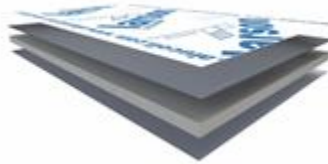




## ENVIRONMENTAL PRODUCT DECLARATION

# larson®FR - larson®A2



ALUMINIUM COMPOSITE PANEL FOR ARCHITECTURAL SECTOR, CORPORATE DESIGN APPLICATIONS, AUTOMOTIVE AND NAVAL SECTOR, AMONG OTHERS

Programme: The International EPD®System, [www.environdec.com](http://www.environdec.com)

Programme operator: EPD International AB

EPD number: S-P-00363

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EPD Conformity with:

**ISO 14025:2006** ENVIRONMENTAL LABELS AND DECLARATIONS-TYPE III ENVIRONMENTAL DECLARATIONS-PRINCIPLES AND PROCEDURES. (2006)

**EN 15804:2012+A2**, SUSTAINABILITY OF CONSTRUCTION WORKS. ENVIRONMENTAL PRODUCT DECLARATIONS. CORE RULES FOR THE PRODUCT CATEGORY OF CONSTRUCTION PRODUCTS (2019).

**ISO 14044:2006** ENVIRONMENTAL MANAGEMENT -- LIFE CYCLE ASSESSMENT -- REQUIREMENTS AND GUIDELINES (2006)

**GPI**, GENERAL PROGRAMME INSTRUCTIONS FOR THE INTERNATIONAL EPD® SYSTEM V3.01 (2019-09-18)

**PCR 2019:14**, CONSTRUCTION PRODUCTS V1.11 (2021-02-05).

ALUCOIL, S.A.


C/ Ircio Parc. R72 - R77  
Pol. Ind. de Bayas  
09200 Miranda de Ebro  
Burgos (SPAIN)



Publisher: The Norwegian EPD Foundation  
Registration number: NEPD-3494-2091-EN



	<p>Summary</p> <p>Environmental Product Declaration</p>
<p>The International EPD® System</p>	<p>Program operator</p>
<p><b>Alucoil, S.A.</b>  C/ Ircio Parc. R72 - R77  Pol. Ind. de Bayas  09200 Miranda de Ebro, Burgos (SPAIN)  Tel: +34 947 333320  <a href="http://www.alucoil.com">www.alucoil.com</a></p> <p><b>Raúl Mariscal Díaz de Sarralde</b>  Plant Manager-Alucoil, S.A.</p>	<p>Declaration owner</p>
<p>S-P-00363</p>	<p>Declaration number</p>
<p><b>Aluminium composite panel for use in architecture, automotive, naval and corporate image applications, among others,</b></p> <p>This declaration is an environmental product declaration according to ISO 14025 and EN 15804:2012+A2. The declaration is based on the PCR 2019:14 v1.11.</p>	<p>Declared building products</p>
<p>This validated declaration entitles the use of the logotype of the International EPD® System. This exclusively applies to the mentioned products; five years from the date of issue. The declaration holder is liable for the basic information and verifications.</p>	<p>Validity</p>
<p>2014-05-14</p>	<p>Registration date</p>
<p>CEN standard EN 15804 serves as the core Product Category Rules (PCR).  Product Category Rules (PCR):  PCR 2019:14 Construction Products v1.11</p>	<p>PCR</p>
<p>PCR review was conducted by:  The Technical Committee of the International EPD®System. See <a href="http://www.environdec.com/TC">www.environdec.com/TC</a> for a list of members Review chair: Claudia A. Peña, University of Concepcion, Chile. The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>.</p>	<p>PCR review</p>
<p>Independent third-party verification of the declaration and data, according to ISO 14025:2006:</p> <p><input checked="" type="checkbox"/> External                      <input type="checkbox"/> Internal  covering  <input type="checkbox"/> EPD process certification      <input checked="" type="checkbox"/> EPD verification</p> <p>Third party verifier:  <b>TECNALIA R&amp;I CERTIFICACION S.L.</b> as certification body accreditation nº 125/C-PR283 by ENAC</p> <p><b>Eva Larzabal</b>  External EPD Verifier</p>	<p>Third party verifier</p>

