ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025 and EN 15804:2012 + A2:2019

ALUMINIUM COMPOSITE PANEL – etalbond®-d³

Owner of the declaration:	ELVAL COLOUR S.A.
Publisher and Programme holder:	EUROPEAN ALUMINIUM
Declaration number:	EPD-2021-0010
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GENERAL INFORMATION

Owner of the declaration	ELVAL COLOUR 2-4 Mesogeion Ave., 11527 Athens, Greece www.elval-colour.com
Manufacturer	ELVAL COLOUR 3rd km. Inofyta Peripheral Rd., 32011 St. Thomas - Viotia, Greece
Publisher and Programme holder	EUROPEAN ALUMINIUM AISBL Avenue de Tervueren 168 B-1150 Brussels Belgium  Dr. Gerd Götz, Director General
The declaration is based on the Product Category Rules	European Aluminium General Programme Instructions version 3, 23rd of September
Declared Unit	1 m^2 of etalbond®-d³ aluminium composite panel
Scope of the Environmental Product Declaration	This EPD covers aluminium composite panel with PE core material and 4 mm thickness coated with VHDPE coating. This EPD has been developed from a pre-verified modelling tool via an i-report in GaBi 10. The input data to the tool have been collected by Elval Colour and refers to the year 2020.UN CPC code: 41534 Plates, sheets and strip, of aluminium, of a thickness exceeding 0.2 mm. The EPD may be used in a B2B context within the European Market.
Liability	The owner of the declaration is liable for the underlying manufacturing information and European Aluminium is not liable in this respect.
Disclaimers	This EPD cannot be used as a guarantee of the recycled content of the actual product sold on the market. A specific declaration may be asked to the supplier. The use of this EPD within BIM tools is in principle limited to the products explicitly included in the EPD. The scaling of results to model similar products can only be done if justified and transparently reported in the project report. Any responsibility regarding the misuse of this EPD by third parties is not accepted by the Programme Operator.

Verification

EN15804:2012 +A2:2019 serves as core PCR completed by European Aluminium PCR 03/2020	
Verification of the EPD by an independent third party in accordance with ISO 14025	
☐ Internally	☒ Externally

Verifier

Frank Werner

1 PRODUCT

1.1 Product description and applications

This Environmental Product Declaration (EPD) is for business-to-business communication. The EPD refers to "etalbond®-d³" composite panels which are composed of two external 0,25 mm thick aluminium sheets and an inner material made of polyethylene. In practice, other polymeric core can be used as polypropylene or ethylene-vinyl acetate (EVA). This EPD covers etalbond®-d³ of 4 mm thickness.

The etalbond®-d³ products are delivered as panels with a maximum of 2,0 m width and 13,5 m length.

Etalbond®-d³ composite panels are semi-finished products which are usually further processed (e.g., by cutting, folding or machining operations) to be converted into a final product to be installed on a building, e.g,. cladding panel.

This EPD provide LCA results for the following etalbond®-d³ composite panels:

- One composite panel thicknesses: 4 mm
- One type of coating: VHDPE – 25 µm

The most relevant technical data are reported in Table 1.

Table 1 Most relevant technical data

PANEL THICKNESS:		2mm	3mm	4mm	6mm
Aluminium layer thickness mm		0.25			
Panel Weight [Kg/m²]		2.90	3.80	4.80	6.60
PANEL TOLERANCES					
Panel thickness	mm	±0.2			
Panel width	mm	2000, tolerances -2.00/+4.00 mm*			
Panel length	mm	≤ 4000 mm : -0.0 / +4 4001 -6000 mm: -0.0 / +6 6001- 8000 mm: -0.0 / +10			
Diagonal difference	mm	3.00 mm			
TECHNICAL PROPERTIES					
Alloy/Temper of Aluminium cover sheet		EN AW- 3105/H44 or 4116/H44			
Modulus of Elasticity E [N/mm²]		70000			
Tensile strength of Al. cover sheets Rm [N/mm²]		150-200			
0.2% Proof stress Rp0.2 [N/mm²]		120 min			
Elongation %		A 50± 3%			
Linear Thermal Expansion		2.4 mm/m for Temperature difference of 100° C			
CORE:					
Density of Polyethylene, Type LDPE [g/cm3]		0.92			
SURFACE PREPARATION and PAINT CHARACTERISTICS					
Visible Surface Preparation:		Pre-treatment of Aluminium: 1st Degreasing 2nd Passivation			
Lacquering Upper Surface/ Lower Surface		Coil Coating Polyester/Modified Polyester suitable for digital printing - System			
• Gloss		Semi gloss Target 35 % , Tolerances according to EN 1396 High gloss Target >80% Tolerances according to EN 1396			
• Pencil Hardness		Min H			
• Paint Thickness		Target 22 µm, Tolerances according to EN 1396			
TEMPERATURE BEHAVIOUR					
Operational temperature range	From	-50º C to		+80º C	
SURFACE QUALITY					
Dents, marks, hits, grooves, stains etc.		Acceptable when not visible at a distance ≥50 cm at an angle of 90°			
Uncoated edges		Uncoated edges can exist up to 8 mm per edge but not more than 15 mm together for both edges			

