

# **Environmental Product Declaration**

## **Applicant**

**JIANGSU PIVOT NEW DECORATIVE MATERIALS CO.,LTD.**

## **Declared product**

**Aluminum Composite Panel**

## **Issuing authority**

**China Testing & Certification International Group Co.,Ltd.**



**2024/ 01 / 02**

## Environmental Product Declaration

General information			
<b>EPD owner</b>			
Name of applicant	JIANGSU PIVOT NEW DECORATIVE MATERIALS CO.,LTD.		
Address of applicant	No.7 Mengna Road,Huashi Town,Jiangyin City,Jiangsu Province,China		
Name of manufacturer	JIANGSU PIVOT NEW DECORATIVE MATERIALS CO.,LTD.		
Address of manufacturer	No.7 Mengna Road,Huashi Town,Jiangyin City,Jiangsu Province,China		
Product name	Aluminum Composite Panel	Type	/
Contact	Pan Chunjun	Phone number	15995326030
<b>Programme holder</b>			
Issuing authority	China Testing & Certification International Group Co.,Ltd.		
Address	No.1 Guanzhuang Dongli, Chaoyang District, Beijing 100024		
legal representative	Zhenzhu Ma	Phone number	010-51167672
Contact	Liping Ma	Phone number	010-51167148
References	1.ISO 14025:2006, Environmental labels and declarations -Type III environmental declarations-Principles and procedures, IDT 2.ISO 21930:2017 Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services		
Cut-off	/		
<b>Product life cycle environmental impact assessment</b>			
Functional unit	1m <sup>2</sup> of Aluminum Composite Panel		
System boundary	From resource exploitation, raw and auxiliary materials production and transportation, energy production, product production to product delivery (from cradle to gate)		
Environmental impact	Environmental impact categories	Unit	Value
	Abiotic depletion potential (ADP)	kgSb-Equiv./m <sup>2</sup>	1.68E-04
	Acidification Potential (AP)	kgSO <sub>2</sub> -Equiv.m <sup>2</sup>	9.26E-02
	Primary energy demand (PED)	MJ/m <sup>2</sup>	2.98E+02
	Eutrophication Potential (EP)	kgPO <sub>4</sub> <sup>3-</sup> -Equiv./m <sup>2</sup>	7.15E-03
	Global Warming Potential (GWP)	kgCO <sub>2</sub> -Equiv./m <sup>2</sup>	2.08E+01
	Respiratory Inorganics (RI)	kgPM <sub>2.5</sub> -Equiv./m <sup>2</sup>	3.24E-02
	Water use	kg/m <sup>2</sup>	1.37E+02
Issued date	2024-01-02	Duration	5 years

Approver: 

Reviewer:

Editor:

# Environmental Product Declaration

## 1 Company description

JIANGSU PIVOT NEW DECORATIVE MATERIALS CO.,LTD Established in 2005, located in Wuxi, Jiangsu Province, with an industrial park covering an area of over 67000 square meters, it is a company mainly engaged in the metal products industry and one of the main international suppliers of high-quality aluminum decorative materials. The company specializes in research and development, production, and sales of high-quality new green and environmentally friendly building decoration materials and new advertising and identification materials. Adhering to innovation as the core of corporate brand culture, we are a comprehensive solution provider for new materials and installation systems covering the construction, decoration, and advertising signage industries..

## 2 Product information

Aluminum Composite Panel, in accordance with GB/T 22412-2016, the manufacturing process is presented below:

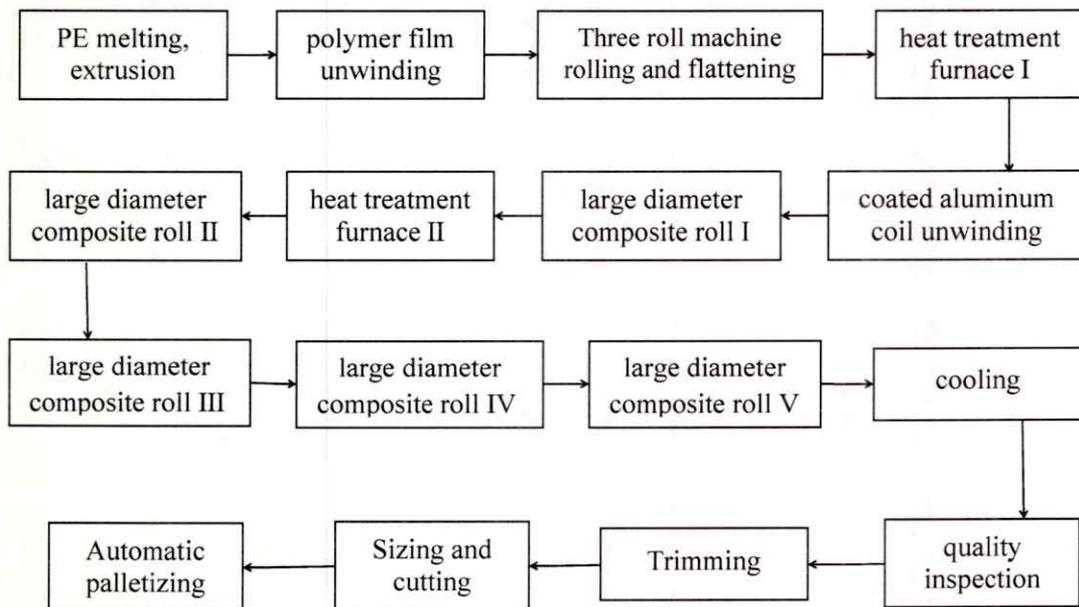


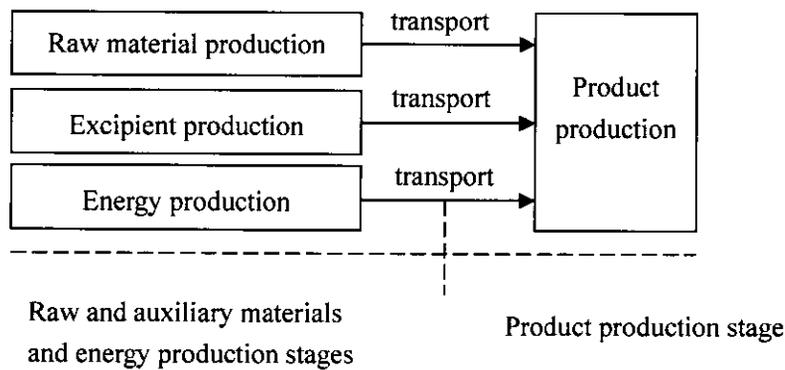
Figure 1 Diagram of production system of Aluminum Composite Panel

### 3 Life cycle environmental impact assessment

#### 3.1 System boundary

The product life cycle system boundaries defined in this report, as shown in Figure 2, from resource extraction, raw material production and transportation, energy production, product production to the factory (from cradle to gate), including:

- (1) Production of raw and auxiliary materials (Aluminum plate, fireproof core, etc.);
- (2) energy production (Electricity and natural gas etc.);
- (3) transportation (transportation of main raw materials);
- (4) Aluminum Composite Panel.



**Figure 2 System boundaries of Aluminum Composite Panel**

#### 3.2 Functional unit

Produce 1m<sup>2</sup> of Aluminum Composite Panel.

#### 3.3 Inventory data

On-site production data includes inventory data such as raw material consumption, energy consumption, pollutant emissions, and transportation during the production phase of the product. The data are shown in tables 1 and 2, and the upstream background data include inventory data for raw material extraction and energy production, as well as inventory data for the transport of raw and auxiliary materials, as shown in table 3.

**Table 1 Inventory data of energy consumption**

Name	Value	Unit	Mode of transport	Distance in km
Electricity	2.10E+00	kWh	Wire	—
Natural gas	1.80E-01	m <sup>3</sup>	Pipe	—

**Table 2 Inventory data of raw material consumption**

Name	Value	Unit	Mode of transport	Distance in km
Aluminum plate	5.15E-04	t	Truck	838
PE core	2.36E-03	t	Truck	10
Polymer membrane	5.63E-05	t	Truck	1482
Paint	6.58E-03	kg	Truck	21
Water	5.52E-03	t	Pipe	—

**Table 3 Data source**

Name	Region	Base year	Database
Aluminum plate	China	2013	CLCD 0.8
PE core	China	2013	CLCD 0.8
Polymer membrane	China	2013	CLCD 0.8
Paint	Europe	2010	Ecoinvent 2.2.0
Water	China	2013	CLCD 0.8
Electricity	China	2013	CLCD 0.8
Natural gas	China	2013	CLCD 0.8
Transport	China	2013	CLCD 0.8

Note: CLCD (Chinese Life Cycle Database, CLCD) is the basic database of China's life cycle, with data from industry statistics and literature, representing the average of the Chinese market. The Ecoinvent database is a commonly used life cycle inventory database in Europe.<sup>3</sup>

### 3.4 Data time-range

The production life cycle model data is based on the company's production data in 2020, and the upstream data time is 2010-2013.

### 3.5 Trade-off principle

- All inputs to the energy are listed;
- All inputs of raw materials are listed;
- The project input of the auxiliary material quality is less than 0.01% of the total consumption of raw materials is negligible;
- Greenhouse gas emissions are listed;
- Streams of substances and energy that contribute less than 1% both inventory analysis and environmental impact are negligible.