	<p>Summary</p> <p>Environmental Product Declaration</p>
<p><b>larson®FR</b> aluminium composite panel, is a high-tech product for architectural façade cladding. It is formed with two aluminium sheets, alloy, bonded by a mineral fire retardant (FR) core. Alucoil® has developed a core that delays panel combustion which allows this material to achieve B-s1, d0 classification, according to the EN 13501-1 standard.</p> <p><b>larson®A2</b> is the new aluminium composite panel developed by Alucoil's R&amp;D department for architectural cladding. This panel has been developed to be used in those countries whose regulations prevent the use of other types of composite panels which don't achieve the A2-s1, d0 fire class. Both composite panels made up of two 0.5 mm sheets of aluminium alloy EN 573-3 joined by a mineral core FR or A2 depending on the requirements of each country for its installation.</p>	<p>Product description</p>
<p>larson® FR &amp; larson®A2 are products for cladding architectural façades. Metal panels made up of two sheets of aluminium alloy, joined by a mineral core FR or A2. The mineral core FR delays combustion for a classification B-s1, d0 in accordance with the regulation EN 13501-1 and the mineral core A2 for use in the countries whose standards prevent the use of any of other type of composite panel that does not have classification A2-s1, d0 in accordance with the regulation EN 13501-1.</p>	<p>Applications</p>
<p>The EPD owner has the sole ownership, liability and responsibility for the EPD.</p>	<p>Responsibility for the EPD</p>
<p>The Life Cycle Assessment (LCA) was performed according to ISO 14040 ff. corresponding to the requirements of the guidelines concerning Type III declarations. Specific industrial data from Alucoil, S.A. for the year 2020, data from the data base ecoinvent 3.7 are used in this LCA. The method applied for assessment is EN 15804 +A2 Method EF3.0, included in SimaPro software version 9.3.</p>	<p>Scope of the LCA</p>
<p>This EPD is based on information modules Cradle to Grave and module D</p>	<p>Scope of the EPD</p>

Stage	Product			Construction		Use							End of life				
	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
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
M. Declared	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Geography	EU	EU	ES	GLO	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU	EU
Specific data	>95% GWP-GHG																
Variation products	Not relevant																
Variation sites	Not relevant																

**EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.**

Product group:	ACM, aluminium composite material	Issued
Declaration holder:	Alucoil, S.A.	July/2022
Declaration number:	S-P-00363	

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## 1. PRODUCT RELATED INFORMATION

### 1.1 SPECIFICATION OF THE MANUFACTURING COMPANY

ALUCOIL is a Spanish multinational company, with headquarters in Miranda de Ebro (Burgos-SPAIN), and part of the Alibérico Group – specialists in the transformation and manufacture of advanced materials for building, transport and industry applications. ALUCOIL, with four modern factories in four continents (Europe, Africa, America & Oceania), is a high-tech company, innovative and growth-orientated, whose cutting-edge production lines turn out the latest innovative products. ALUCOIL has been since 1996 manufacturing and transforming high-tech aluminium materials for building and construction, with more than 40 years of know-how in the aluminium field.

The ALUCOIL global product line is spread over five business units:

- Powder Coating of aluminum sheet & coil for protective and decorative applications under the brands of termolac® and durolac®.
- Top Quality ACM – aluminum Composite Panels commercialized internationally under the renowned brands larson® and signi® for architectural wall cladding and corporate image design. Metal composite options are also available in Stainless Steel, Copper, Zinc and Anodized Aluminum.
- Almirr®: multi-laminate aluminum mirror panels, external grade, for concentrated solar panel arrays and building architecture accents.
- Iarcore®: lightweight aluminum honeycomb panels. Continuous process manufactured, available up to 78.75" wide (2 meters) and in custom lengths, it is ideal as a structural wall panel for buildings, elevators, buses, ferries, RV's, and high speed trains.
- anolac®: Corrugated aluminum sheets for roofing, walls, accent coverings, and enclosures for roofing, walls, and enclosures.



Picture 1: Facilities of Alucoil, S.A. in Miranda de Ebro. Source: Alucoil S.A.

Starting in 1987, the Alibérico Group is an industrial and technological leader in the aluminium sector. It has grown through acquisition and creation of new businesses, becoming today a consolidated corporate structure comprising of 35 companies with factories in Spain, Portugal, Belgium, UK and Germany, commercial offices in Spain, France, Italy, Portugal, Germany, Poland, Croatia and Morocco as well as distributor warehouses throughout Europe and North Africa.

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At Alibérico, we have an international calling, exporting 60% of our production to 45 countries on five continents, with the support of our own sales offices.

The Alibérico Group is an industrial and technological group very diversified in terms of product range, the sectors it serves and geographic markets where it is present.

The Group has factories in Spain, Germany and Portugal, and sales offices in the major European Union countries and is organized in 6 areas of business.

- Coating: Coating and anodizing coils, sheets, aluminium and steel profiles and accessories.
- Building: Composite and honeycomb panels in all types of metals. Shaped and formed metal.
- Transport: Aluminium Honeycomb Panels, for the construction of trucks, buses, and high-speed trains and ferries.
- Foil: Coating and printing of aluminium foil.
- Packaging: Containers, packaging and household rolls of plastic and aluminium.
- Distribution: Marketing of semi-transformed aluminium products.



Picture 2: Distribution of Alucoil industrial plants. Source: Alucoil S.A.

