
Sites used	The production facilities of VIALCO in Villena (Alicante, Spain) cover 100% of the production of coated aluminium coils included in the EPD.
Geography	The production is carried out in Spain. The aluminium coils are sold mainly in Europe. The EPD is modelled for end-of-life scenarios within the European context.
Technology	Production technologies reflect current industry practices and VIALCO's own manufacturing equipment.
Average	Weighted average production covering 100% of VIALCO's aluminium coils during the reference year.
LCI/LCIA used	Ecoinvent 3.11 allocation, cut-off, EN 15804+A2
EPD used	EPD developed under the EPD program, following EN 15804:2012+A2:2019, for aluminium coils: Recycling content data from a supplier have been obtained from their own EPD.
Data quality scheme	EN 15804:2012+A2:2019, Annex E, Table E.1.
Use of regular data with more than 30% of basic impact	Metal (aluminium) account more than 30% of the total basic impacts and these data is classified as good or very good quality: Up-to-date databases were used to model these inputs. No proxy or outdated datasets exceeding 30% of total impact were applied.
Use of deficient relevant data	No deficient data were used. Some background datasets (e.g. transport, waste treatment) are based on European average datasets rather than Spain-specific values. These represent less than 10% of GWP-GHG and other basic indicators.
Use of very deficient relevant data	No very deficient data were used. All datasets meet at least minimum quality requirements according to EN 15804:2012 +A2:2020.

Electricity mix: Regarding the climate impact of electricity purchased in VIALCO in the manufacturing process (A3 stage), the electricity energy source mix has been modelled according to the residual mix of each one of VIALCO´s different electricity suppliers in 2024, using CNMC[3] data. For these suppliers the residual mix has been applied since no redemption through Guarantees of Origin was found for them. The GWP-GHG indicator is 0.33 kg CO2eq/kWh for the modelled electricity mix.

[3] Website link: https://gdo.cnmc.es/CNMC/accesoEtiquetado.do.

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

The following pages provides the results of aluminium products, based on the results of **one representative product based on the production volumes:** the most relevant alloy in terms of purchases (3000 alloy series type a) with a 64.68% and the most common type of coating produced at VIALCO (PUPA).

The results are referred to **1,000 kg of coated aluminium product (declared unit)**. Please note that the environmental performance results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks.

Mandatory impact category indicators according to EN 15804

Results per impact category are described in the table below. Please note that:

1) The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks
2) The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	1.33E+00	2.73E-02	-8.61E+03
GWP-fossil	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	1.33E+00	2.72E-02	-8.61E+03
GWP-biogenic	kg CO_2 eq.	1.88E+01	0.00E+00	2.18E-04	1.40E-03	1.37E-06	0.00E+00
GWP-luluc	kg CO_2 eq.	3.04E+01	0.00E+00	9.93E-05	1.79E-03	1.12E-06	-1.22E+00
ODP	kg CFC 11 eq.	8.46E-05	0.00E+00	1.43E-07	2.02E-08	4.15E-10	-2.74E-05
AP	mol H^+ eq.	7.00E+01	0.00E+00	7.73E-03	9.67E-03	2.52E-04	-8.18E+01
EP-freshwater	kg P eq.	3.39E-01	0.00E+00	3.88E-06	5.88E-05	2.57E-08	-5.78E-01
EP-marine	kg N eq.	1.05E+01	0.00E+00	1.72E-03	3.61E-03	1.19E-04	-9.64E+00
EP-terrestrial	mol N eq.	1.16E+02	0.00E+00	1.87E-02	3.97E-02	1.30E-03	-1.07E+02
POCP	kg NMVOC eq.	3.77E+01	0.00E+00	1.52E-02	1.19E-02	3.88E-04	-3.25E+01
ADP-minerals&metals*	kg Sb eq.	4.85E-02	0.00E+00	1.64E-07	6.49E-08	9.55E-10	-3.93E-04
ADP-fossil*	MJ	1.14E+05	0.00E+00	8.35E+01	2.36E+01	3.56E-01	-8.70E+04
WDP*	m^3	2.50E+03	0.00E+00	6.63E-02	3.25E-01	4.49E-04	-6.85E+02
Acronyms & methods	• **Climate change** [GWP100, EN 15804. Version: EF 3.1, February 2023**.** Original reference IPCC (2021)] ◦ **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; [Ozone depletion potential (ODP), EN 15804. Version: February 2023. Original reference WMO 2014] • **AP** = Acidification potential, Accumulated Exceedance; [Original references Seppälä et al. 2006, Posch et al. 2008]						

