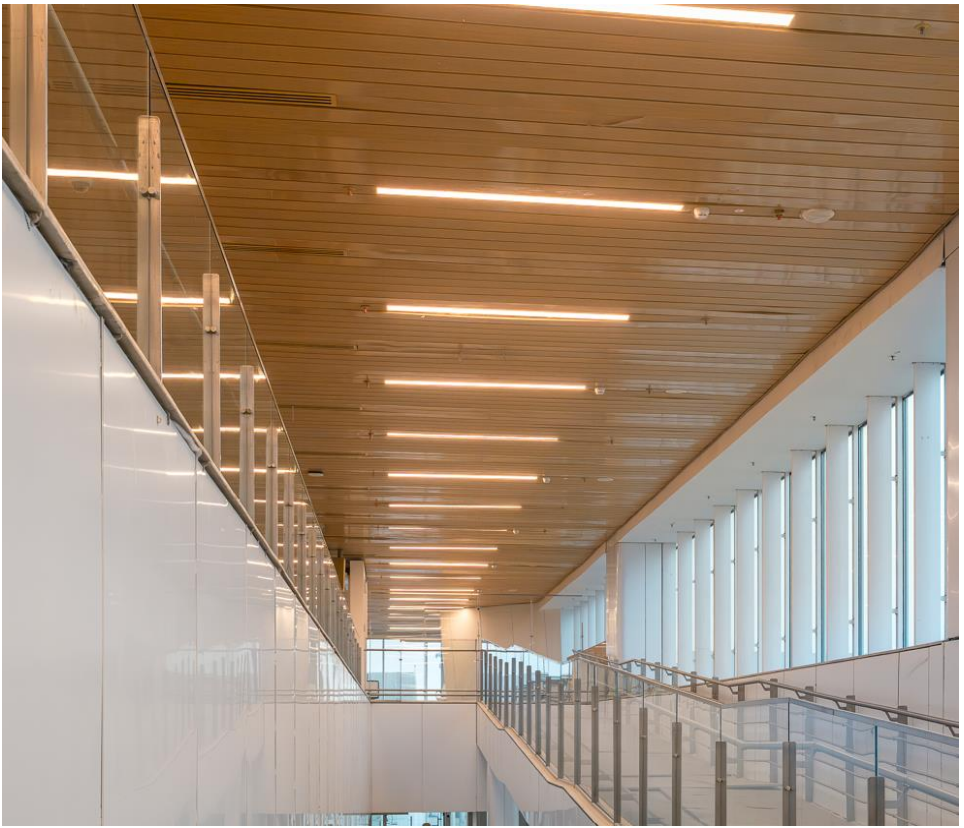
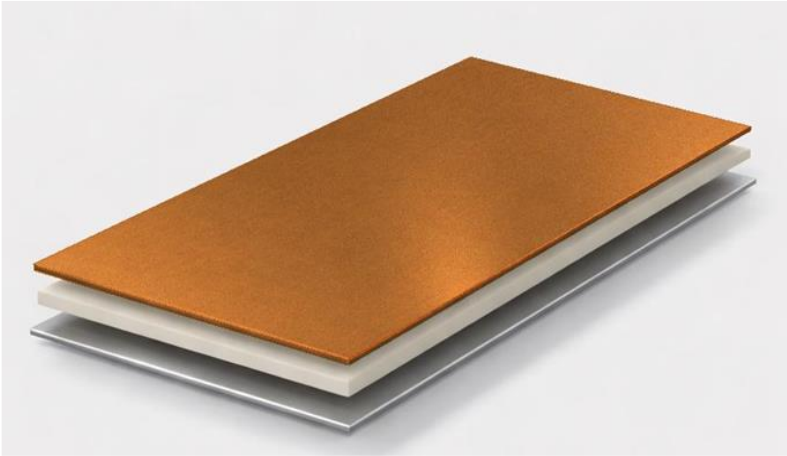


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Aludecor Firewall Class A2
ALUDECOR LAMINATION PRIVATE LIMITED



EPD HUB, HUB-6024
Published on 16.04.2026, last updated on 16.04.2026, valid until 16.04.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

