

ENVIRONMENTAL PRODUCT DECLARATION


INTERNATIONAL EPD SYSTEM



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

ALU.COVERING®

from ALIVA S.r.l.



Programme: The International EPD® System, www.environdec.com

Programme operator: EPD International AB

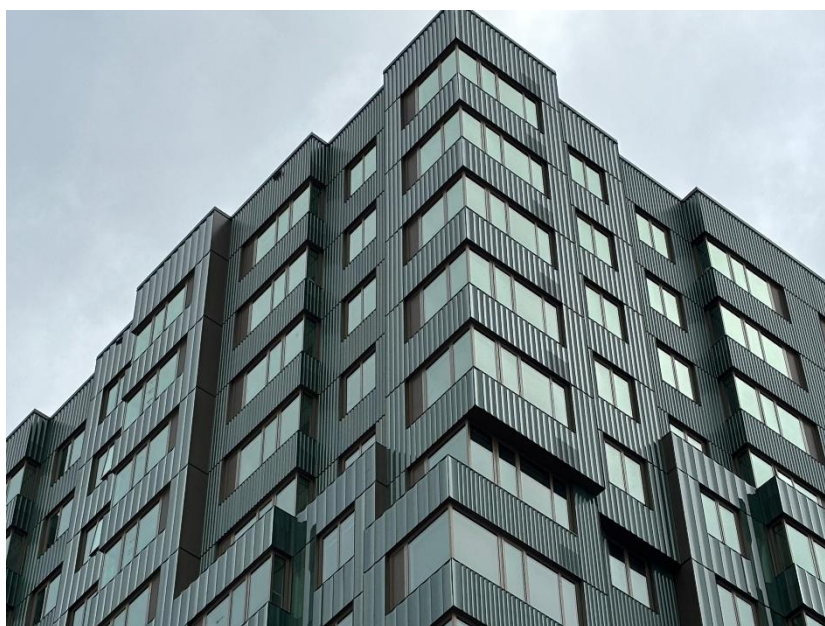
EPD registration number: EPD-IES-0028584:001

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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

EPD of multiple products, based on the average results of the product group.



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 serve as the core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 Construction products, version 2.0.1 and UN CPC code: 42190 - Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar equipment for scaffolding, shuttering or pitpropping.
PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for 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 .

Life cycle assessment (LCA)
LCA accountability: Filippo Baioli, Certimac soc. cons. a r.l.

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: TÜV Italia S.r.l. is an approved certification body accountable for the third-party verification. The certification body is accredited by: ACCREDIA (Registration number 00077 VV).
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 characterization 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: ALIVA S.r.l.

Address: via Bellaria, 40 - 47030 San Mauro Pascoli (FC), Italy

Contact: Valentina Marin, vmarin@gruppoivas.com

Address and contact information of the LCA practitioner commissioned by the EPD owner, if applicable: Dott. Filippo Baioli, f.baioli@certimac.it

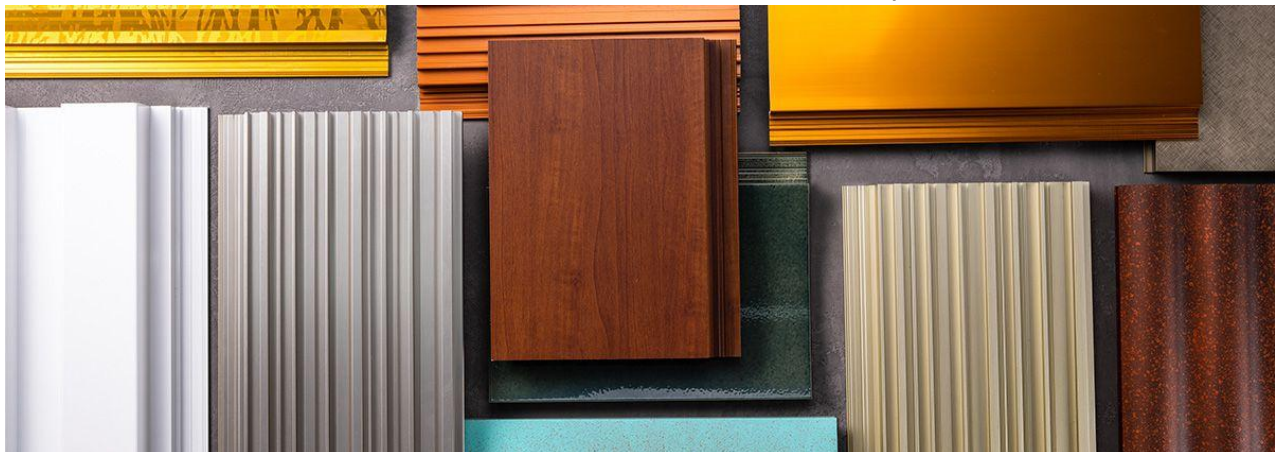
Description of the organization: ALIVA S.r.l., a subsidiary of the IVAS Group, is a leading international player specializing in ventilated facade systems. The company is uniquely positioned in the market for its ability to provide complete architectural freedom, offering a wide range of cladding materials and stylistic combinations for opaque building envelopes. Aliva's core business focuses on the conception, engineering, and implementation of integrated solutions for complex architectural projects. This is supported by deep technical expertise, bespoke consultancy, and extensive international experience. Every project is driven by the corporate philosophy: *"Timeless facades for visionary architecture."*

Product-related or management system-related certifications: the company holds ISO 9001 certification for quality management, and ISO 14001 and ISO 45001 certifications, highlighting its commitment to environmental performance, worker health, and safety. ALIVA S.r.l. aims to ensure efficiency, quality, and innovation in the ventilated facades.

PRODUCT INFORMATION

Product name: ALU.COVERING®

Product identification: Extruded aluminium ventilated facades system



UN CPC code: 42190 - Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar equipment for scaffolding, shuttering or pitpropping.