SURFACE BURNING CHARACTERISTICS		
COUNTRY:	Test According to	Classification
Germany	DIN 4102-1	B2, etalbond light, 2, 3 mm
France	NFP 92-501	M1
UK	BS 476, Part6 BS 476, Part7	Index 0 Class 1 ►Meets the requirements according to Class 0 of the National Building Regulations
PROTECTIVE FILM		
Transparent unprinted and black/white unprinted with special adhesive suitable for digital printing. No UV protection for transparent		An area of 5 mm max, from each edge might be without protective film

**Width specs refer to both coating area and panel width. Please note that the coating area does not necessarily coincide with the panel tolerances. Panel might be larger than the coated area*
**Material before use should be stored inside away from direct sunlight.
***It is advisable to remove the protective film within 6 months after goods receipt. Beyond this period there is a possibility that the protective film might leave remnants of adhesive on the surface

For the most up-to-date values of the technical data, please refer to the product specifications available on the ELVAL COLOUR website in the relevant product section.

Most relevant standards and applicable European Assessment Document for applications of aluminium composite panel products in buildings are EN 485-4, EN 573-3, EN 1396, EN 13501-1, EAD 090062-00-0404

1.2 Process description

aluminium composite panel are produced with various core thicknesses in a continuous lamination process where the aluminium sheets and the core materials are bonded together through the combination of heat and pressure.

The PE is firstly extruded and then rolled in order to produce a 1.4 to 5.4 mm thick core. The core material is then covered with two thin adhesive films, i.e., PE adhesive films of about 0.05 mm, before being covered by the two aluminium sheets. The bonding process is done by pressing the multilayer material within rolls at a temperature comprised between 100 and 200°C depending on the core material type. The composite panels are then cooled by water and air flow. Cutting and quality inspection are the 2 last operations before packing.

The coil coated sheet is produced using an aluminium sheet and a top and a bottom coating. Other auxiliary materials are used, as for example the paint and some acids (sulphuric acid) or alkalis (sodium hydroxide). The aluminium production and the rolling are described in the environmental profile report.

The thickness of composite panels is usually between 6 mm and 4 mm being the most common thickness. The thickness of the aluminium sheet is 0,25 mm for etalbond®-d³. etalbond®-d³ composite panels are delivered in pallets with most common dimensions comprised between 1 and 1,7 m wide up to 8 m long. For larger panel dimensions other pallet formats are available. etalbond®-d³ panels are placed on wood pallets in stacks with a PE protective film (50-70 µm) on the coated side of the panels. In this EPD, only PE film is considered as packaging material.

The production phase includes mainly the following steps:

1. Production of the intermediate products, including metal and sheet production,
2. Coil coating process and the anodising sheet production (where relevant),
3. The compositing process.

The main background production processes are reported in Figure 1.