## 1.2 SPECIFICATION OF THE PRODUCT

**Scope of validity:** This document applies to all aluminium composite panels®FR and laron®A2 manufactured by Alucoil, S.A. in the plant located in Miranda de Ebro and Alicante, respectively. CPC code: 4299.

A specific Environmental Product Declaration for each product has been developed. No average results are reported. Variation in products and sites production does not apply.

**Geographical Scope:** Global

Picture 3 shows the product concept under study.

The process flow diagram under study is displayed in Figure 1.

This EPD is intended to be used is in a Business to Business (B2B) communication.



Picture 3: Aluminium composite panel laron®FR and laron®A2.

Source: Alucoil, S.A.

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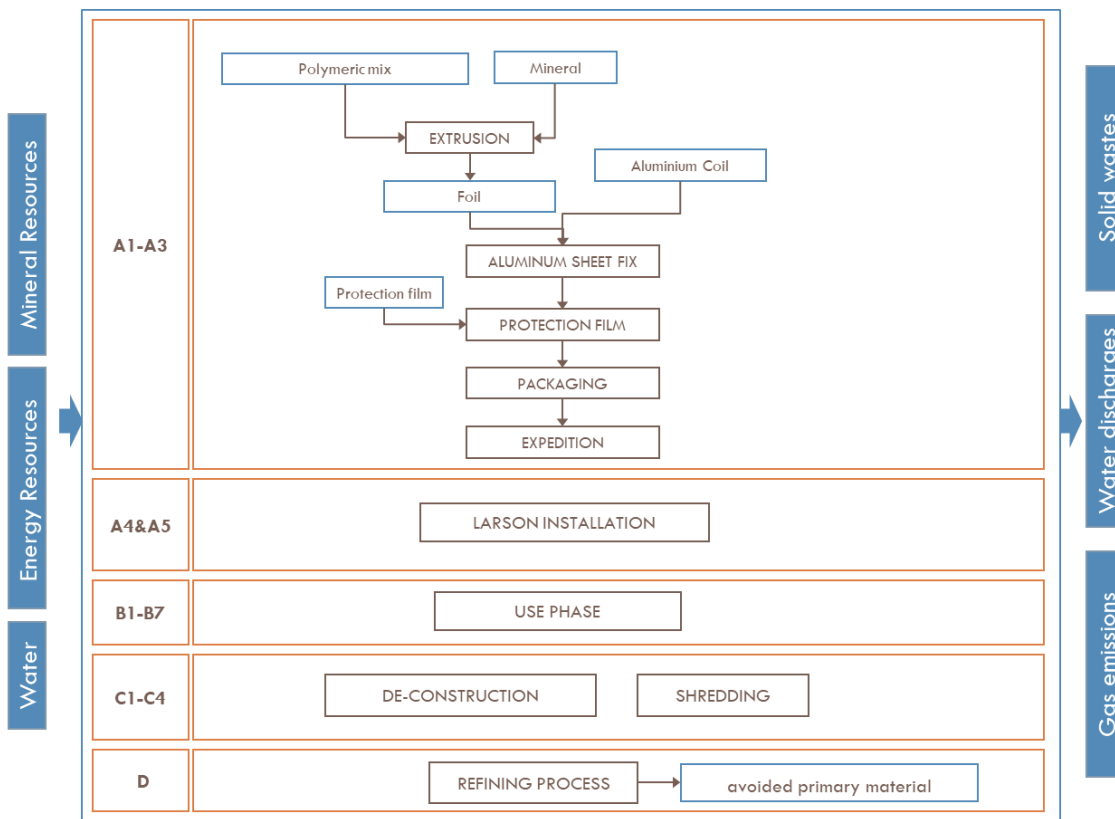


Figure 1: System boundaries of the products larson®FR and larson®A2. Source: Alucoil, S.A.

**Product definition**

The products are composite panels or sandwich panels of various dimensions made of two aluminium sheets, which are joined together by a mineral core.

Aluminium front sheet: it is coated of PVdF 70% Kynar 500 or similar. Both sides require anticorrosion pretreatment to facilitate the adherence and a primer layer.

Aluminium back sheet: it is treated to provide the product with a regular and well attached layer which will protect it against corrosion and increase the adherence of the core.

**Application**

Building: ventilated facade elements, roofing, cladding, partition walls, curved elements; automotive and naval sector; and corporate design applications, among others.

larson®FR delays combustion to achieve a B-S1, d0 & larson®A2 delays combustion to achieve a A2-s1, d0, classification according to the regulations UNE-EN 13501.

The advanced production process for larson® composites results in an extraordinary adherence between the different layers. The results of tests performed on all the products have doubled the parameters recommended by the current regulations. Thanks to the perfect assembly between the different parts, larson® panels offer an extraordinary flatness and lightness: They also have five-six possible installation system.

larson® panels provide an excellent capability for to be machined, drilled, bent and curved without losing their technical characteristics.