Product description: ALU.COVERING® is a complete and technologically advanced architectural response to the design requirement for extruded aluminium ventilated facades with a high degree of character and strong personality. The cladding panels, with a maximum size of 300 x 13,000 mm and a minimum thickness of 2 mm, are produced using extrusion, cutting, and machining systems that guarantee extremely tight tolerances in accordance with UNI EN 12020-2. The aluminium alloy is environmentally friendly, it can be recycled an infinite number of times, and its recycled content can be as high as 80% by weight.

The EN AW-6063 T6/T66 (AlMgSi) aluminium alloy substructure system is made up of extruded brackets and risers of suitable section, connected by means of AISI 304 and 316 stainless steel fittings and technologies that allow fastening in all conditions and free thermal expansion of all components, with both vertical and horizontal architectural modules.

Aluminium ventilated facades system ALU.COVERING® cladding profiles are made of extruded aluminium alloy and are available in different shapes (smooth, curved, sine-wave shape, zeta

profile or custom) and in heights of up to 300 mm. The panels can have both horizontal and vertical orientation.

The aesthetic elements of ALU.COVERING® are an expression of maximum creative freedom in façade: highly customisable in terms of shape and colour, the finishes range from anodised with polymerised polyester powders in thicknesses of not less than 60 microns (in accordance with the Qualicoat standard) or oxidized, in thicknesses of not less than 15 microns, in accordance with current regulations regarding anodic oxidation for outdoor use (in accordance with the Qualanod standard) and sublimated ones that evoke the aesthetic characteristics of other materials, while retaining the technical and performance characteristics of aluminium.

Name and location of production site: ALIVA S.r.l.- via Bellaria, 40 - 47030 San Mauro Pascoli (FC), Italy

Manufacturer: ALIVA S.r.l.

References to any relevant websites for more information or explanatory materials:

<https://www.aliva.it/en/index.asp>

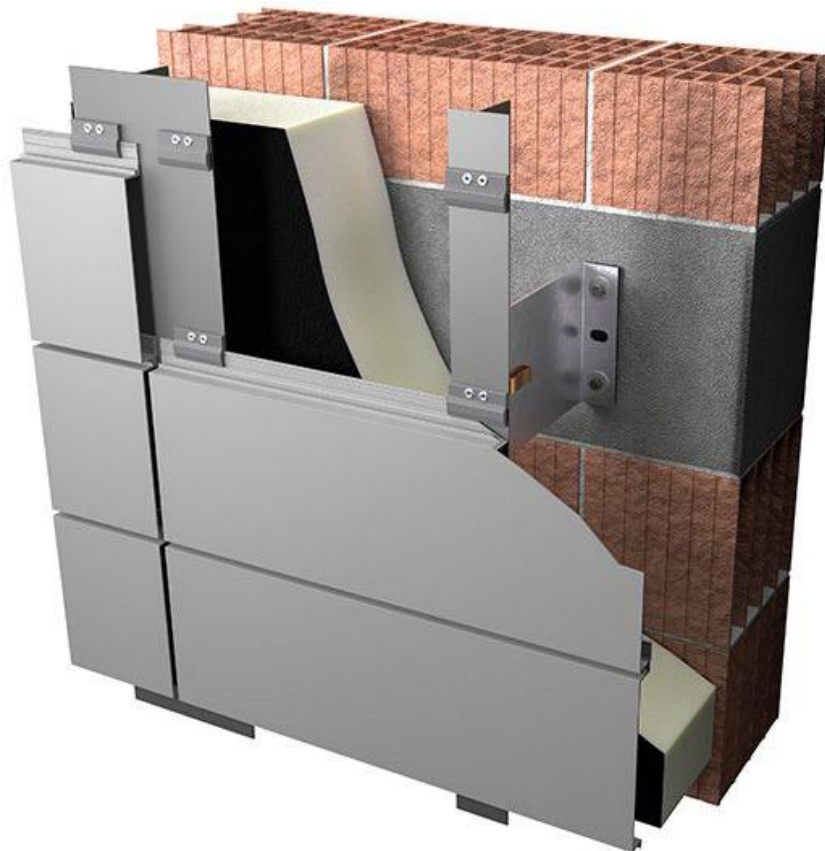
Declared product: ALU.COVERING® system including substructure, brackets steel hardware and fasteners, plastic fixing plugs and vinyl ester epoxy resin.

ALUCOVERING® can also be produced and supplied as panels only, including the relevant packaging (see Additional LCA results of the product(s) section)

EPD Type: EPD of multiple products, based on the average results of the product group.

ALU.COVERING® can be manufactured and marketed either as a complete system (including substructure and brackets) or as a cladding panel only.

The choice of this option is based on the complete system solution was the most widely sold on the market during the reference period. Furthermore, it also represents the worst-case scenario in terms of environmental impact, as it includes the substructure and fixing elements that are not present in the only panel solution.



Technical features:

Alu.covering

SCHEDA TECNICA



Informazioni tecniche

Technical information
Información técnica

Dimensioni massime dei pannelli

Maximum panel dimensions
Tamaño máximo de los paneles

Spessore dei pannelli

Panel thickness
Espesor de los paneles

Orientamento del pannello

Panel orientation
Orientación del panel

Materiale

Material
Material

Fuga

Joint
Junta

Fissaggio

Fastening
Fijación

Superfici

Surfaces
Superficies

Design life del sistema completo

Design life of the complete system
Vida de diseño del sistema completo

Reazione al fuoco secondo EN 13501-1

Reaction to fire according to EN 13501-1
Reacción al fuego según la EN 13501-1

Peso sistema completo di sottostruttura

Weight of the system with substructure
Peso del sistema con subestructura

Disponibile in versione Tailor Made?

Tailor Made version available?
¿Disponibile en versión Tailor Made?