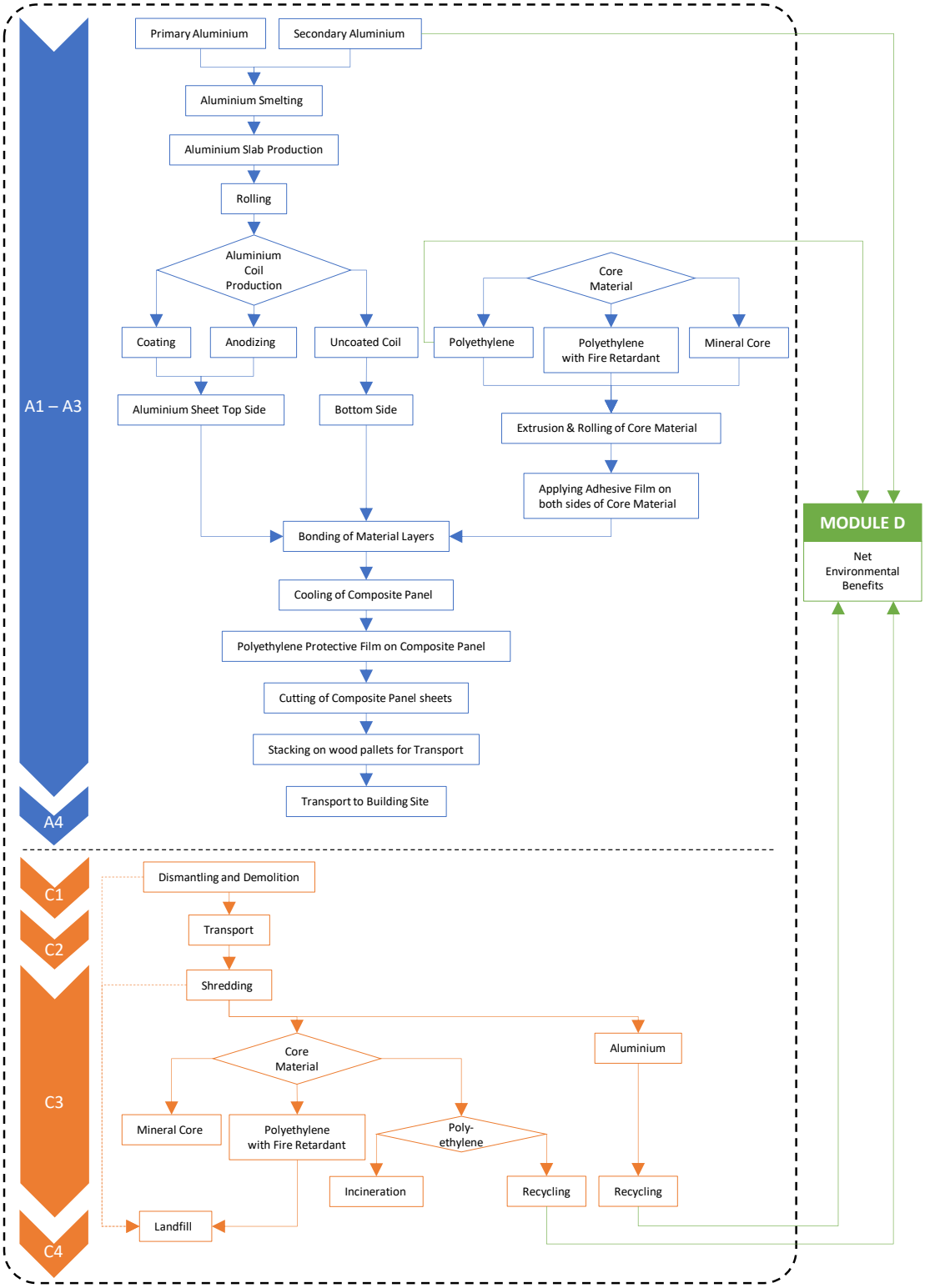

Figure 1 Main production processes and components of coil coated sheets

The upstream aluminium processes have been modelled using European Aluminium LCI datasets for the primary aluminium production, recycling and remelting as described in the European Aluminium Environmental profile report 2018.

At the end-of-life stage, the composite panels should be specifically dismantled and collected in order to be treated since the aluminium sheets and the core material can be efficiently recycled or can be used for energy recovery. After the collection, they are usually subjected to a shredding process in order to separate aluminium sheet materials from the core material and then the valuable materials are sent to recycling.

1.3 Health and safety aspects during production and installation

The coating process does not require the use of hazardous substance for the chemical conversion coating. The processing of etalbond®-d³ is chrome-free, i.e., no chromium is used in the production process. To the best of our knowledge, the products do not contain materials listed in the "candidate list of substances of very high concern for authorization".