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Product certifications



**ETA 14/0010**  
**Alucoil**® Suspended Cassette  
**ETA 14/0010**  
**Alucoil**® Riveted Boards



**DOCUMENTO DE IDONEIDAD TÉCNICA**  
 Nº 405P/15  
**larson**® Suspended Cassettes  
**larson**® Riveted Boards



QB 15-Built-up cladding products  
 Nº 64-79 & Nº142-153  
 Manufactured by: **Alucoil**® S.A.U. - Product: **larson**®



**AVIS**  
 TECHNIQUE  
 2.2/14-1643\_V3 issued 16/12/2020  
 2.2/11-1469\_V3 issued 24/09/2020



ETA 18/0712  
**larson**® **A2** composite panel



**BBA** APPROVAL  
 INSPECTION  
 TESTING  
 CERTIFICATION  
 CERTIFICATE 08/4551



**Intertek**  
 C#5007929

Management certifications

**AENOR**

GESTIÓN  
DE LA CALIDAD

ISO 9001

ER-0726/2011

**AENOR**

GESTIÓN  
AMBIENTAL

ISO 14001

GA-2011/0356

Delivery status

larson® panels are manufactured in different dimensional specifications which are indicated in the Product Technical Notebook and on request.



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Constructional data

Table 1: Technical data of larson® panels

	larson®A2	larson®FR
Panel weight (kg/m <sup>2</sup> )	8.25	7.78
Moment of inertia (mm <sup>4</sup> /m)	3070	3070
Core	Mineral A2	Mineral FR
Rigidity E <sup>-1</sup> (kNcm <sup>2</sup> /m)	2 150 DIN 53293	2 150 DIN 53293
Modulus of elasticity (N/mm <sup>2</sup> )	70 000	70 000
Ultimate tensile strength (N/mm <sup>2</sup> )	125<R <sub>m</sub> <185	125<R <sub>m</sub> <185
Yield strength (N/mm <sup>2</sup> )	R <sub>p0.2</sub> > 80	R <sub>p0.2</sub> > 80
Elongation (%)	>3	>3
Alloy	5005 UNE-EN 573-3	5005 UNE-EN 573-3
Reaction to fire test	Class A2-s1, d0 EN 13501-1	Class B-s1, d0 EN 13501-1

1.3 DECLARED UNIT

Declared Unit (DU) 1 square metre (1m<sup>2</sup>) of aluminium composite panel larson®FR and larson®A2 with standard dimensions: 5 000 mm length; 1 500 mm width; 4 mm thickness, and with a weight of 7.78 kg/m<sup>2</sup> and 8.25 kg/m<sup>2</sup>, respectively.

1.4 CONTENT OF MATERIAL AND CHEMICAL SUBSTANCES

Table 2: Materials content per larson® panel. Source: Alucoil, S.A.

MATERIALS	larson®FR	larson®A2	POST-CONSUMER MATERIAL (%)	RENEWABLE MATERIAL (%)	CARBON BIOGENIC (kgC/DU)
Polyethylene	1 - 3%	1 - 3%	0 %	0 %	0 %
Aluminium	20 - 40%	20 - 40%	55 %	0 %	0 %
Adhesive	2 - 10%	2 - 10%	0 %	0 %	0 %
Others	30 – 60%	30 – 75%	0 %	0 %	0 %

Table 3: packaging per larson® panel. Source: Alucoil, S.A.

PACKAGING	WEIGHT VS LARSON®FR (%)	CARBON BIOGENIC (kgC/DU)	WEIGHT VS LARSON®A2 (%)	CARBON BIOGENIC (kgC/DU)
Wood	12.0%	0.396	11.9%	0.447
Cardboard	0.2%	0.005	0.5%	0.017
Film	0.2%	----	0.2%	----
EPS	0.1%	----	0.0%	----

SVHC List

larson® panels do not contain any substance included in the Candidate List of Substances of Very High Concern (SVHC) in concentrations greater than 0.1% by weight.

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## 2. ENVIRONMENTAL PERFORMANCE– RELATED INFORMATION

### 2.1 RULES FOR DECLARING INFORMATION PER MODULE DERIVED FROM LCA

This EPD is based on information modules to cover the life cycle, aspects as product stage (a1-A3), construction stage (A4-A5), use stage (B1-B7), end of life stage (C1-C4) and additional information (D) are included. It is a “**cradle to grave and module D**” EPD:

<b>Module A1</b>	Upstream processes, from cradle to gate. The acquisition, production of the sheet coil and the coated sheet coil, core materials, bounding layer and protective film are included in Module A1.
<b>Module A2</b>	The module A2 includes external transportation to the core process and external transport to waste disposal (in the case of waste outflows). A geographical mix for different suppliers or waste managers is evaluated in the module A2.
<b>Module A3</b>	From gate to gate, manufacturing process of larson®FR and larson®A2 panels. This process starts when the components and materials come into the Alucoil’s facilities (larson®FR at Miranda de Ebro, larson®A2 at Alicante) and finishes when the larson® panels leave the plant. The module A3 includes the pre-treatment of the sheet coil, the industrial continuous manufacturing of panels for fixing the sheets with foil, packing, as well as the production of chemicals, energy flows: natural gas and electricity, emission into air, solid and water wastes and auxiliary process as refrigeration tower, water pre-treatment, fenwicks, bridge crane, wastewater treatment plant and packing materials used for the finished panels. Processes excluded: Infrastructure, production equipment and tools, chemicals packaging and personnel-related processes.
<b>Module A4</b>	The module A4 includes external transport from the core process to installation site. Scenario information: Average distance of customers is calculated in the module A4, with a truck-trailer, EURO 4 and container ship, 100% of capacity and 1945 kg/m <sup>3</sup> Larson®FR y 2070 kg/m <sup>3</sup> Larson®A2.
<b>Module A5</b>	Installation stage. Included the transport and manufacture of the ancillary materials, as: screws, rivets, brackets and profiles (1.45 kg), with a distance estimated of 50 km. The product is installed with manual tools which energy consumption is negligible, water is not used and the only wasteflow is packaging waste (1.00 kg), reusable (pallet) and recyclable (film).
<b>Modules B1– B7</b>	Use stage. The reference service life is 50 years, larson® panels have the same reference service life the building where the product is installed. Being a passive product there are no inputs/outputs at this stage. Furthermore, although is recommended some cleaning and maintenance operations, they are not carried out.
<b>Modules C1-C4</b>	End of life stage of the building phase of removal of the larson® panels. The non-destructive demolition of the panels, the transports to the treatment site and the landfill with a distance estimated of 50 km, the loading and unloading of the waste in the treatment plant and the treatment of the waste for recycling and final disposal are studied.  Scenario: 99% collected (9.14 kg, Larson®FR; 9.60 larson®A2), 95% recycling (8.68 kg, Larson®FR; 9.12 larson®A2) and (0.55 kg, Larson®FR; 0.58 kg larson®A2) landfill.
<b>Module D</b>	Potential for reuse, recovery and/recycling, expressed as net loads and benefits. This module represents the environmental benefits or charges generated by the panel because it is a recyclable product and discounting the content in recycled material in previous life cycles.

Scenarios included are currently in use and are representative for one of the most probable alternatives. Modular scope and unit processes studied within the system boundaries are showed in **Figure 1**.

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## 2.2 SET OF PARAMETERS FROM THE LCA STUDY

<b>Allocation</b>	The area of pre-treated sheet coil (square metre), moreover, m2 of finished aluminium composite panel (monitored/checked product) is used as physical property to separate the inputs and outputs associated with some sub-process manufacture and auxiliary process of larson® panels from the flows linked to the rest of panels.
<b>Cut-off criteria</b>	Have been included >95 % of total inflows (mass and energy) per module.
<b>Data quality</b>	The data are collected by Alucoil for the production year 2020 (specific operations of the analysed site). There is a contribution secondary data in the Module A3. The environmental impact of the secondary data is minor than 0.028% on GWP-GHG and 0.7% on energy flow.
<b>Electricity</b>	Supplier power grid mix was used.

	Larson®FR Miranda de Ebro	Larson®A2 Alicante
<b>Renewables</b>	49.6%	23.9%
<b>High efficiency cogeneration</b>	4.7%	2.5%
<b>Cogeneration</b>	6.3%	10.2%
<b>Combined cycle NG</b>	15.5%	25.0%
<b>Coal</b>	1.8%	2.9%
<b>Fuel/gas</b>	1.5%	2.4%
<b>Nuclear</b>	19.7%	31.7%
<b>Other</b>	0.9%	1.4%
<b>CO<sub>2</sub> (Kg /kWh)</b>	0.14	0.20

## 2.3 POTENCIAL ENVIRONMENTAL IMPACT

Table 4 and Table 5 give the relative contribution of the production of 1 m<sup>2</sup> of larson®FR and larson®A2, “**cradle to grave and module D**”. Additional indicators are not declared.