	• **EP-freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; [EP, aquatic freshwater, EUTREND model, EN 15804. Version: February 2023. Original references Struijs et al. 2009 as implemented in ReCiPe] • **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; [EP, aquatic marine, EUTREND model EN 15804. Version: February 2023. Original references Struijs et al. 2009 as implemented in ReCiPe • **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; [EP, terrestrial, accumulated exceedance, EN 15804. Version: February 2023. Original references Seppälä et al. 2006, Posch et al. 2008 • **POCP** = Formation potential of tropospheric ozone; [Photochemical ozone creation potential (POCP), LOTOS-EUROS as applied in ReCiPe, EN 15804. Version: February 2023. Original references Van Zelm et al. 2008, ReCiPe 2008] • **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; [Abiotic depletion potential (ADP) for minerals and metals, EN 15804. Version: February 2023. Original references Guinée et al. 2002, van Oers et al. 2002, CML 2001 baseline (Version: January 2016)] • **ADP-fossil** = Abiotic depletion for fossil resources potential; [Abiotic depletion potential (ADP) for fossil resources, EN 15804. Version: August 2021. Original references Guinée et al. 2002, van Oers et al. 2002, CML 2001 baseline (Version: January 2016)] • **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption; [Water deprivation potential (WDP), Available water remaining (AWARE) method, EN 15804. Original references Boulay et al (2017)]

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

The biogenic carbon content of the packaging materials has been reported, and the uptake and release of biogenic CO_2 are transparently included in the carbon balance, as described in the Content Declaration section of this EPD. The uptake and emissions of biogenic CO_2 of the packaging is balanced out already in modules A1 and A3 as module A5 is not declared.

Additional mandatory and voluntary impact category indicators

In the case of additional impact category indicators please note that the results of the environmental impact indicators classified as Type 3 (Ecotoxicity, Human Toxicity and Land Use) shall be used with care as the uncertainties on these results are high or as the uncertainties on these results are high or as there is limited experienced with the indicator.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[4]	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	1.33E+00	2.73E-02	-8.61E+03
Particulate matter emissions (PM)	Disease incidence	8.35E-04	0.00E+00	4.76E-07	2.04E-07	7.25E-09	-4.74E-04
Ionizing radiation, human health (IRP)**	kBq U235 eq.	1.20E+02	0.00E+00	8.02E-03	1.27E-01	2.96E-05	-1.73E+02
Eco-toxicity - freshwater (ETP-fw)	CTUe	4.51E+04	0.00E+00	3.37E+00	1.39E+00	1.02E-02	-1.71E+04
Human toxicity, cancer effect (HTP-c)	CTUh	6.99E-06	0.00E+00	4.07E-10	1.14E-10	1.46E-12	-3.49E-06
Human toxicity, non-cancer effects (HTP-nc)	CTUh	1.14E-04	0.00E+00	5.24E-08	4.13E-09	2.69E-11	-5.61E-05
Land use related impacts/Soil quality (SQP)	dimensionless	1.34E+04	0.00E+00	1.06E-01	1.60E+00	6.05E-04	-7.66E+03

***Disclaimer. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

[4] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1.11E+04	0.00E+00	2.08E-01	3.18E+00	7.77E-04	-9.72E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.11E+04	0.00E+00	2.08E-01	3.18E+00	7.77E-04	-9.72E+02
PENRE	MJ	1.22E+05	0.00E+00	8.88E+01	2.48E+01	3.79E-01	0.00E+00
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.22E+05	0.00E+00	8.88E+01	2.48E+01	3.79E-01	0.00E+00
SM	kg	4.33E+02	0.00E+00	8.84E-05	7.17E-07	0.00E+00	-2.32E+00
RSF	MJ	1.46E+01	0.00E+00	3.57E-06	4.10E-06	1.24E-07	-1.32E-01
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	6.45E+01	0.00E+00	1.62E-03	8.80E-03	1.08E-05	-1.65E+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						

It has been selected Option A of Annex 3 of PCR 2019:14 v2.0.1. to estimate the energetic balance because the energy used as raw material shall be declared as an input to the module where it enters the product system and as an equally large output from the product system where it exits the product system for use in another product system or as waste. The energy leaving the product system (from packaging) in module A5 have been balanced out already in modules A1-A3 as module A5 is not declared.