There are no relevant aspects of occupational health and safety during the further processing and installation of coil coated sheets. Under normal installation, no measurable environmental impacts can be associated with the use of coil coated aluminium sheets. The appropriate safety measures need to be taken at the building site, especially if installation takes place on a high-rise building.

1.4 Reference service life

Since the use phase is not modelled, no specific information can be given about the Reference Service Life. In normal use, aluminium building products are not altered or corroded over time. A regular cleaning (e.g., once a year) of the product suffices to secure a long service life. However, the use of highly alkaline (pH >10) or highly acidic (pH < 4) cleaning solutions should be avoided. In practice, a service life of 50 years can be assumed in normal use for such application.

2 LCA – CALCULATION RULES

2.1 Declared unit & bill of materials

The Bill of Materials of the six analysed products are reported in Table 2. The declared unit corresponds to 1 m^2 of composite panels.

Table 2 Bill of materials (kg) of the declared unit for the product

Reference	etalbond®-d³ VHDPE coating 4 mm
Aluminium sheets	1,35 (25,4%)
PE core material	3,97 (76,4%)
Total	**5,32 (100%)**

2.2 System boundary

This EPD is from cradle to gate with modules C1-C4 and module D, as reported in Table 3.

The production stage (modules A1-A3) includes processes that provide materials and energy input for the system, manufacturing and transport processes up to the factory gate, as well as waste processing. For the end of life, the default scenario defined in the General Product Instructions and detailed in 3.2 is applied.

Table 3 Modules declared

Production			Installation		Use stage							End-of-Life				Next product system
Raw material	Transport	Manufacturing	Transport to	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy	Operational water	Deconstruction	Transport	Waste processing	Disposal	Reuse, recovery, recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

Note: ND: Not Declared; X: Module included in the LCA.

Module A4 is declared for a distance of 1 km to give the possibility to adjust the resulting environmental impact depending on the specific distance at hand.

2.3 Energy mix

In the models developed the background electricity mix used is the European electricity mix (EU-28 Electricity grid mix (2016)). Details about the electricity modelling in the datasets: production of primary aluminium, extrusion, rolling and recycling please refer to the Environmental Profile Report 2018.

2.4 Allocation

The scrap which are produced along the production chain are recycled into the same production chain and are modelled as “closed loop” within Module A. This recycling loop has been modelled in the GaBi model so that the aluminium coil coated sheet is the only product exiting the gate. Hence, the production process does not deliver any co-products.

At the end-of-life stage, the coil coated aluminium sheets are sent to an end-of-life treatment which is modelled according to the scenario reported in 3.2. The environmental burdens and benefits of recycling and energy recovery are calculated in module D accordingly.

2.5 Assumptions and Cut off criteria

The aluminium coated sheets were composed of a mix of 60% primary aluminium and 40% recycled aluminium. Such mix represents the typical sourcing of aluminium in Europe, all markets included. The aluminium anodised sheets were composed of 100% primary aluminium. For the primary aluminium, a primary aluminium ingot consumption mix was considered (European production + net fraction of imports into Europe). Alloying elements were not considered, and a pure aluminium sheet has been assumed as a proxy.

2.6 Data quality

Representativeness

Technological: All primary and secondary data were modelled to be specific to the technologies or technology mixes under study. Where technology-specific data were unavailable, proxy data were used. For the aluminium production, rolling and recycling, the datasets described in the Environmental Profile Report 2018 of European Aluminium have been used. The modelling reflects the specific BoM of the analysed products. Technological representativeness is considered to be very good.
Geographical: All primary data were collected specific to the countries under study. Regarding secondary data, where EU region specific data were unavailable, DE datasets were used. For the aluminium production, rolling and recycling, the datasets described in the Environmental Profile Report 2018 of European Aluminium have been used. Geographical representativeness is considered to be good.
Temporal: Primary data refer to the year 2020, and all secondary data come from the GaBi database SP40, including those on aluminium production, which are the most recent ones as described in the Environmental Profile Report 2018 of European Aluminium.

Completeness

All known operating data was taken into consideration in the analysis. Considering the long experience of data collection within the European Aluminium Industry, it can be assumed that the ignored processes or flows contribute to much less than 5% to the impact categories under review.