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Table 4: Results of the impact assessment of **larson®FR** panel

INDICATOR	UNIT	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	1,59E+01	6,17E-01	1,12E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,63E-02	3,00E-01	2,47E-03	-2,09E+01
GWP-fossil	kg CO <sub>2</sub> eq.	1,78E+01	6,16E-01	1,10E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,62E-02	1,51E-01	2,46E-03	-2,04E+01
GWP-biogenic	kg CO <sub>2</sub> eq.	-2,08E+00	4,79E-04	1,96E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,87E-05	1,49E-01	9,15E-06	-1,78E-01
GWP-Luluc	kg CO <sub>2</sub> eq.	2,16E-01	4,84E-06	2,43E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,73E-07	7,05E-05	6,06E-08	-3,88E-01
ODP	kg CFC 11 eq.	1,46E-06	1,41E-07	5,45E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,36E-09	1,81E-08	5,14E-10	-1,74E-06
AP	mol H <sup>+</sup> eq.	8,08E-02	4,80E-03	6,42E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,63E-04	6,70E-04	2,54E-05	-1,01E-01
EP-freshwater	kg P eq.	6,65E-04	3,38E-07	4,48E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E-08	4,39E-06	8,88E-09	-9,01E-04
	kg PO <sub>4</sub> --- eq.	7,06E-03	5,46E-04	5,14E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,29E-05	1,38E-04	3,89E-06	-8,20E-03
EP-Marine	kg N eq.	1,14E-02	1,48E-03	1,04E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,01E-05	2,99E-04	1,10E-05	-1,29E-02
EP-terrestrial	mol N eq.	1,27E-01	1,64E-02	1,14E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,60E-04	2,49E-03	1,21E-04	-1,43E-01
POCP	kg NMVOC eq.	5,38E-02	4,22E-03	3,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,72E-04	6,84E-04	3,37E-05	-6,00E-02
ADP-minerals&metals1	kg Sb eq.	1,00E-06	2,37E-08	1,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,53E-09	4,67E-09	1,14E-10	-1,22E-06
ADP-fossil*	MJ	3,05E+02	8,60E+00	1,27E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,10E-01	1,71E+00	3,28E-02	-3,24E+02
WDP	m <sup>3</sup>	5,07E+00	-1,84E-03	2,39E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,08E-04	8,94E-03	1,16E-05	-1,98E+00
GWP-fossil: Global warming potential of fossil fuels; GWP-biogenic: Biogenic global warming potential; GWP-Luluc: Global Warming Potential for Land Use and Land Use Change; ODP: Potential of depletion of the stratospheric ozone layer; AP: acidification potential, cumulative surplus; EP-freshwater: cumulative surplus eutrophication potential; EP-marine: nutrient eutrophication potential reaching the final compartment of the marine water; EP-terrestrial: Eutrophic potential, cumulative surplus; POCP: Potential for formation of tropospheric ozone; ADP-minerals&metals: Depletion potential of abiotic resources for non-fossil resources; ADP-fossil: Abiotic resource depletion potential for fossil resources; WDP: Water deprivation potential (user), weighted water deprivation consumption;																
GWP - GHG	kg CO <sub>2</sub> eq	1,75E+01	6,13E-01	1,07E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,60E-02	2,06E-01	2,42E-03	-2,01E+01

<sup>1</sup>The results of this environmental impact indicator should be used carefully as the uncertainties of these results are high or experience with the indicator is limited.

Product group: ACM, aluminium composite material  
 Declaration holder: Alucoil, S.A.  
 Declaration number: S-P-00363

Issued  
 July/2022

Table 5: Results of the impact assessment of **larson®A2** panel

INDICATOR	UNIT	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	1,41E+01	1,55E+00	1,12E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,63E-02	3,00E-01	2,47E-03	-2,08E+01
GWP-fossil	kg CO <sub>2</sub> eq.	1,63E+01	1,55E+00	1,10E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,62E-02	1,51E-01	2,46E-03	-2,02E+01
GWP-biogenic	kg CO <sub>2</sub> eq.	-2,41E+00	1,22E-03	1,96E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,87E-05	1,49E-01	9,15E-06	-1,70E-01
GWP-Luluc	kg CO <sub>2</sub> eq.	2,07E-01	1,19E-05	2,43E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,73E-07	7,05E-05	6,06E-08	-3,87E-01
ODP	kg CFC 11 eq.	1,18E-06	3,56E-07	5,45E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,36E-09	1,81E-08	5,14E-10	-1,60E-06
AP	mol H <sup>+</sup> eq.	8,48E-02	8,99E-03	6,42E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,63E-04	6,70E-04	2,54E-05	-1,08E-01
EP-freshwater	kg P eq.	5,58E-04	8,43E-07	4,48E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,96E-08	4,39E-06	8,88E-09	-8,63E-04
	kg PO <sub>4</sub> --- eq.	7,17E-03	1,13E-03	5,14E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,29E-05	1,38E-04	3,89E-06	-7,86E-03
EP-Marine	kg N eq.	1,30E-02	3,03E-03	1,04E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,01E-05	2,99E-04	1,10E-05	-1,21E-02
EP-terrestrial	mol N eq.	1,45E-01	3,33E-02	1,14E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,60E-04	2,49E-03	1,21E-04	-1,35E-01
POPC	kg NMVOC eq.	4,98E-02	8,63E-03	3,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,72E-04	6,84E-04	3,37E-05	-5,26E-02
ADP-minerals&metals2	kg Sb eq.	6,95E-07	6,30E-08	1,09E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,53E-09	4,67E-09	1,14E-10	-1,13E-06
ADP-fossil*	MJ	2,09E+02	2,17E+01	1,27E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,10E-01	1,71E+00	3,28E-02	-2,60E+02
WDP	m <sup>3</sup>	2,53E+00	-4,62E-03	2,39E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,08E-04	8,94E-03	1,16E-05	-3,87E-01
GWP-fossil: Global warming potential of fossil fuels; GWP-biogenic: Biogenic global warming potential; GWP-Luluc: Global Warming Potential for Land Use and Land Use Change; ODP: Potential of depletion of the stratospheric ozone layer; AP: acidification potential, cumulative surplus; EP-freshwater: cumulative surplus eutrophication potential; EP-marine: nutrient eutrophication potential reaching the final compartment of the marine water; EP-terrestrial: Eutrophic potential, cumulative surplus; POCP: Potential for formation of tropospheric ozone; ADP-minerals&metals: Depletion potential of abiotic resources for non-fossil resources; ADP-fossil: Abiotic resource depletion potential for fossil resources; WDP: Water deprivation potential (user), weighted water deprivation consumption.																
GWP - GHG	kg CO <sub>2</sub> eq	1,61E+01	1,54E+00	1,07E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,60E-02	2,06E-01	2,42E-03	-2,00E+01