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.36E+02	0.00E+00	0.00E+00	0.00E+00	5.35E+01	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flow indicators

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	1.80E+01	0.00E+00	0.00E+00	8.39E+02	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

Additional LCA results – Alternative End of life scenarios. 100% recycling of product at End of life

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	1.41E+00	0.00E+00	-9.74E+03
GWP-fossil	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	1.41E+00	0.00E+00	-9.74E+03
GWP-biogenic	kg CO_2 eq.	1.88E+01	0.00E+00	2.18E-04	1.48E-03	0.00E+00	0.00E+00
GWP-luluc	kg CO_2 eq.	3.04E+01	0.00E+00	9.93E-05	1.90E-03	0.00E+00	-1.39E+00
ODP	kg CFC 11 eq.	8.46E-05	0.00E+00	1.43E-07	2.14E-08	0.00E+00	-3.10E-05
AP	mol H^+ eq.	7.00E+01	0.00E+00	7.73E-03	1.02E-02	0.00E+00	-9.26E+01
EP-freshwater	kg P eq.	3.39E-01	0.00E+00	3.88E-06	6.23E-05	0.00E+00	-6.55E-01
EP-marine	kg N eq.	1.05E+01	0.00E+00	1.72E-03	3.82E-03	0.00E+00	-1.09E+01
EP-terrestrial	mol N eq.	1.16E+02	0.00E+00	1.87E-02	4.20E-02	0.00E+00	-1.21E+02
POCP	kg NMVOC eq.	3.77E+01	0.00E+00	1.52E-02	1.26E-02	0.00E+00	-3.68E+01
ADP-minerals&metals*	kg Sb eq.	4.85E-02	0.00E+00	1.64E-07	6.88E-08	0.00E+00	-4.45E-04
ADP-fossil*	MJ	1.14E+05	0.00E+00	8.35E+01	2.50E+01	0.00E+00	-9.85E+04
WDP*	m^3	2.50E+03	0.00E+00	6.63E-02	3.44E-01	0.00E+00	-7.76E+02
Acronyms & methods	**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 on these results are high or as there is limited experienced with the indicator.*

The biogenic carbon content of the packaging materials has been reported, and the uptake and release of biogenic CO_2 are transparently included in the carbon balance, as described in the Content Declaration section of this EPD. The uptake and emissions of biogenic CO_2 of the packaging is balanced out already in modules A1 and A3 as module A5 is not declared.

Additional mandatory and voluntary impact category indicators

In the case of additional impact category indicators please note that the results of the environmental impact indicators classified as Type 3 (Ecotoxicity, Human Toxicity and Land Use) shall be used with care as the uncertainties on these results are high or as the uncertainties on these results are high or as there is limited experienced with the indicator.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[5]	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	1.41E+00	0.00E+00	-9.74E+03
Particulate matter emissions (PM)	Disease incidence	8.35E-04	0.00E+00	4.76E-07	2.17E-07	0.00E+00	-5.37E-04
Ionizing radiation, human health (IRP)**	kBq U235 eq.	1.20E+02	0.00E+00	8.02E-03	1.34E-01	0.00E+00	-1.96E+02
Eco-toxicity - freshwater (ETP-fw)	CTUe	4.51E+04	0.00E+00	3.37E+00	1.48E+00	0.00E+00	-1.94E+04
Human toxicity, cancer effect (HTP-c)	CTUh	6.99E-06	0.00E+00	4.07E-10	1.21E-10	0.00E+00	-3.95E-06
Human toxicity, non-cancer effects (HTP-nc)	CTUh	1.14E-04	0.00E+00	5.24E-08	4.37E-09	0.00E+00	-6.35E-05
Land use related impacts/Soil quality (SQP)	dimensionless	1.34E+04	0.00E+00	1.06E-01	1.70E+00	0.00E+00	-8.67E+03

***Disclaimer. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1.11E+04	0.00E+00	2.08E-01	3.37E+00	0.00E+00	-1.10E+03
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.11E+04	0.00E+00	2.08E-01	3.37E+00	0.00E+00	-1.10E+03
PENRE	MJ	1.22E+05	0.00E+00	8.88E+01	2.63E+01	0.00E+00	0.00E+00
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.22E+05	0.00E+00	8.88E+01	2.63E+01	0.00E+00	0.00E+00
SM	kg	4.33E+02	0.00E+00	8.84E-05	9.37E-05	0.00E+00	-2.63E+00
RSF	MJ	1.29E+02	0.00E+00	3.57E-06	4.35E-06	0.00E+00	-1.50E-01
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.78E+02	0.00E+00	1.62E-03	9.32E-03	0.00E+00	-1.87E+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						

It has been selected Option A of Annex 3 of PCR 2019:14 v2.0.1. to estimate the energetic balance because the energy used as raw material shall be declared as an input to the module where it enters the product system and as an equally large output from the product system where it exits the product

[5] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

system for use in another product system or as waste. The energy leaving the product system (from packaging) in module A5 have been balanced out already in modules A1-A3 as module A5 is not declared.