### 3.6 LCA results

The environmental impact assessment of the production life cycle of Aluminum Composite Panel products for household appliances and the corresponding contributions to the environmental impact of each stage of the life cycle are shown in Table 4 and Table 5 respectively, and the contribution of each environmental impact index of the life cycle to the total environmental impact of the unit process and the corresponding contribution to the environmental impact of each stage of the life cycle are shown in Figure 3 and Figure 4, respectively.

**Table 4 Environmental impact**

impact categories	unit	value
Abiotic depletion potential (ADP)	kgSb-Equiv./m <sup>2</sup>	1.68E-04
Acidification Potential (AP)	kgSO <sub>2</sub> -Equiv.m <sup>2</sup>	9.26E-02
Primary energy demand (PED)	MJ/m <sup>2</sup>	2.98E+02
Eutrophication Potential (EP)	kgPO <sub>4</sub> <sup>3-</sup> -Equiv./m <sup>2</sup>	7.15E-03
Global Warming Potential (GWP)	kgCO <sub>2</sub> -Equiv./m <sup>2</sup>	2.08E+01
Respiratory Inorganics (RI)	kgPM <sub>2.5</sub> -Equiv./m <sup>2</sup>	3.24E-02
Water use	kg/m <sup>2</sup>	1.37E+02

(1) Abiotic depletion potential (ADP): the equivalent amount of non-renewable resource substances consumed in the production of 1m<sup>2</sup> Aluminum Composite Panel products for household appliances;

(2) Acidification Potential (AP): production of 1m<sup>2</sup> sulfur dioxide equivalent emitted by Aluminum Composite Panel;

(3) Primary energy demand (PED): The primary energy consumption equivalent of the production of Aluminum Composite Panel;

(4) Eutrophication Potential (EP): Production of 1m<sup>2</sup> household appliances Aluminum Composite Panel product emissions of PO<sub>4</sub><sup>3-</sup>equivalent;

(5) Global Warming Potential (GWP): Production of 1m<sup>2</sup> of carbon dioxide equivalent emitted by Aluminum Composite Panel;

(6) Respiratory Inorganics (RI): Production of 1m<sup>2</sup> pm2.5 equivalent of Aluminum Composite Panel;

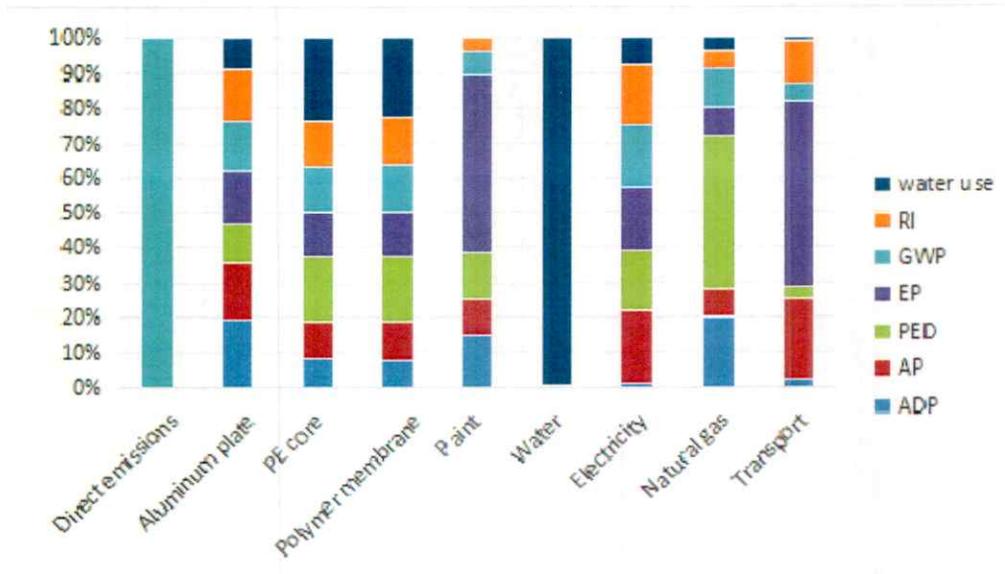
(7) Water use: The amount of fresh water required to produce 1m<sup>2</sup> Aluminum Composite Panel.