AludecoR
Metal Composite Panel

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Aludecor Lamination Private Limited
Address	Unit 2 - Plot No. 31A, Sector 11, IIE, SIDCUL, Ranipur, BHEL,Haridwar –249403, Uttarakhand, India
Contact details	info@aludecor.com
Website	www.aludecor.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021, ISO 14025 and ISO 21930
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4, and modules C1-C4, D
EPD author	Sudhir Mohan, M/s Aspect Façade & Engineering Consultants Pvt Ltd
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Aludecor Firewall Class A2
Additional labels	Class A2 ACP in thicknesses of 3mm and 4mm
Product reference	-
Place(s) of raw material origin	India, UAE, China
Place of production	Haridwar, Uttarakhand, INDIA
Place(s) of installation and use	India, Europe, North America, Asia Pacific, Middle East, Africa, Russia
Period for data	APRIL 2024 TO MARCH 2025
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	-9.3 / 6.5
A1-A3 Specific data (%)	24.9

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 Sqm of Aluminium Composite Panel
Declared unit mass	8.38 kg
Mass of packaging	0.32 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	33.9
GWP-total, A1-A3 ($kgCO_2e$)	33.6
Secondary material, inputs (%)	26.6
Secondary material, outputs (%)	95.1
Total energy use, A1-A3 (kWh)	128
Net freshwater use, A1-A3 (m^3)	0.27

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Since 2002, Aludecor ACP has been at the forefront as a leading ACP sheet manufacturer, shaping India's architectural landscape while steadily expanding its global footprint across the Middle East and the United States. What began with a pioneering spirit in aluminium coil coating soon evolved into a journey of façade innovation, fire safety leadership, and sustainable excellence. Founded with a vision to revolutionize building façades, Aludecor introduced high-performance ACP sheets that combine safety, durability, and aesthetics. In its very first year, the company emerged as a pioneer of aluminium roller coil coating technology in India, enabling architects and builders to achieve finishes known for their brilliance, consistency, and long-term durability.

Headquartered in Kolkata, Aludecor operates state-of-the-art manufacturing facilities in Haridwar, Uttarakhand, spread across approximately 37,500 square meters. The company's strong distribution network comprises 500+ channel partners across more than 250 cities in India, ensuring widespread availability and service support. Today, Aludecor's advanced manufacturing ecosystem includes 7 ACP lamination lines, supporting an annual production capacity of 10.08 million square meters of composite panels, enabling the company to serve both domestic and international markets efficiently. The company also operates India's first double-coat double-bake coating line and has expanded to three coating lines with a total installed capacity of 22,000 MT per annum, ensuring superior coating quality and finish consistency.

Strengthening its focus on fire safety, Aludecor has an in-house Fire-Retardant (FR) granules manufacturing setup with an installed capacity of 5,300 MT per annum across two lines. Additionally, an NABL-accredited in-house R&D and fire testing laboratory enables rigorous testing as per national and international standards.

Further diversifying its composite solutions portfolio, Aludecor's honeycomb production facility offers a capacity of 5 lakh square meters of panels annually, reinforcing its position as a comprehensive façade solutions provider.

PRODUCT DESCRIPTION

Aludecor Firewall Class A2 Aluminium Composite Panel (ACP) is a modern construction material that combines aluminium's strength and durability with a composite core's versatility and flexibility. It is the perfect solution for a wide range of architectural and design applications, offering the best of both worlds in terms of functionality and aesthetics. With its lightweight and easy-to-install properties, ACP is a popular choice for cladding and interior design, providing an attractive and cost-effective alternative to traditional materials such as stone, brick, or glass. Its excellent resistance to moisture, fire, and UV light makes it ideal for use in various indoor and outdoor settings, including building facades, interior partitions, and signage. Whether you want to create a contemporary or classic look, ACP has the versatility to meet your design needs, making it the go-to solution for modern construction and design. ACP consists of two thin layers of aluminium skin, which are sandwiching a core in a continuous co-extrusion process. External face of metallic skins are pre-coated by paint coatings. The joining of metallic skins with core is achieved by adhesive film. Total thickness of Aluminium Composite Panel manufactured are 3mm and 4mm.

Aludecor FireWall Class A2 , has more than 90% mineral content in core material and is made with AA3105 or AA5005 alloy. Aludecor FireWall A2 is process certified for reaction to fire by ESL (Emirates Safety Laboratory - Dubai) as per EN 13501-1, Class A2-s1, d0. EN – 13501-1 test validate that the Firewall A2 will not contribute to fire development, smoke emitted by it will be negligible, and that it won't produce flaming droplets

Further information can be found at: www.aludecor.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	34.05	India
Minerals	56.55	India, China, UAE
Fossil materials	9.40	India, China, UAE
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.100
Biogenic carbon content in packaging, kg C	0.0027

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Sqm of Aluminium Composite Panel
Mass per declared unit	8.38 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
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		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission. A market-based approach is used in modelling the electricity mix utilized in the factory.