Alu.covering

300x13000 mm

> 2 mm

Orizzontale o verticale

Horizontal or vertical
Horizontal o vertical

Doghe estruse in lega d'alluminio

Extruded aluminium alloy slats
Listones extruidos en aleación de aluminio

8 mm

A scomparsa, fughe a sormonto

Concealed, overlapping joints
Oculta, juntas solapadas

Verniciato standard o materico, anodizzato, sublimato effetto legno o pietra, decorato.

Standard painted or textured, anodised, sublimated wood or stone effect, decorated.
Pintado estándar o matérico, anodizado, sublimado efecto madera o piedra, decorado.

> 30 anni

> 30 years
> 30 años

A1 / A2 s1 d0

da 10 kg/m²

from 10 kg/m²
de 10 kg/m²

Si

Yes
Si



Recyclability



Recycled content



Easy installation



Impact resistance



Chemicals resistance



Easy cleaning



Fire reaction



Resistance to atmospheric agents



Geography: Global

EPD shall not include rating, judgements, or direct comparisons with other products or companies. "Other products" include previous or alternative versions of the studied product, i.e., the EPD shall not display changes in the environmental performance results of a product over time, or differences with regard to a hypothetical version of the product using, e.g., alternative production processes or input materials. "Other companies" means that the EPD shall not in any way imply that the EPD owner is, for example, "a market leader" or "more sustainable" (or similar) compared to its competitors.

CONTENT DECLARATION

- The mass (weight) of one unit of a product, as purchased or per declared unit: 13.8 kg/m² of ALU.COVERING® system (declared unit: 1 m² of surface area clad with the ALU.COVERING® system)
- Content of the product in the form of a list of materials and substances, and their mass: aluminum facade panels (8.86 kg); aluminum substructure (1.36 kg); aluminum brackets and components (3.24 kg); steel hardware and fasteners (1.62E-01 kg); plastic fixing plugs (1.43E-03 kg); vinyl ester epoxy resin (1.54E-01 kg); PS packaging (3.31E-02 kg); PE plastic film (1.67E-02 kg); PET strap (8.37E-03 kg); Solid board carton (1.10E-02 kg); Wooden packaging (1.34E-01 kg); Cardboard (9.78E-03 kg)
- The declared share of biogenic/recycled materials: aluminum facade panels (0% and 0 kgC/declared unit); aluminum substructure (89.1% and 0 kgC/declared unit); aluminum brackets and components (89.1% and 0 kgC/declared unit); steel hardware and fasteners (55% and 0 kgC/declared unit); plastic fixing plugs (0% and 0 kgC/declared unit); vinyl ester epoxy resin (0% and 0 kgC/declared unit); PS packaging (0% and 0 kgC/declared unit); PE plastic film (0% and 0 kgC/declared unit); PET strap (0% and 0 kgC/declared unit); Solid board carton (0% and 3.62E-03 kgC/declared unit); Wooden packaging (0% and 7.88E-02 kgC/declared unit); Cardboard (0% and 4.40E-03 kgC/declared unit)
- No Substances of Very High Concern (SVHC) are added to ALU.COVERING® during the production process.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/declared unit
Aluminum facade panels	8.86E+00	0%	0%	0
Aluminum substructure	1.36E+00	89.1%	0%	0
Aluminum brackets and components	3.24E+00	89.1%	0%	0
Steel hardware and fasteners	1.62E-01	55%	0%	0
Plastic fixing plugs	1.43E-03	0%	0%	0
Vinyl ester epoxy resin	1.54E-01	0%	0%	0
TOTAL	1.38E+01	30%	0%	0

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/declared unit
PS packaging	3.31E-02	0.24%	0
PE plastic film	1.67E-02	0.12%	0
PET strap	8.37E-03	0.06%	0
Solid board carton	1.10E-02	0.08%	3.62E-03
Wooden packaging	1.34E-01	0.97%	7.88E-02
Cardboard	9.78E-03	0.07%	4.40E-03
TOTAL	2.13E-01	1.55%	8.68E-02

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO₂.

LCA INFORMATION

Declared unit: 1 m² of surface area cladded with the ALU.COVERING® system including substructure, fastening elements and packaging

Conversion factor to mass: 13.8 kg/m²

Reference service life: >30 years

Time representativeness: August 2024 – July 2025

Database (s) and LCA software used: Ecoinvent 3.12 (EN15804 add-on), OpenLCA 2.6.1

LCA author contact: Filippo Baioli, f.baioli@certimac.it, Certimac soc. cons. a r.l., via Granarolo 62, 48018 Faenza (RA), Italy

Description of system boundaries: Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules). The additional modules may be one or more selected from A4–A5 and/or B1–B7.

Modules B1–B7 are deemed not relevant since the product needs no maintenance or operational energy or water use and are, therefore, not declared.

Cut-off criteria: The cut-off criteria used for this study follow the guidelines set out in the PCR which conform to the EN 15804:2012+A2:2019, as follows: all material and energy flows contributing to the final product were included; where specific data were unavailable, a conservative approach was adopted.

Thermal insulation elements have been excluded as they are not the goal and scope of this study. The ALU.COVERING system is designed for modularity and can be supplied either with or without insulation, depending on specific project requirements.

Impact Assessment method: EN 15804+A2 reference package based on EF 3.1 has been used.

Data quality: A data quality assessment was carried out in accordance with the PCR 2019:14 v.2.0.1 guidelines. The quality of the datasets contributing to 80% of the total global impact across all environmental impact indicators was evaluated; furthermore, the overall result was obtained by weighting the results of each impact category using the Product Environmental Footprint (PEF) weighting factors. Only two datasets show very poor temporal representativeness, as their latest update provided by ecoinvent 3.12 is more than 10 years. Overall, the data quality was found to be very good in terms of technological, geographical and temporal representativeness. In addition, the data quality for module D was found to be very good in terms of technological representativeness, and good in terms of geographical and temporal representativeness.