<sup>2</sup>The results of this environmental impact indicator should be used carefully as the uncertainties of these results are high or experience with the indicator is limited.

Product group: ACM, aluminium composite material  
 Declaration holder: Alucoil, S.A.  
 Declaration number: S-P-00363

Issued  
 July/2022

## 2.4 USE OF RESOURCES

Table 6: Parameter unit expressed per declared unit (m<sup>2</sup>) **larson®FR** panel

RESOURCES	UNIT	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	9,11E+01	1,26E-02	1,26E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,53E-04	1,08E-01	1,39E-04	-1,01E+02
PERM	MJ	2,26E+01	7,86E-04	4,66E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,30E-05	3,25E-02	3,38E-05	-3,33E+01
PERT	MJ	1,14E+02	1,33E-02	1,72E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,96E-04	1,41E-01	1,73E-04	-1,34E+02
PENRE	MJ	3,23E+02	9,25E+00	1,36E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,49E-01	1,82E+00	3,53E-02	-2,40E+02
PENRM	MJ	1,60E+01	1,54E-03	4,61E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,34E-05	2,00E-03	1,47E-05	-1,60E+01
PENRT	MJ	3,39E+02	9,25E+00	1,40E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,49E-01	1,82E+00	3,53E-02	-2,56E+02
SM	kg	1,46E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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 <sup>3</sup>	5,07E+00	-1,84E-03	2,39E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,08E-04	8,94E-03	1,16E-05	-1,98E+00

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 material; PERT = Total use of renewable primary energy resources; PENRE = Non-renewable primary energy use 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 = Net freshwater use

Product group: ACM, aluminium composite material  
 Declaration holder: Alucoil, S.A.  
 Declaration number: S-P-00363

Issued  
 July/2022

Table 7: Parameter unit expressed per declared unit (m<sup>2</sup>) **larson®A2 panel**

RESOURCES	UNIT	A1 - A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	8,76E+01	3,26E-02	1,28E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	7,69E-04	1,11E-01	1,42E-04	-1,02E+02
PERM	MJ	2,03E+01	2,01E-03	4,94E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,56E-05	3,45E-02	3,59E-05	-3,43E+01
PERT	MJ	1,08E+02	3,43E-02	1,75E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,09E-04	1,43E-01	1,76E-04	-1,36E+02
PENRE	MJ	2,20E+02	2,35E+01	1,36E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,51E-01	1,83E+00	3,54E-02	-2,74E+02
PENRM	MJ	2,09E+01	3,90E-03	4,88E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	8,83E-05	2,12E-03	1,56E-05	-2,85E+01
PENRT	MJ	2,41E+02	2,35E+01	1,41E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,51E-01	1,83E+00	3,54E-02	-3,03E+02
SM	kg	1,46E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	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 <sup>3</sup>	2,53E+00	-4,62E-03	2,39E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,08E-04	8,94E-03	1,16E-05	-3,87E-01

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 material; PERT = Total use of renewable primary energy resources; PENRE = Non-renewable primary energy use 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 = Net freshwater use





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Product group:	ACM, aluminium composite material	Issued
Declaration holder:	Alucoil, S.A.	July/2022
Declaration number:	S-P-00363	

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### 3. CHANGES IN THIS DOCUMENT

Original Version 1.0, 2014-05-04

Previous Version 2.0, 2017-03-15

Actual Version: 2022-07-22

- The scope of the EPD include the product Larson®A2 and remove Larson®PE.
- Type EPD: cradle-to-grave and module D.
- Manufacturing data has been updated for 2020.
- Secondary data from Ecoinvent database version v3.7.
- Updated to PCR 2019:14, EN 15804:2012+A2 and GPI v3.01.