**Table 5 Corresponding contributions to environmental impacts at each stage of the life cycle**

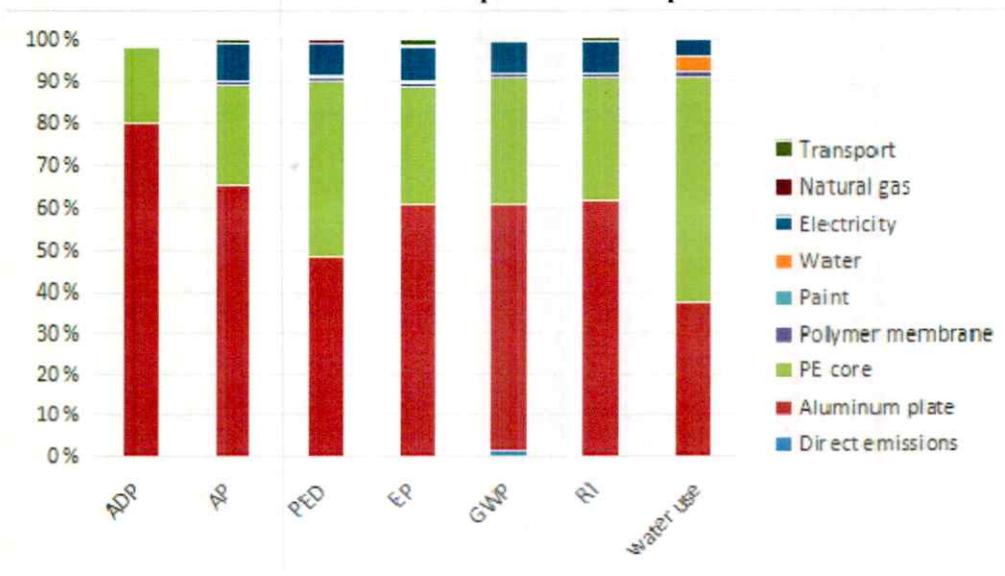
Name	ADP	AP	PED	EP	GWP	RI	water use
Direct emissions	0.00%	0.00%	0.00%	0.00%	1.68%	0.00%	0.00%
Aluminum plate	80.14%	65.37%	48.56%	61.05%	58.97%	61.75%	37.47%
PE core	18.15%	23.91%	41.55%	27.75%	30.32%	29.39%	53.41%
Polymer membrane	0.44%	0.63%	1.04%	0.71%	0.78%	0.78%	1.30%
Paint	0.20%	0.14%	0.18%	0.68%	0.09%	0.05%	0.00%
Water	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	4.11%
Electricity	0.59%	9.10%	7.63%	8.05%	7.77%	7.53%	3.60%

Natural gas	0.43%	0.17%	0.93%	0.16%	0.23%	0.12%	0.08%
Transport	0.06%	0.69%	0.10%	1.60%	0.15%	0.37%	0.03%

It can be seen from Tables 4 and 5 that the Aluminum plate, PE core, etc. to the environmental impact is greater than 1%, and according to the trade-off principle, it is included in the environmental impact assessment.



**Figure 3 The contribution of the various environmental impact indicators to the total environmental impact of the unit process**



**Figure 4 Corresponding contributions to the environmental impact at each stage of the production life cycle**

As can be seen from Figures 3 and 4:

(1) The environmental impact of raw materials for the life cycle of Aluminum Composite Panel is mainly derived from the use of Aluminum plate, the potential for non-renewable resource depletion, acidification effect, primary energy consumption, eutrophication potential, global warming potential, inhalable inorganic matter and freshwater consumption, and its contribution rates are 80.14%, 65.37%, 48.56%, 61.05%, 58.97%, 61.75%, 37.47%, accounting for a large

proportion of environmental impact, respectively. Therefore, the rational use of Aluminum plate and the reduction of Aluminum plate waste are important measures to reduce the environmental impact load of the enterprise;

(2) The transportation process of various raw materials also has a high environmental impact, which can be reduced by optimizing the transportation distance of various raw materials and energy, reducing the transportation distance, and establishing a raw material symbiosis park.

#### **4 Additional Information**

None.

#### **5 References**

- 1) GB/T 24025-2009 Environmental Labeling and Declaration Type III Environmental Declaration Principles and Procedures (ISO 14025:2006, Environmental labels and declarations -Type III environmental declarations-Principles and procedures, IDT)
- 2) GB/T 24040-2008 Environmental Management Life Cycle Assessment Principles and Framework (ISO 14040:2006, Environmental management -Life cycle assessment - Principles and framework, IDT)
- 3) GB/T 24044-2008 Environmental Management Life Cycle Assessment Requirements and Guidelines (ISO 14044:2006, Environmental management- Life cycle assessment- Requirements and guidelines, IDT)
- 4) Product category rules of Aluminum Composite Panel production
- 5) CLCD(Chinese Life Cycle Database, CLCD), China Life Cycle Basic Database version 0.8
- 6) Ecoinvent database, European Lifecycle Inventory Database version 2.2.0