Casting slabs serve as the foundational ingot for creating high quality aluminium coil through hot and cold rolling. Molten alloyed aluminium is cast into slabs, which are pre heated. Heated slabs passes through rollers to obtain desired thickness followed by cold rollling to reach thinner and more precise gauges. The rolled aluminium coil are then coated for their entire width in a continuous coil coating line. The finished product of coated aluminium is then laminated on both sides of core material to produce Aluminium composite panel.

A1 Includes extraction and pre-processing of raw materials such as Aluminium coil, mineral core, paint.
A2 Includes transportation of all raw materials to manufacturing plant.
A3 includes the production of Aluminium Composite Panel beginning from Pre Treatment and Coil coating, followed by Lamination process with mineral core, packaging and ready for dispatch.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

Transportation process to construction sites (A4 stage) is considered based on the average distance of transportation between factory and major cities for time period declared in this EPD. The transport Vehicle capacity utilization volume factor is assumed to be 100% which means full load. The method of transportation considered is lorry for domestic and container ship for exports. The distances in case of exports is considered only upto seaport of destination country due to unavailability of further data. Empty returns are not considered as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product is packaged properly. Transportation does not cause losses as product is packaged properly.

This EPD does not cover Module A5

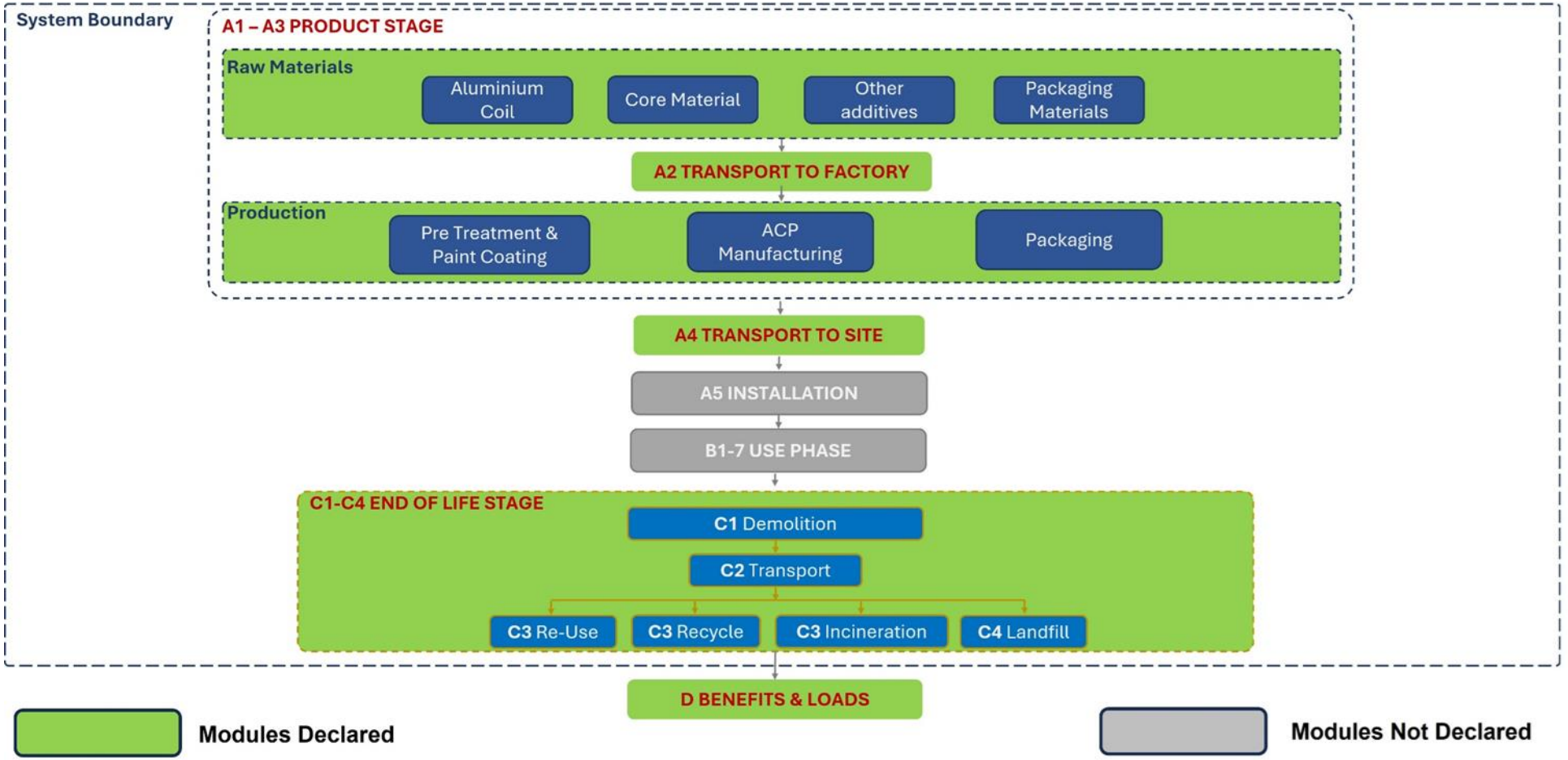
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