The process chain is considered sufficiently complete regarding the goal and scope of this study.

Overall, the data quality can be described as good.

2.7 Software and databases

These EPD results have been calculated from an LCA tool for EPD, based on the GaBi database. Currently the EPD software is using the software GaBi V10.5.0.78 and the Service Pack 40 (SP40).

2.8 Comparability

As a general rule, a comparison or evaluation of EPD data may be possible when all of the data to be compared has been drawn up in accordance with EN 15804+A2 and the building context or product-specific characteristics are taken into consideration.

3 LCA – SCENARIOS AND ADDITIONAL INFORMATION

3.1 Scenario for additional modules

Module A4 is taken into consideration in this Declaration, and it has been modelled according to the information reported in Table 4.

Table 4 Module A4 – Transport to the building site

Scenario information	Unit (expressed per DU)
Fuel type and consumption of vehicle or vehicle type used for transport e.g., long-distance truck, boat, etc.	Truck-trailer, Euro 4, 34 - 40t gross weight / 27t payload capacity, diesel driven
Distance	1 km
Capacity utilisation (including empty returns)	61 %
Bulk density of transported products	-
Volume capacity utilisation factor (factor = 1 or <1 or ≥1 for compressed or nested packaged products)	Not applicable

3.2 Scenario for Mod. C1-C4

The default scenario for the end of life of the composite panels with PE core material, as reported in the General Programme Instructions, is the following:

- collection rate: 99%;
- shredding efficiency: 95%;
- scrap recycled through refining process: 96.5%
- overall aluminium recycling rate: 91%.
- destiny of the PE core: 100% incineration.

Table 5 reports the main parameters of the end-of-life scenarios for the main materials and components.

Table 5 Parameters of the end-of-life scenarios for the main materials and components, related to the DU

Processes	Unit (expressed per FU or DU of components, products or materials and by type of material)		**etalbond®-d³ VHDPE coating 6 mm**
Collection process specified by type	Kg collected separately	Aluminium	1,33
		PE core material	3,93
	Kg collected with mixed construction waste		0
Recovery system specified by type	Kg for recycling	Aluminium	1,27
		PE core material	0
	Kg for reuse		0
	Kg for energy recovery		0
Disposal specified by type	Kg product or material for final deposition	Aluminium	0,0801
		PE core material	0,192

Note to Table 5:

Material collected separately: This amount refers to the waste stream collected separately per material before being subjected to shredding

Material for recycling: This amount refers to the waste stream sent to recycling per material after the shredding process.

Material for final deposition – aluminium: this amount includes the aluminium not collected separately and the shredding losses.

3.3 Scenario Mod. D

Module D includes:

- a transport from the scrap dealers to the recycling plants, considering an average distance of 200 km;
- recycling of Aluminium through refining;
- a net credit for the avoided production of primary aluminium;

The calculation of module D has been implemented in line with the General Programme Instructions of European Aluminium, thus based on the difference between the scrap used at the input and output side. In some cases, this may result in environmental burdens instead of environmental benefits if the product system is a net consumer of valuable secondary material.

3.4 Additional environmental information

During use, the indoor air quality, i.e., VOC emission, is not affected by aluminium coiled coated sheets.

In case of fire, aluminium is a non-combustible construction material (European Fire Class A1) in accordance with Commission Decision 96/603/EC and does therefore not make any contribution to fire.

4 LCA RESULTS - ALUMINIUM COMPOSITE PANEL etalbond®-d³ 4 mm WITH VHDPE COATING

4.1 Result of the LCA – Environmental impact aluminium composite panel etalbond®-d³ 4 mm, 1 m², with VHDPE coating

The tables below report the results of the LCA study for 1 m² aluminium composite panel etalbond®-d³ 4 mm with VHDPE coating.