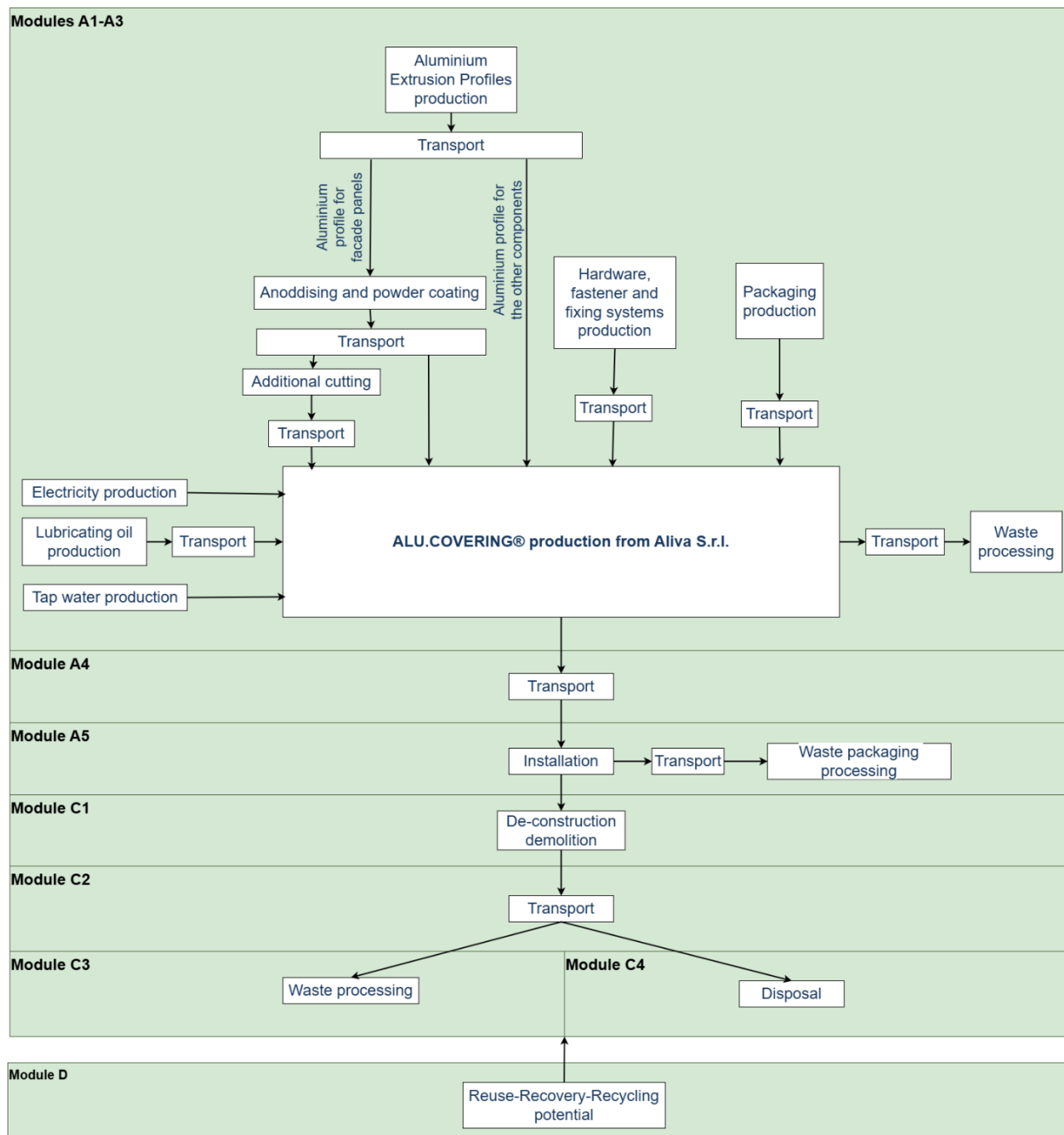
Process	Module	Source	Technological representativeness	Geographical representativeness	Temporal representativeness
Aluminum production for facade panels	A1-A3	EPD	Very good	Very good	Very good
Aluminum production for substructure, brackets and components	A1-A3	EPD	Very good	Very good	Very good
Steel production for hardware and fasteners	A1-A3	ecoinvent 3.12	Fair	Good	Poor
Treatment of aluminium scrap, post-consumer, for recycling	C3	ecoinvent 3.12	Good	Good	Poor
Total Weighted Results			Very good	Very good	Very good

Share of primary data analysis:

Process	Source type	Source	Reference year	Data category	Contribution to GWP-GHG results for A1-A3	Share of primary data, of GWP-GHG results for A1-A3
Aluminum production for facade panels	EPD	Confidential	2024	Primary data	87.47%	87.47%
Aluminum production for substructure, brackets and components	EPD	Confidential	2024	Primary data	6.25%	6.25%
Generation of electricity used in manufacturing product	Database	ecoinvent 3.12	2024	Primary data	0.27%	0.27%
Raw material transport	Database	ecoinvent 3.12	2018	Primary and secondary data	0.36%	0.36%
Total share of primary data, of GWP-GHG results for A1-A3						94%

Process flow diagram:

Process flow diagram of the product system, divided into the life-cycle stages and modules shows the main processes included and the system boundary of the LCA. The diagram makes it clear when the end-of-waste state is reached for main input flows of reused/recycled materials and recovered energy, and for output flows of reused/recycled materials and recovered energy exiting the end-of-life stage.



Modules declared, geographical scope, share of specific data:

	Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	IT	IT	IT	GLO	GLO	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Share of specific data	94%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	-8%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

DESCRIPTION OF THE MODULES

Modules A1-A3: Product stage

The product stage begins with the consideration of the production of the necessary raw materials and energies including all corresponding upstream processes as well as transport. Furthermore, the entire production phase was investigated, including the treatment of production waste until reaching the end-of-waste status (EoW).