ACP's are generally removed manually by unscrewing them. Removed ACP's can be recycled, reused suitably as it consists of recyclable materials. Though ACP's can be dismantled from the facade as a single material, however 95% of collection post deconstruction is assumed for waste processing & recycling and rest 5% of the materials is disposed in landfills. Transport distance of 100 kms is assumed from place of dismantling to waste processing facility. ACP's can be sorted through process to separate Aluminium and core material, both of which can be recycled. It is assumed that recycling rate of scrap aluminium is 98% with minimal losses due to presence foreign material. Recycled Aluminium can be treated to produce secondary aluminium with only 5% of energy consumption as against primary aluminium production from ore and even can be substituted to produce primary aluminium. The core material also has the potential to be recycled through means of shredding etc and used as secondary materials. Aluminium composite panels are accepted by scrap dealers among other recycling options

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass. Data gaps are filled with average or generic data considering above criteria's.

This LCA Study includes the provision of all materials, transportation, energy, ancillary materials, and end of life processing. The entire life cycle is covered from Cradle to Grave, including all industrial processes from raw material procurement, pre-processing, production, product distribution and end of life management.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

Allocations could not be avoided for packaging, ancillary materials, energy consumption and waste production as the information was only measured on factory or production level. The inputs were allocated based on annual weighted production volume of the declared product and its thickness. Aludecor Firewall Class A2 Aluminium composite panel is produced in thicknesses of 3mm and 4mm. Since the raw materials, production processes and end of life scenarios are same, annual production volume of the thicknesses are considered for allocation. Based on the production volume ACP thicknesses, energy consumption, packaging materials, and generated manufacturing waste are allocated per declared unit of the product.

All estimations and assumptions regarding the cut off criteria and the allocation are declared in the part “Cut-off Criteria” except the estimations/assumptions below:
Module C1 : Deconstruction or demolition at the end of service life is usually conducted by selective removal of the ACP using manual method. Its considered that 5% of material is lost during deconstruction and 95% of material is recovered. The environmental impacts that are generated due to manual removal are very low and can be neglected.
Module C2: Since there is no follow up procedure established, transportation distance to closest waste processing facility is estimated to be 100 Kms and common type of transportation and fuel are used in the calculation.
Module C3 : Waste processing for recovered Aluminium composite panel is considered, whereby both aluminium and core material can be separated and recycled. All of packaging materials has been considered to be sent to landfill.
Module C4 : For material sent to landfill in end of life, no flow is included in module D for benefits.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	-9.3 / 6.5

This EPD covers Aludecor Firewall Class A2 Aluminium composite panel manufactured in thicknesses of 3mm and 4mm. The results in this EPD are representative of weighted average m2 of product considering the two thicknesses. The variability in A1 to A3 GWP Fossil was calculated by creating two separate LCA Models for each of the thickness and creating a average model based on weighted annual production volume for the multiple thickness.