4.1.1 Core environmental impact indicators

Table 6 Core environmental impact indicators for 1 m² aluminium composite panel etalbond®-d³ 4 mm with VHDPE coating

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
GWP - total	kg CO_2 eq.	2,04E+01	2,25E-04	7,46E-01	6,69E-02	1,45E-01	6,98E+00	-8,97E+00
GWP – fossil	kg CO_2 eq.	2,03E+01	2,23E-04	7,39E-01	6,65E-02	1,44E-01	6,98E+00	-8,94E+00
GWP – biogenic	kg CO_2 eq.	6,92E-02	1,12E-07	5,61E-03	3,34E-05	8,93E-04	5,48E-04	-2,66E-02
GWP - luluc	kg CO_2 eq.	5,62E-03	1,45E-06	1,11E-03	4,32E-04	3,50E-04	1,72E-04	-2,65E-03
ODP	kg CFC 11 eq.	6,43E-11	5,78E-20	1,74E-14	1,72E-17	4,52E-15	1,69E-15	-4,44E-11
AP	mol H^+ eq.	6,48E-02	1,26E-06	1,57E-03	3,76E-04	2,47E-04	2,08E-03	-3,77E-02
EP - freshwater	kg PO_4^{3-} eq.	2,26E-05	4,65E-10	1,97E-06	1,38E-07	6,08E-07	2,78E-07	-6,08E-06
EP - marine	kg N eq.	1,26E-02	6,22E-07	3,89E-04	1,85E-04	6,91E-05	6,43E-04	-5,76E-03
EP - terrestrial	mol N eq.	1,38E-01	6,88E-06	4,10E-03	2,05E-03	7,22E-04	9,89E-03	-6,27E-02
POCP	kg NMVOC eq.	4,60E-02	1,19E-06	1,06E-03	3,54E-04	1,74E-04	1,68E-03	-1,73E-02
ADP-MM (**)	kg Sb eq.	3,85E-06	1,97E-11	2,15E-07	5,85E-09	5,46E-08	2,44E-08	-1,80E-06
ADPF (**)	MJ	4,45E+02	3,00E-03	1,31E+01	8,91E-01	1,82E+00	1,90E+00	-1,25E+02
WDP (**)	m^3	3,18E+00	8,79E-07	1,17E-01	2,61E-04	3,23E-03	7,10E-01	-1,08E+00

Note: GWP – Global Warming Potential; ODP – Ozone Depletion; AP – acidification potential for soil and water; EP – Eutrophication potential; POCP – formation potential of tropospheric ozone; ADP - MM – abiotic depletion potential for non fossil resources; ADPF – Abiotic depletion potential for fossil resources; WDP – Water deprivation potential.

(**) **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 experience with the indicator.

4.1.2 Additional environmental impact indicators

Table 7 Additional environmental impact indicators for 1 m² aluminium composite panel etalbond®-d³ 4 mm with VHDPE coating

Impact category	Unit	A1-A3	A4	C1	C2	C3	C4	D
Particular Matter emissions	Disease incidence	7,45E-07	4,33E-12	1,35E-08	1,29E-09	1,82E-09	1,17E-08	-5,09E-07
Ionising radiation - human health (*)	[kBq U235 eq.]	1,81E+00	2,73E-07	3,16E-01	8,13E-05	1,69E-02	4,69E-03	-1,39E+00
Eco-toxicity (freshwater) (**)	[CTUe]	2,12E+02	2,49E-03	5,57E+00	7,40E-01	7,26E-01	7,17E-01	-3,37E+01
Human toxicity - cancer effects (**)	[CTUh]	7,39E-09	4,92E-14	1,57E-10	1,46E-11	1,00E-10	7,80E-11	-1,98E-09
Human toxicity - non-cancer effects (**)	[CTUh]	3,72E-07	2,58E-12	5,96E-09	7,66E-10	8,27E-10	5,21E-09	-6,21E-08
Land Use related impacts/ Soil quality (**)	dimensionless	1,83E+01	9,38E-04	4,13E+00	2,79E-01	9,00E-01	5,02E-01	-9,27E+00

(*) **Disclaimer**: This impact category deals mainly with the eventual impact of low dose ionizing radiation 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.
(**) **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 experience with the indicator.

