

ALICLAD Aluminium Weatherboard System

Environmental Product Declaration

Contents of the Declaration

- Product definition, application
- Information about basic materials and the material's origin
- Technical Data and the description of the product manufacture
- Service life, recycling, and disposal
- Performance & effects – testing and verifications
- Coating

1.0 Product

The ALICLAD Aluminium Weatherboard System consist of a variety of weatherboard profiles, window flashings, junction flashings and closures. For the purpose of this declaration, it does not include any substructure items other than our Aluminium Alpha rail or Aluminium Top Hat.

1.1 Application

ALICLAD Weatherboards are deployed as lightweight cladding elements for commercial and residential construction. They can be utilised as cladding, soffits, and linings for small to large-scale applications with demanding requirements for durability, evenness, and rigidity.

Benefits of Aluminium

- Strong and lightweight: Aluminium's favourable strength-to-weight ratio means it can be substituted for heavier materials, driving energy efficiency.
- Infinitely recyclable: Aluminium can be recycled over and over again without losing any of its fundamental properties.
- Corrosion-resistant: Durable aluminium lasts longer than many competing materials, limiting the need for replacement.
- Highly recycled: Aluminium is one of the most recycled materials on the market today and producing recycled aluminium takes just 8 percent of the energy needed to make primary aluminium

Base and Secondary Materials

Extruded aluminium products may include various types of coatings, including anodized, painted, and lacquered finishes. All coating materials are included in inventory, based on averages across the industry.

Category of Metal Source Percentage (by mass)

- I. Primary aluminium (including alloy agents) 49
- II. Recovered aluminium from Other Post-Industrial Scrap 20

III. Recovered Metal from Post-Consumer Scrap 31

1.2 Technical Data

Raw Material	Relative weight of components (%)
Aluminium Ignot (Grade 6063 T5)	93 – 99.2
Magnesium	0.45 – 0.90
Silicon	0.20 – 0.60
Others	< 1.5

Technical Specifications		
Density	2.5 - 2.7	Based on Technical Sources
Melting Range (Celsius)	585 - 650	Based on Technical Sources
Thermal Conductivity, W/mK	200 - 220	ASTM E1225-13
Thermal Expansion (10-6/K)	23.20 – 23.40	ASTM
Elastic Modules (MPa)	69000 – 70000	EN ISO 6892-1
Modules of rapture (MPa)	26000- 26500	EN ISO 6892-1

1.3 Manufacturing

The extrusion process takes cast extrusion billet (round bar stock produced from direct chill moulds) and produces extruded shapes. The process begins with an inline preheat that takes the temperature of the billet to a predetermined level depending on the alloy. The billet is then sheared if not already cut to length and deposited into a hydraulic press. The press squeezes the semi-plastic billet through a heated steel die that forms the shape. The shape is extruded into lengths defined by the take-off tables and is either water-quenched or air-cooled. The shape is then clamped and stretched to form a solid straightened length. The straightened lengths are cut to final length multiples and may be placed in an ageing furnace to achieve the desired temper. Lengths are then finished (drilled and shaped) and placed into a coating process. The types of coatings include anodized, painted, and lacquered finishes.

Certification – ISO 14001:2015

Our material is produced in accordance with the scope of ISO 14001:2015. ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system. It helps organizations improve their environmental performance through more efficient use of resources and reduction of waste.



The Building Agency single source AliClad from one extruder ensuring that all material manufactured is in accordance with the Third Party Certification.

Certificate is available on request.

Certifier: Intertek Certification Limited

Certificate number: 111906022

Environment and Health during Manufacturer

Air: Hazardous air emission releases comply with regulatory thresholds.

Water/soil: Pollutants in wastewater discharge comply with regulatory thresholds.

Noise: Due to adequate acoustical absorption and mitigation devices, measurements of sound levels have shown that all values inside and outside the production plant comply with regulatory thresholds.

Environment and Health During Use

The environmental and health effects during use are dependent on the ultimate use of the extruded aluminium and are outside the scope of this EPD.

The following general statements are relevant for all aluminium products:

- Aluminium products are often made from both primary and recycled ingots (electrolytic aluminium ingot)
- There is no relevant chemical composition difference between primary and secondary ingots if both are governed by the same alloy designation and chemical composition limit standards
- The service life of the final product depends on its application and corrosion resistance. It can accept a service life of over 60 years.
- For that same reason, maintenance needs during use are usually low

1.4 Packaging

ALICLAD is packaged into untreated timber crates, clear plastic film, plastic strapping, and cardboard. The timber is from 100% renewable farmed timber sources. All packing materials are recyclable or reusable.

1.5 Service Life

Service life for aluminium extrusions varies based on the application. This EPD does not cover the exact product use phase and therefore makes no specific claim as to a typical reference service life. The service life of the final product depends on its application and corrosion resistance. It can generally be accepted as a service life in excess of 60 years based on aluminium's mechanical performance index.

1.6 Recycling and disposal

1.6.1 Production

Aluminium products are highly recyclable. During ALICLAD production, all production scrap is fed back into the production system including swarf from the cutting process.

1.6.2 End of Life

In the same way, when an aluminium product reaches the end of its life, it can be collected and sent to recycling facilities for secondary production. 90% of the product is recycled, by remelting process, to produce secondary aluminium billets. The collection rate for aluminium in the construction sector can be as high as 95%.

1.6.3 Disposal

The scrap material not collected will likely be sent to the landfill. It is assumed that 5% of the extruded aluminium products are sent to the landfill for disposal at the end of life. The New Zealand Waste Code is L17 04 02. Refer to <https://environment.govt.nz/publications/module-1-hazardous-waste-guidelines-identification-and-record-keeping/3-how-to-use-the-new-zealand-waste-list/>

1.7 Performance & Effects

- Fire: Aluminium products comply with the New Zealand Building Code and are deemed non-combustible with respect to fire hazards and control.
- Water: There is no evidence to suggest water runoff or exposure under normal and intended operation will violate general water quality standards.
- Mechanical destruction: Not relevant for aluminium extrusions.
Refer www.thebuildingagency.co.nz/aliclad

1.8 Coating

Powder coating is generally considered to be environmentally friendly with the exception of varying levels of chromates. Our system is expected to be chromate free by early 2024.

Environmentally Friendly Process

Powder Coating is environmentally friendly

Powder coatings offer not only a cost effective but environmentally sustainable option to alternatives such as Wet Spraying

- No Volatile Organic Compounds (VOC's) produced
- Low emissions
- Minimal product waste

The Sublimation process is environmentally friendly

- The sublimation ink makes up less than 1% of the weight of a completed profile
- Inks used are not engineered to be biodegradable, however they are made of organic components, free of heavy and dangerous metals and any other dangerous / hazardous / toxic substances
- No hazardous components are released under normal operations

Figure 1 Source: The Powder Coating Group

Powder Coating Environmental Performance

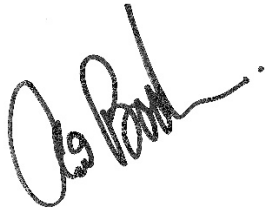
Refer to <https://duluxpowders.co.nz/> or <http://www.specifyinterpon.co.nz/>
for timber finishes refer to <https://www.powdercoating.co.nz/metwood/>

For finishing aluminium, refer to BRANZ Bulletin Issue 634

<https://www.branz.co.nz/pubs/bulletins/bu634/>

Signed

For The Building Agency

A handwritten signature in black ink, appearing to read "Chris Booth", written in a cursive style.

Chris Booth

General Manager

June 2023:1