LCA SOFTWARE AND BIBILIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology ‘allocation, Cut-off, EN 15804+A2‘.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2.58E+01	3.18E+00	4.59E+00	3.36E+01	2.90E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.21E-01	2.63E-01	2.24E-02	-2.58E+01
GWP – fossil	kg CO_2e	2.62E+01	3.18E+00	4.54E+00	3.39E+01	2.90E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.21E-01	2.51E-01	2.24E-02	-2.58E+01
GWP – biogenic	kg CO_2e	-3.67E-01	8.07E-04	4.30E-02	-3.23E-01	6.46E-04	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.03E-04	1.17E-02	-1.86E-05	0.00E+00
GWP – LULUC	kg CO_2e	2.49E-02	1.48E-03	8.43E-03	3.48E-02	1.31E-03	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.73E-05	3.56E-04	9.56E-06	-4.88E-02
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1.31E-06	4.57E-08	2.37E-08	1.38E-06	4.30E-08	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.91E-09	3.19E-09	2.15E-10	-2.90E-07
Acidification potential	mol H^+e	1.35E-01	1.37E-02	2.06E-02	1.69E-01	6.63E-03	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.19E-04	1.52E-03	6.04E-05	-1.68E-01
EP-freshwater[2)]	kg Pe	1.21E-02	2.69E-04	3.99E-03	1.64E-02	2.27E-04	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.39E-05	4.60E-05	2.68E-06	-1.31E-02
EP-marine	kg Ne	2.39E-02	3.28E-03	4.66E-03	3.18E-02	1.54E-03	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.16E-04	6.65E-04	1.23E-04	-3.05E-02
EP-terrestrial	mol Ne	2.58E-01	3.60E-02	4.35E-02	3.37E-01	1.66E-02	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.25E-03	6.03E-03	2.42E-04	-3.15E-01
POCP ("smog")[3)]	kg NMVOCe	8.78E-02	1.46E-02	1.33E-02	1.16E-01	9.30E-03	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.83E-04	1.91E-03	8.93E-05	-9.39E-02
ADP-minerals & metals[4)]	kg Sbe	9.86E-05	1.04E-05	4.02E-06	1.13E-04	9.69E-06	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.47E-07	1.72E-06	2.16E-08	5.14E-05
ADP-fossil resources	MJ	3.74E+02	4.40E+01	5.92E+01	4.77E+02	4.07E+01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.01E+00	3.06E+00	1.89E-01	-2.93E+02
Water use[5)]	m^3e depr.	9.26E+00	2.10E-01	1.07E+00	1.05E+01	1.91E-01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.53E-02	3.07E-02	2.06E-03	-4.16E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1.29E-06	2.20E-07	9.31E-08	1.61E-06	2.16E-07	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.38E-08	1.00E-07	1.28E-09	-1.14E-06
Ionizing radiation[6]	kBq U235e	7.94E-01	3.52E-02	1.76E-01	1.01E+00	3.33E-02	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.46E-03	6.14E-03	2.43E-04	-1.07E-01
Ecotoxicity (freshwater)	CTUe	5.92E+02	1.95E+01	1.11E+02	7.22E+02	6.47E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.46E+00	1.14E+01	2.52E+01	-7.27E+02
Human toxicity, cancer	CTUh	2.29E-08	5.42E-10	1.03E-09	2.45E-08	4.85E-10	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.40E-11	3.62E-10	4.50E-12	-6.73E-09
Human tox. non-cancer	CTUh	4.05E-07	2.65E-08	3.50E-08	4.66E-07	2.57E-08	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.75E-09	4.08E-09	7.81E-10	-9.57E-08
SQP[7]	-	7.60E+01	2.45E+01	2.07E+01	1.21E+02	2.47E+01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.53E+00	5.00E+00	3.70E-01	-3.62E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8]	MJ	2.14E+01	6.06E-01	4.61E+00	2.66E+01	5.66E-01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.41E-02	1.39E-01	-3.53E+00	-1.18E+01
Renew. PER as material	MJ	1.29E-07	0.00E+00	-7.31E-09	1.22E-07	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	-1.16E-07	-6.09E-09	0.00E+00
Total use of renew. PER	MJ	2.14E+01	6.06E-01	4.61E+00	2.66E+01	5.66E-01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.41E-02	1.39E-01	-3.53E+00	-1.18E+01
Non-re. PER as energy	MJ	3.40E+02	4.40E+01	5.10E+01	4.35E+02	4.07E+01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.01E+00	-2.61E+01	-4.64E+00	-2.90E+02
Non-re. PER as material	MJ	3.04E+01	0.00E+00	-9.67E-01	2.94E+01	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	-2.80E+01	-1.47E+00	0.00E+00
Total use of non-re. PER	MJ	3.70E+02	4.40E+01	5.00E+01	4.64E+02	4.07E+01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.01E+00	-5.41E+01	-6.11E+00	-2.90E+02
Secondary materials	kg	2.23E+00	2.02E-02	8.86E-03	2.26E+00	1.85E-02	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.26E-03	3.88E-03	6.70E-05	1.33E+00
Renew. secondary fuels	MJ	1.54E-01	2.44E-04	2.06E-02	1.74E-01	2.37E-04	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.54E-05	9.09E-05	1.13E-06	-3.73E-04
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	2.40E-01	5.84E-03	2.56E-02	2.71E-01	5.57E-03	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.96E-04	1.36E-03	-1.72E-03	-8.35E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	3.38E+00	8.33E-02	2.61E-01	3.73E+00	7.14E-02	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.77E-03	1.47E-02	6.60E-04	-3.89E+00
Non-hazardous waste	kg	3.51E+01	1.56E+00	2.35E+01	6.02E+01	1.34E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.33E-01	3.57E-01	2.42E+00	-7.54E+01
Radioactive waste	kg	3.48E-04	8.63E-06	5.51E-05	4.11E-04	8.16E-06	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.02E-07	1.51E-06	5.94E-08	-2.51E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.96E-11	0.00E+00	1.86E+00	1.86E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	7.97E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	1.02E-19	0.00E+00	1.12E-14	1.12E-14	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	2.49E+01	3.16E+00	4.53E+00	3.26E+01	2.88E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.19E-01	3.01E-01	3.37E-02	-2.47E+01
Ozone depletion Pot.	kg $CFC_{-11}e$	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acidification	kg SO_2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication	kg PO_4^3e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
POCP (“smog”)	kg C_2H_4e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ADP-elements	kg Sbe	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	2.62E+01	3.18E+00	4.55E+00	3.39E+01	2.90E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.21E-01	2.51E-01	2.24E-02	-2.58E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero

ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	2.48E+01	3.14E+00	4.50E+00	3.25E+01	2.86E+00	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.18E-01	2.92E-01	3.13E-02	-2.46E+01
Ozone Depletion	kg CFC_{-11}e	1.18E-06	4.82E-08	2.73E-08	1.26E-06	4.53E-08	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.07E-09	3.38E-09	2.27E-10	-1.17E-07
Acidification	kg SO_2e	9.86E-02	1.18E-02	1.79E-02	1.28E-01	5.71E-03	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.56E-04	1.44E-03	6.28E-05	-1.26E-01
Eutrophication	kg Ne	2.84E-02	9.95E-04	5.68E-03	3.50E-02	7.36E-04	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.89E-05	1.70E-04	2.88E-05	-2.40E-02
POCP (“smog”)	kg O_3e	1.21E+00	2.24E-01	2.49E-01	1.68E+00	1.12E-01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.31E-03	3.57E-02	1.45E-03	-1.48E+00
ADP-fossil	MJ	2.75E+01	3.14E+01	8.00E-02	5.90E+01	4.08E+01	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.14E-03	4.44E-01	-4.52E+00	0.00E+00

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Market for diesel, India, Ecoinvent, 0.98 kgCO2e/kg
2. Market for diesel, India, Ecoinvent, 0.98 kgCO2e/kg
3. Market for electricity, medium voltage, indianNorthernGrid, Ecoinvent, 1.34 kgCO2e/kWh
4. Market for electricity, medium voltage, indianNorthernGrid, Ecoinvent, 1.34 kgCO2e/kWh
5. Market for liquefied petroleum gas, India, Ecoinvent, 1.17 kgCO2e/kg
6. Market for liquefied petroleum gas, India, Ecoinvent, 1.17 kgCO2e/kg

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry 16-32 metric ton, EURO6, 1738 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	100
Bulk density of transported products	0.00E+00
Volume capacity utilization factor	1

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	Components of Aluminium Composite Panel are generally bonded to each other and removed as whole single entity through manual process. Total end of life mass is 100% allocated to collected separately.
Collection process: Mixed waste (kg)	
Recovery: re-use (kg)	0
Recovery: recycling (kg)	7.97
Recovery: energy recovery (kg)	0
Disposal (kg)	0
Scenario assumptions e.g. transportation (mode, km) & other	Transport distance of 100 Kms is assumed from the place of dismantling to waste processing facility and for landfills

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Yazan Badour as an authorized verifier for EPD Hub Limited 16.04.2026

VERIFIED ISO 14025