4.2 Result of the LCA – Resource use aluminium composite panel etalbond®-d³ 4 mm, 1 m², with VHDPE coating

Table 8 Resource use for 1 m² aluminium composite panel etalbond®-d³ 4 mm with VHDPE coating

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
PERE	MJ	5,73E+01	1,74E-04	5,96E+00	5,17E-02	9,82E-01	4,18E-01	-4,36E+01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,73E+01	1,74E-04	5,96E+00	5,17E-02	9,82E-01	4,18E-01	-4,36E+01
PENRE	MJ	4,45E+02	3,00E-03	1,31E+01	8,91E-01	1,82E+00	1,90E+00	-1,25E+02
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,45E+02	3,00E-03	1,31E+01	8,91E-01	1,82E+00	1,90E+00	-1,25E+02
SM	kg	6,15E-01	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m³	1,57E-01	1,55E-07	5,81E-03	4,60E-05	5,30E-04	1,67E-02	-9,37E-02

Note: 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 materials; RSF – Use of renewable secondary fuels; NRSF – use of non-renewable secondary fuels; FW – use of net fresh water.

4.3 Result of the LCA – Output flows, waste categories aluminium composite panel etalbond®-d³ 4 mm, 1 m², with VHDPE coating

Table 9 Output flows, waste categories – aluminium composite panel etalbond®-d³ 4 mm with VHDPE coating (1 m²)

Parameter	Unit	A1-A3	A4	C1	C2	C3	C4	D
HWD	kg	1,31E-07	1,25E-13	3,42E-09	3,72E-11	1,41E-09	4,12E-10	-5,12E-08
NHWD	kg	2,52E+00	4,84E-07	9,19E-03	1,44E-04	1,88E-03	4,20E-01	-1,69E+00
RWD	kg	1,04E-02	2,87E-09	1,92E-03	8,55E-07	1,71E-04	5,07E-05	-7,75E-03
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	7,09E-02	0,00E+00	0,00E+00	0,00E+00	1,27E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Note: HWD – hazardous waste disposed; NHWD – Non-hazardous waste disposed; RWD – Radioactive waste disposed; CRU – Components for re-use; MFR – Materials for recycling; MER – Materials for energy recovery; EEE – Exported electrical energy; EET – Exported thermal energy

5 LCA – INTERPRETATION

The results are analysed and interpreted for modules A1-A3 and for modules C1-D. Results for module A4 are not further interpreted, as calculated only for 1 km.

Production stages: modules A1 to A3.

The environmental impacts come from the aluminium production which is influenced by the mass of aluminium in the declared unit: the GWP indicator is equal to 20,4 [kg CO_2-eq] for the etalbond®-d³ aluminium composite panel of 4 mm thickness.

Within the aluminium production processes, the primary aluminium production is dominant, especially the alumina production and the electrolysis. The recycled ingot production, which presents a much lower impact than the primary ingot production, is used in Module A1-A3 for the fraction of aluminium coming from recycling. The extrusion process which converts ingot, i.e., billets, into profile is much less significant. The LCA modelling and the impact of the primary aluminium production is detailed in the Environmental Profile Report 2018.

End of life stage: modules C1-C4 and module D

Modules C1-C3: they are negligible for all products compared to modules A1-A3 (<5%).

Module C4: the contribution of module C4 (disposal) is very limited compared to modules A1-A3 and module D.

Module D: The environmental benefits come from the recycling of aluminium and to a lesser extent to the energy produced in the incineration of the PE core material. About 44% of GWP savings are obtained in Module D compared to the value calculated for module A1-A3. These calculations show the relevance to consider Module D in the full assessment of coil coated sheet in the building context.

6 OTHER INFORMATION

ELVAL COLOUR Group's operation and development is founded on the concept of corporate responsibility, and includes recognition of the need for positive actions, and continuous support and development of the local communities that neighbour our facilities.

Through its Environmental Management System, certified according to ISO 14001:2015, ELVAL COLOUR actively implements best practices regarding environmental protection through significant investments and measures, by optimizing the production cycle, implementing new procedures that reduce the energy footprint of our plants, and the vigilant prevention of any possibility of environmental pollution.

Additional information about ELVAL COLOUR, its corporate responsibility and sustainability policy and the products can be found at ELVAL COLOUR website www.elval-colour.com.

These EPD results have been calculated from an LCA tool for EPD, based on the GaBi database, initially realised by Sphera GmbH in 2013 and updated by Ecoinnovazione in 2019 (Ecoinnovazione S.r.l. – spin-off ENEA Via d'Azeglio 51, 40123 Bologna www.ecoinnovazione.it)

7 REFERENCES

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