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.36E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flow indicators

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	1.80E+01	0.00E+00	0.00E+00	8.92E+02	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

Additional LCA results – Alternative End of life scenarios. 100% landfilling of product at End of life

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	0.00E+00	4.85E-01	0.00E+00
GWP-fossil	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	0.00E+00	4.85E-01	0.00E+00
GWP-biogenic	kg CO_2 eq.	1.88E+01	0.00E+00	2.18E-04	0.00E+00	2.43E-05	0.00E+00
GWP-luluc	kg CO_2 eq.	3.04E+01	0.00E+00	9.93E-05	0.00E+00	2.00E-05	0.00E+00
ODP	kg CFC 11 eq.	8.46E-05	0.00E+00	1.43E-07	0.00E+00	7.38E-09	0.00E+00
AP	mol H^+ eq.	7.00E+01	0.00E+00	7.73E-03	0.00E+00	4.48E-03	0.00E+00
EP-freshwater	kg P eq.	3.39E-01	0.00E+00	3.88E-06	0.00E+00	4.57E-07	0.00E+00
EP-marine	kg N eq.	1.05E+01	0.00E+00	1.72E-03	0.00E+00	2.11E-03	0.00E+00
EP-terrestrial	mol N eq.	1.16E+02	0.00E+00	1.87E-02	0.00E+00	2.32E-02	0.00E+00
POCP	kg NMVOC eq.	3.77E+01	0.00E+00	1.52E-02	0.00E+00	6.91E-03	0.00E+00
ADP-minerals&metals*	kg Sb eq.	4.85E-02	0.00E+00	1.64E-07	0.00E+00	1.70E-08	0.00E+00
ADP-fossil*	MJ	1.14E+05	0.00E+00	8.35E+01	0.00E+00	6.34E+00	0.00E+00
WDP*	m^3	2.50E+03	0.00E+00	6.63E-02	0.00E+00	7.99E-03	0.00E+00
Acronyms & methods	**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 on these results are high or as there is limited experienced with the indicator.*

The biogenic carbon content of the packaging materials has been reported, and the uptake and release of biogenic CO_2 are transparently included in the carbon balance, as described in the Content Declaration section of this EPD. The uptake and emissions of biogenic CO_2 of the packaging is balanced out already in modules A1 and A3 as module A5 is not declared.

Additional mandatory and voluntary impact category indicators

In the case of additional impact category indicators please note that the results of the environmental impact indicators classified as Type 3 (Ecotoxicity, Human Toxicity and Land Use) shall be used with care as the uncertainties on these results are high or as the uncertainties on these results are high or as there is limited experienced with the indicator.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[6]	kg CO_2 eq.	1.03E+04	0.00E+00	6.07E+00	0.00E+00	4.85E-01	0.00E+00
Particulate matter emissions (PM)	Disease incidence	8.35E-04	0.00E+00	4.76E-07	0.00E+00	1.29E-07	0.00E+00
Ionizing radiation, human health (IRP)**	kBq U235 eq.	1.20E+02	0.00E+00	8.02E-03	0.00E+00	5.27E-04	0.00E+00
Eco-toxicity - freshwater (ETP-fw)	CTUe	4.51E+04	0.00E+00	3.37E+00	0.00E+00	1.82E-01	0.00E+00
Human toxicity, cancer effect (HTP-c)	CTUh	6.99E-06	0.00E+00	4.07E-10	0.00E+00	2.60E-11	0.00E+00
Human toxicity, non-cancer effects (HTP-nc)	CTUh	1.14E-04	0.00E+00	5.24E-08	0.00E+00	4.79E-10	0.00E+00
Land use related impacts/Soil quality (SQP)	dimensionless	1.34E+04	0.00E+00	1.06E-01	0.00E+00	1.08E-02	0.00E+00

***Disclaimer. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1.11E+04	0.00E+00	2.08E-01	0.00E+00	1.38E-02	0.00E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.11E+04	0.00E+00	2.08E-01	0.00E+00	1.38E-02	0.00E+00
PENRE	MJ	1.22E+05	0.00E+00	8.88E+01	0.00E+00	6.74E+00	0.00E+00
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.22E+05	0.00E+00	8.88E+01	0.00E+00	6.74E+00	0.00E+00
SM	kg	4.33E+02	0.00E+00	0.00E+00	0.00E+00	1.28E-05	0.00E+00
RSF	MJ	1.29E+02	0.00E+00	2.08E-01	0.00E+00	2.21E-06	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.78E+02	0.00E+00	2.08E-01	0.00E+00	1.92E-04	0.00E+00
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						

[6] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

It has been selected Option A of Annex 3 of PCR 2019:14 v2.0.1. to estimate the energetic balance because the energy used as raw material shall be declared as an input to the module where it enters the product system and as an equally large output from the product system where it exits the product system for use in another product system or as waste. The energy leaving the product system (from packaging) in module A5 have been balanced out already in modules A1-A3 as module A5 is not declared.