### 4. REFERENCES

ISO 14025:2006 Environmental Labels and Declarations-type III Environmental Declarations- Principles and Procedures.

ISO 14044:2006 Environmental Management -- Life cycle Assessment --Requirements and Guidelines.

EN 15804:2012+A2, Sustainability of Construction Works. Environmental Product Declarations. Core rules for the product category of construction.

GPI, General Programme Instructions for the international EPD®SYSTEM V3.01 (2019-09-18).

PCR 2019:14, Construction Products V1.11 (2021-02-05).

## VERIFICATION STATEMENT CERTIFICATE CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

*Certificate No. / Certificado nº: EPD06801*

TECNALIA R&I CERTIFICACION S.L., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:

TECNALIA R&I CERTIFICACION S.L., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:

**ALUCOIL S.A.**  
**Pol. Ind. de Bayas**  
**C/ Ircio, Parc. R72-R77**  
**09200 MIRANDA DE EBRO (Burgos) SPAIN**

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

**ALUMINIUM COMPOSITE PANEL LARSON®.**  
**PANEL COMPUESTO DE ALUMINIO LARSON®.**

with registration number **S-P-00363** in the International EPD® System ([www.environdec.com](http://www.environdec.com))  
*con número de registro S-P-00363 en el Sistema Internacional EPD® ([www.environdec.com](http://www.environdec.com))*

it's in conformity with:  
*es conforme con:*

- **ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations.**
- **General Programme Instructions for the International EPD® System v.3.01.**
- **PCR 2019:14 Construction products (EN 15804:A2) version 1.11.**
- **UN CPC 4299 Other metal products.**

Issued date / *Fecha de emisión:* 31/03/2022  
Update date / *Fecha de actualización:* 31/03/2022  
Valid until / *Válido hasta:* 30/03/2027  
Serial N° / *Nº Serie:* EPD0680100-E



Carlos Nazabal Alsua  
*Manager*

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

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

*El estado de vigencia del certificado puede confirmarse mediante consulta en [www.tecnaliacertificacion.com](http://www.tecnaliacertificacion.com).  
The validity of this certificate can be checked through consultation in [www.tecnaliacertificacion.com](http://www.tecnaliacertificacion.com).*



## Appendix II

### Self-declaration from EPD owner, specific Norwegian requirements

#### 1 Applied electricity data set used in the manufacturing phase

The electricity mix for the electricity used in manufacturing (A3) is the electricity grid mix

- Larson<sup>®</sup>FR: 0,039 kg CO<sub>2</sub> eq /MJ
- Larson<sup>®</sup>A2: 0,056 kg CO<sub>2</sub> eq /MJ

#### 2 Content of dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

- √ The product contains substances that are less than 0.1% by weight given by the REACH Candidate or the Norwegian priority list.

The product contains dangerous substances more than 0.1% by weight given in the REACH candidate list or the [Norwegian Priority List](#), concentrations is given in the EPD:

Dangerous substances from the REACH candidate list or the Norwegian Priority List	CAS No.	Quantity (concentration, wt%/FU(DU)).
Substance 1		
Substance n		

### 3 Transport from the place of manufacture to a central warehouse

Transport distance, and CO<sub>2</sub>-eqv./DU from transport of the product from factory gate to central warehouse in Oslo shall be given. The following table shall be included in the EPD:

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/ Energy use	Unit	Value	Kg CO <sub>2</sub> -eqv./DU
Boat		Transport, freight, sea, ferry {GLO}	163 km	Heavy fuel oil	kg/tkm	0,030	<b>LARSON®FR:</b> 0,147 kg CO <sub>2</sub> eq/DU
							<b>LARSON®A2:</b> 0,157 kg CO <sub>2</sub> eq /DU
Truck	100%	Transport, freight, lorry >32 metric ton, EURO4	<b>LARSON®FR:</b> 2 486 km	Diesel, low-sulfur	kg/tkm	0,019	<b>LARSON®FR:</b> 1,540 kg CO <sub>2</sub> eq/DU
			<b>LARSON®A2:</b> 2 939 km				<b>LARSON®A2:</b> 1,948 kg CO <sub>2</sub> eq /DU
Total			<b>LARSON®FR:</b> 2 649 km				<b>LARSON®FR:</b> 1,687 kg CO <sub>2</sub> eq/DU
			<b>LARSON®A2:</b> 3 102 km				<b>LARSON®A2:</b> 2,105 kg CO <sub>2</sub> eq /DU

### 4 Impact on the indoor environment

Indoor air emission testing has been performed; specify test method and reference;

M1

No test has being performed

√ Not relevant; specify. **Larson® (outdoor use).**