A1-A3 modules includes: the production and supply of aluminum for facade panels, substructure, brackets and other components; the production and supply of steel hardware and fasteners, plastic fixing plugs vinyl ester epoxy resin; the cutting/stamping, anodizing and/or painting processes of aluminum facade panels; the production and supply of electricity, lubricating oil and water for the processes carried out by Aliva; the production and supply packaging; waste treatment.

Electricity GWP-GHG used in module A3:

- Electricity low voltage from residual mix – IT
- 0.14 kg CO₂ eq./kWh

Module A4: Transport

The transport of ALU.COVERING® takes place on a global scale using a transport carrier and the distribution is made by truck and/or plane depending on the destination.

The average distribution distance between ALIVA S.r.l. and the installation site has been calculated considering the mass transported, distance traveled for each shipment carried by truck, ship and rail during the reference period.

Vehicle	Distance, km
Truck	473
Ship	267
Rail	2.3

Module A5: Construction installation

Installation is performed manually using scaffolding or Mobile Elevating Work Platforms (MEWP) and the use of electric drills, hammer drills, and screwdrivers. These aspects are irrelevant and therefore negligible in the Life Cycle Assessment analysis.

The treatment of the waste packaging used for ALU.COVERING® and its transport from the installation site to the disposal center have been included. The transport between the construction site and waste treatment facility is by truck, with an assumed distance of 80 km. The treatment of waste packaging has been assumed through a recycling process for the purpose of material recovery.

Waste treatment	Value, %
Recycling process for material recovery	100

Module C1: De-construction demolition

Professionally installed ALU.COVERING® has a reference service life of at least 30 years, as reported in the technical data sheet.

Once ALU.COVERING® system reaches its end-of-life, it can be fully or partially dismantled. The dismantling phase of the ventilated facade is primarily carried out using scaffolding or Mobile Elevating Work Platforms (MEWPs) and the use of primarily electric drills, rotary hammers, and screwdrivers. These aspects are considered irrelevant and therefore negligible within the Life Cycle Assessment (LCA).

Even in the event of overall building demolition, given the high value of the material (primarily aluminum) that composes ALU.COVERING®, it would be dismantled separately.

Module C2: Transport

The transport between the construction site and waste treatment facility is by truck, with an assumed distance of 80 km.

Modules C3-C4: Waste processing and Disposal

ALU.COVERING® is disposed of through a recycling process for both the aluminum and steel and plastic components, so 100% of this waste is included in module C3 (and therefore module C4 will be zero).

Since this waste is not composed of or contaminated with hazardous substances, and given the economic value of these materials, the most plausible scenario is recycling to recover materials for use in other production systems.

Waste treatment	Value, %	Module
Recycling process for material recovery	100	C3
Disposal	0	C4

Module D: Reuse-Recovery-Recycling potential

Module D accounts for the potential environmental benefits arising from the recovery of aluminum, steel, and plastic (Module C3), as well as packaging waste including plastic, cardboard, and wood (Module A5).

ENVIRONMENTAL PERFORMANCE

LCA results of the product – main environmental performance results

Disclaimer: 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. 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)

Mandatory impact category indicators according to EN 15804

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - total	kg CO ₂ eq	1.78E+02	1.07E+00	3.51E-01	0.00E+00	1.64E-01	3.43E+00	0.00E+00	-1.27E+02
GWP - fossil	kg CO ₂ eq	1.78E+02	1.06E+00	3.23E-02	0.00E+00	1.64E-01	3.41E+00	0.00E+00	-1.27E+02
GWP - biogenic	kg CO ₂ eq	-1.31E-01	2.90E-04	3.19E-01	0.00E+00	3.58E-05	1.85E-02	0.00E+00	-9.69E-02
GWP - luluc	kg CO ₂ eq	4.79E-03	3.44E-03	5.58E-05	0.00E+00	5.55E-05	3.15E-03	0.00E+00	-2.52E-01
ODP	kg CFC11 eq	6.03E-06	1.79E-08	4.08E-10	0.00E+00	3.74E-09	2.46E-08	0.00E+00	-8.45E-07
AP	mol H ⁺ eq	9.58E-01	5.36E-03	1.27E-04	0.00E+00	7.42E-04	1.39E-02	0.00E+00	-8.35E-01
EP - freshwater	kg P eq	4.97E-02	1.12E-04	1.18E-05	0.00E+00	1.18E-05	8.53E-04	0.00E+00	-4.31E-02
EP - marine	kg N eq	1.52E-01	2.07E-03	4.10E-05	0.00E+00	2.98E-04	2.73E-03	0.00E+00	-1.34E-01
EP - terrestrial	mol N eq	1.62E+00	2.23E-02	3.65E-04	0.00E+00	3.24E-03	2.98E-02	0.00E+00	-1.39E+00
POCP	kg NMVOC eq	6.50E-01	7.49E-03	1.22E-04	0.00E+00	1.15E-03	9.36E-03	0.00E+00	-4.11E-01
ADPE*	kg Sb eq	3.44E-04	3.50E-06	1.84E-07	0.00E+00	5.55E-07	7.24E-05	0.00E+00	-9.10E-05
ADPF*	MJ	2.63E+03	1.49E+01	3.97E-01	0.00E+00	2.36E+00	2.39E+01	0.00E+00	-1.24E+03
WDP*	m ³ world eq deprived	7.46E+01	8.42E-02	8.03E-03	0.00E+00	1.29E-02	4.52E-01	0.00E+00	-2.87E+01
Acronyms	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential								

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

Additional mandatory and voluntary impact category indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq	1.79E+02	1.07E+00	3.32E-02	0.00E+00	1.64E-01	3.43E+00	0.00E+00	-1.27E+02
Acronym	GWP-GHG = Global Warming Potential								