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	7.97E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.36E+02	0.00E+00	0.00E+00	0.00E+00	1.00E+03	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flow indicators

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	1.80E+01	0.00E+00	0.00E+00	0.00E+00	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

Additional LCA results (other environmental performance results) of the products

The difference between aluminium products is based on the alloy-type and the type of finishing coating materials employed. The combination of the two alloy series with the five types of finishes coatings results in a total of **15 references evaluated in this EPD**.
The **variations of each indicator are mainly due to the different amounts of recycled and virgin material present in the two alloy series**, according to the recycled content certificates provided by the aluminium suppliers.

Abbreviation	Unit	Maximum variation
GWP-total	kg CO2 eq.	19.36%
GWP-fossil	kg CO2 eq.	19.33%
GWP-biogenic	kg CO2 eq.	-23.96%
GWP-luluc	kg CO2 eq.	20.35%
ODP	kg CFC-11 eq.	23.49%
AP	mol H+ eq.	18.25%
EP-freshwater	kg P eq.	16.87%
EP-marine	kg N eq.	19.37%
EP-terrestrial	mol N eq.	19.35%
POCP	kg NMVOC eq.	18.39%
ADP-minerals&metals	kg Sb eq.	29.91%
ADP-fossil	MJ, net calorific value	17.08%
WDP	m^3 world eq. deprived	13.59%

ABBREVIATIONS

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
PCR	Product Category Rules
CPC	Central product classification
LCA	Life Cycle Assessment
GHS	Globally harmonized system of classification and labelling of chemicals
SVHC	Substances of Very High Concern
Other relevant Terms	
ND	Not Declared
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent

REFERENCES

a) General Programme Instructions of International EPD System. Version 5.0, based on ISO 14025 and ISO 14040/14044.
b) UNE-EN 15804:2012+A1:2019/AC:2021, Sustainability of construction works – Environmental product declarations - Core rules for the product category of construction products.
c) Product category rules (PCR) 2019:14. Construction products. Version 2.0.1
d) CRISTOBAL GARCIA, J., CARO, D., FOSTER, G., PRISTERA, G., GALLO, F. and TONINI, D., Techno-economic and environmental assessment of construction and demolition waste management in the European Union, Publications Office of the European Union, Luxembourg, 2024.
e) European Aluminium (2013). Aluminium Recycling in Life Cycle Assessment (https://european-aluminium.eu/wp-content/uploads/2022/10/2013-09-23-aluminium-recycling-in-lca.pdf).
f) Comisión Nacional de los Mercados y la Competencia (CNMC). Website link: https://gdo.cnmc.es/CNMC/accesoEtiquetado.do.
g) UNE-EN 13523-1:2024 “Coil coated metals - Test methods - Part 1: Film thickness.

VERSION HISTORY

Original Version of the EPD, 2026-01-22

CERTINALIA
tecnalia group

VERIFICATION STATEMENT CERTIFICATE

CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD14701

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

VINALOPO ALUMINIO COLOR S.L. (VIALCO)
Calle Embaladoras 42, Polígono Industrial La Bulilla
03400 Villena (Alicante) - SPAIN

for the following products:
para los siguientes productos:

COATED ALUMINIUM COILS
Bobinas de aluminio lacadas

with registration number **EPD-IES-0027309** in the International EPD® System *(www.environdec.com)*
*con número de registro **EPD-IES-0027309** 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 v5.**
- **PCR 2019:14 Construction products (EN 15804:A2) version 2.0.**
- **UN CPC 415 Semi-finished products of copper, nickel, aluminium, lead, zinc and tin or their alloys.**

Issued date / *Fecha de emisión:*	21/01/2026
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Serial Nº / *Nº Serie:*	EPD1470100-E

Organismo de certificación CERTINALIA

Carlos Nazabal Alsua
Manager

ENAC
CERTIFICACIÓN
ISO 17065
Nº125 / C-PR283

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