Resource use indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	2.10E+02	2.29E-01	6.32E-02	0.00E+00	3.96E-02	2.68E+00	0.00E+00	-1.52E+02
PERM	MJ	5.25E+01	0.00E+00	-4.29E+01	0.00E+00	0.00E+00	-9.61E+00	0.00E+00	0.00E+00
PERT	MJ	2.62E+02	2.29E-01	-4.28E+01	0.00E+00	3.96E-02	-6.92E+00	0.00E+00	-1.52E+02
PENRE	MJ	2.61E+03	1.49E+01	3.97E-01	0.00E+00	2.36E+00	2.39E+01	0.00E+00	-1.24E+03
PENRM	MJ	9.06E+00	0.00E+00	-8.29E+00	0.00E+00	0.00E+00	-7.72E-01	0.00E+00	0.00E+00
PENRT	MJ	2.62E+03	1.49E+01	-7.89E+00	0.00E+00	2.36E+00	2.32E+01	0.00E+00	-1.24E+03
SM	kg	6.01E+00	1.19E-02	-2.03E-01	0.00E+00	2.32E-03	-1.32E+01	0.00E+00	8.24E+00
RSF	MJ	2.12E-01	1.60E-03	1.53E-03	0.00E+00	5.49E-04	1.73E-02	0.00E+00	-3.45E-01
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m ³	1.50E+00	2.15E-03	1.79E-04	0.00E+00	2.95E-04	1.09E-02	0.00E+00	-6.24E-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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	3.31E+01	1.01E-01	7.30E-03	0.00E+00	1.41E-02	2.29E+00	0.00E+00	-3.32E+01
NHWD	kg	3.48E+02	1.56E+00	8.20E-02	0.00E+00	2.24E-01	7.77E+00	0.00E+00	-2.83E+02
RWD	kg	1.99E-03	3.14E-06	1.33E-06	0.00E+00	6.75E-07	2.56E-05	0.00E+00	-4.20E-04
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed								

Output flow indicators

Results per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	4.65E-01	1.07E-02	2.84E-03	0.00E+00	2.09E-03	7.98E-01	0.00E+00	-5.58E-01
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	1.86E+01	1.46E-03	9.74E-04	0.00E+00	4.47E-04	3.80E-01	0.00E+00	-1.85E-01
EET	MJ	7.36E-01	2.20E-03	6.48E-05	0.00E+00	9.73E-04	1.39E-01	0.00E+00	-2.81E-02
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								

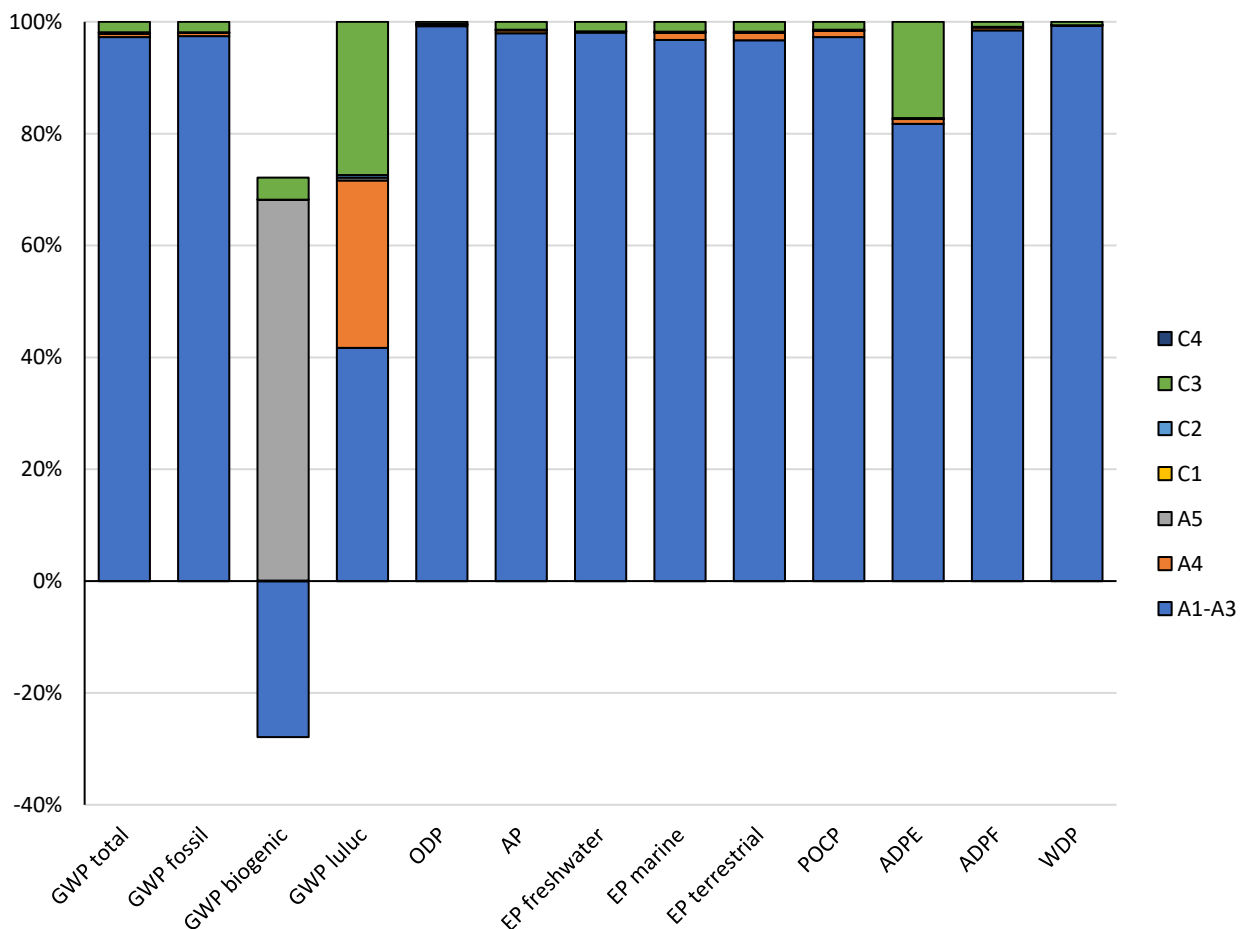
RESULTS INTERPRETATION

The histogram shows the relative contribution of each module to core environmental impact indicators. The production phase (module A1-A3) clearly dominates the LCA results. The main environmental impacts fall into all categories located in modules A1-A3 (except for GWP-biogenic), which affect a range between 97-99% in every impact category and 42% in GWP-luluc. The processes that most impact the modules A1-A3 are the production of aluminium profiles for facade panels, aluminum substructure aluminum brackets and components. In addition, modules A1-A3 show an avoided impact for GWP-biogenic due to carbon storage in the biogenic elements of the packaging.

The product transport processes in module A4 contributes 30% to the GWP-LULUC, this is mainly due to truck transport, while it is negligible across all other impact categories, with a contribution of less than 1%.

The A5 module impacts is irrelevant in all impact categories, except for GWP-biogenic category, where the module contributes up to 72%. This is due to the biogenic carbon emissions included in the disposed packaging and the non-fossil methane emissions associated with recycling processes.

The environmental loads caused by the ALU.COVERING® waste processing are significant for GWP-biogenic, GWP-LULUC, and ADPE, due to the aluminum recycling process which accounts for 9%, 27%, and 17% respectively; meanwhile, it impacts all other categories within a range of 0%-2%.



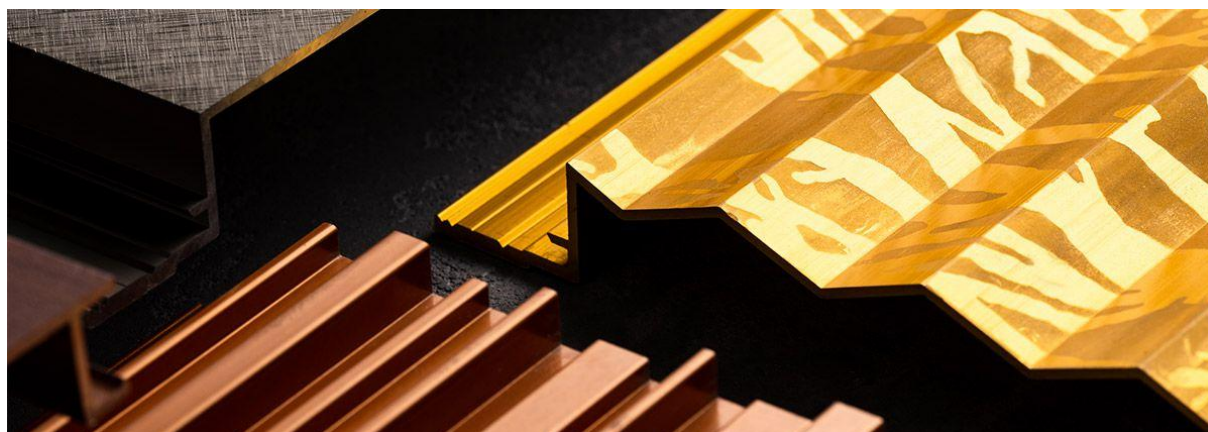
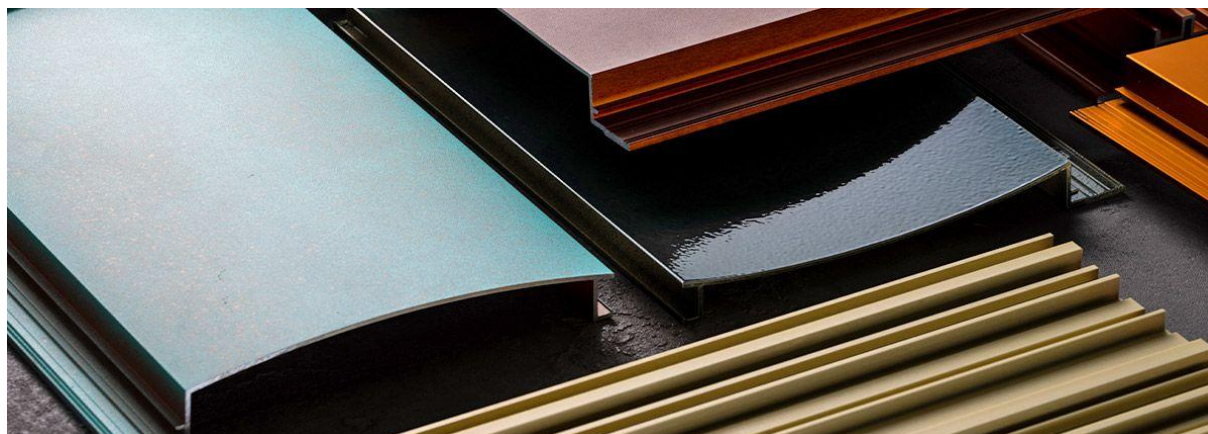
ADDITIONAL LCA RESULTS OF THE PRODUCT(S)

ALUCOVERING® can also be produced and supplied as panels only, including the relevant packaging.

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/declared unit
Aluminum facade panels	8.86E+00	0%	0%	0
TOTAL	8.86E+00	0%	0%	0

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/declared unit
PS packaging	3.31E-02	0.37%	0
PE plastic film	1.10E-02	0.12%	0
PET strap	5.51E-03	0.06%	0
Solid board carton	1.10E-02	0.12%	3.62E-03
Wooden packaging	8.82E-01	1.00%	5.19E-02
TOTAL	1.49E-01	1.68%	5.55E-02

This product group shows a variation in results compared to the representative product of more than 10% for several impact categories; this is mainly due to the absence of production and processing of the aluminium required for the substructure, brackets and other components and relative packaging and other components for fixing. Furthermore, considering that the entire impact is mainly attributable to the aluminium profile, the results of the sensitivity analysis are coherent and correlated with the characteristic of the product studied.



LCA results of the product – main environmental performance results

Disclaimer: 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. 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)

Core environmental impact indicators

Result variation per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - total	kg CO ₂ eq	-8%	-36%	-34%	-0%	-35%	-34%	-0%	-6%
GWP - fossil	kg CO ₂ eq	-8%	-36%	-15%	-0%	-35%	-34%	-0%	-6%
GWP - biogenic	kg CO ₂ eq	-40%	-36%	-36%	-0%	-35%	-40%	-0%	-5%
GWP - luluc	kg CO ₂ eq	-44%	-36%	-19%	-0%	-35%	-34%	-0%	-6%
ODP	kg CFC11 eq	-10%	-36%	-17%	-0%	-35%	-34%	-0%	-10%
AP	mol H ⁺ eq	-9%	-36%	-18%	-0%	-35%	-34%	-0%	-6%
EP - freshwater	kg P eq	-19%	-36%	-8%	-0%	-35%	-34%	-0%	-6%
EP - marine	kg N eq	-9%	-36%	-21%	-0%	-35%	-35%	-0%	-6%
EP - terrestrial	mol N eq	-9%	-36%	-23%	-0%	-35%	-34%	-0%	-6%
POCP	kg NMVOC eq	-8%	-36%	-24%	-0%	-35%	-34%	-0%	-6%
ADPE*	kg Sb eq	-23%	-36%	-11%	-0%	-35%	-34%	-0%	-16%
ADPF*	MJ	-8%	-36%	-16%	-0%	-35%	-34%	-0%	-6%
WDP*	m ³ world eq deprived	-17%	-36%	-10%	-0%	-35%	-34%	-0%	-6%
Acronyms	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential								

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

Additional mandatory environmental impact indicators

Result variation per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq	-8%	-36%	-16%	-0%	-35%	-34%	-0%	-6%
Acronym	GWP-GHG = Global Warming Potential								

Resource use indicators

Result variation per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	-20%	-36%	-5%	-0%	-35%	-34%	-0%	-6%
PERM	MJ	-28%	-0%	-34%	-0%	-0%	-1%	-0%	-0%
PERT	MJ	-21%	-36%	-34%	-0%	-35%	11%	-0%	-6%
PENRE	MJ	-7%	-36%	-16%	-0%	-35%	-34%	-0%	-6%
PENRM	MJ	-55%	-0%	-59%	-0%	-0%	-6%	-0%	-0%
PENRT	MJ	-7%	-36%	-62%	-0%	-35%	-35%	-0%	-6%
SM	kg	-97%	-36%	-31%	-0%	-35%	-35%	-0%	-6%
RSF	MJ	-21%	-36%	-2%	-0%	-35%	-35%	-0%	-6%
NRSF	MJ	-0%	-0%	-0%	-0%	-0%	-0%	-0%	-0%
FW	m ³	-7%	-36%	-10%	-0%	-35%	-34%	-0%	-6%
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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water								

Waste indicators

Result variation per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	-20%	-36%	-13%	-0%	-35%	-34%	-0%	-9%
NHWD	kg	-3%	-36%	-13%	-0%	-35%	-34%	-0%	-6%
RWD	kg	-9%	-36%	-4%	-0%	-35%	-35%	-0%	-7%
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed								

Output flow indicators

Result variation per declared unit									
Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CRU	kg	-0%	-0%	-0%	-0%	-0%	-0%	-0%	-0%
MFR	kg	-31%	-36%	-5%	-0%	-35%	-34%	-0%	-7%
MER	kg	-0%	-0%	-0%	-0%	-0%	-0%	-0%	-0%
EEE	MJ	-14%	-36%	-3%	-0%	-35%	-34%	-0%	-6%
EET	MJ	-4%	-36%	-21%	-0%	-35%	-34%	-0%	-28%
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								

ABBREVIATIONS

AISI	American Iron and Steel Institute
AlMgSi	Aluminum-Magnesium-Silicon
ADP	Abiotic Depletion Potential
AP	Acidification Potential
CEN	European Committee for Standardization
C	Carbon
CO ₂	Carbon dioxide
CPC	Central product classification
CRU	Components for re-use
EEE	Exported energy, electricity
EET	Exported energy, thermal
EF	Environmental Footprint
EN	European Norm (Standard)
EoW	End of Waste
EP	Eutrophication potential
EPD	Environmental product declaration
Eq.	Equivalents
FC	Forlì-Cesena
FW	Use of net fresh water
GHG	Greenhouse gas
GLO	Global
GPI	General Programme Instructions
GWP	Global warming potential
GWP-GHG	Global warming potential - Greenhouse Gas
ISO	International Organization for Standardization
IT	Italy
HWD	Hazardous waste disposed
kg	Kilogram
kWh	Kilowatt-hour
LCA	Life cycle assessment
luluc	Land Use, Land-Use Change
m ²	Square meter
MER	Materials for energy recovery
MFR	Materials for recycling
mm	Millimeter
ND	Not Declared
NHWD	Non-hazardous waste disposed
NRSF	Use of non-renewable secondary fuels
ODP	Depletion potential of the stratospheric ozone layer
PCR	Product category rules
PE	Polyethylene
PEF	Product Environmental Footprint
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
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

PET	Polyethylene Terephthalate
POCP	Formation potential of tropospheric ozone
PS	Polystyrene
RA	Ravenna
RSF	Use of renewable secondary fuels
RSL	Reference service life
RWD	Radioactive waste disposed
Soc. cons. a r.l.	Società consortile a responsabilità limitata
SM	Use of secondary material
Srl	Società a responsabilità limitata
SVHC	Substance of very high concern
UN	United Nations
v.	Version
WDP	Water (user) deprivation potential

REFERENCES

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ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines

Ecoinvent 3.12 (EN15804 add-on)

VERSION HISTORY

Original version of the EPD, 2026-07-22