

# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with 14025:2006 and EN15804:2012 +A2:2019/AC:2021

## NEWTECHWOOD Co-Extruded Aluminium Profiles



**Owner of the declaration:**  
NEWTECHWOOD CORPORATION

**Product name:**  
Co-extruded aluminium profiles

**Declared unit:**  
1 kg

**Product category /PCR:**  
NPCR 013

**Program holder and publisher:**  
The Norwegian EPD foundation

**Declaration number:**  
NEPD-6569-5815-EN

**Registration number:**  
NEPD-6569-5815-EN

**Issue date:** 13.05.2024

**Valid to:** 13.05.2029

## GENERAL INFORMATION

### PRODUCT:

Co-extruded aluminium profiles

### PROGRAM OPERATOR:

The Norwegian EPD Foundation  
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 e-mail: post@epd-norge.no

### DECLARATION NUMBER:

NEPD-6569-5815-EN

### THIS DECLARATION IS BASED ON PRODUCT CATEGORY RULES:

NPCR 013 Part B for Steel and Aluminium Construction Products

### STATEMENTS:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

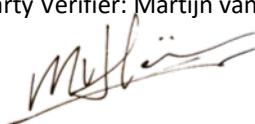
### DECLARED UNIT:

1kg

### SYSTEM BOUNDARY:

Cradle to gate with options: A1-A3, A4, B2, C1-C4 and D

### VERIFICATION:

Independent verification of the declaration and data, according to ISO14025:2010	
Internal <input type="checkbox"/>	External <input checked="" type="checkbox"/>
Third Party Verifier: Martijn van Hövell	
	
(Independent verifier approved by EPD Norway)	

### OWNER OF THE DECLARATION:

NEWTECHWOOD CORPORATION  
 E-mail: inquiry@newtechwood.com

### MANUFACTURER:

NEWTECHWOOD CORPORATION

### PLACE OF PRODUCTION:

Wutang Section, 12 Tuo, Daling, Huidong, Huizhou, Guangdong, China

### MANAGEMENT SYSTEM:

ISO 9001 (Certificate Nr.: CN06/01765)  
 ISO 14001 (Certificate Nr.: CN12/30261)  
 ISO 45001 (Certificate Nr.: ZYC21S00049R0M)

### ORGANISATION NO:

914413237638068970

### ISSUE DATE:

13.05.2024

### VALID TO:

13.05.2029

### YEAR OF STUDY:

2022.09-2023.08

### COMPARABILITY:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

### THE EPD HAS BEEN WORKED OUT BY:

Star Talers Environmental Technology



Approved



Manager of EPD Norway

## PRODUCT

### PRODUCT DESCRIPTION:

NewTechWood is a manufacturer offering a variety of composite products to enhance outdoor living experience. The products feature UltraShield technology, a coating that protects the materials from rotting, fading, staining, scratching and various other issues associated with traditional wood decking. NewTechWood has pioneered the development of composite decks and railings and has been a leader in wood-plastic composite technology since 2004. With every product they develop and manufacture, NewTechWood is committed to creating beautiful, useful and dependable products that enhance your outdoor living space.

NewTechWood's co-extruded aluminium profiles feature their exclusive UltraShield technology, where a protective layer of composite material is meticulously wrapped around hollow aluminum cores. This combination creates a product that is not only stunning in appearance but also remarkably resilient.

### PRODUCT SPECIFICATION:

Co-extruded aluminium profile is declared in this report. Materials compositions and technical data are shown below.

Materials	KG/DU	%
PE	0.067	6.7 %
Aluminium	0.890	89.0 %
Pigment	0.003	0.3 %
EVA	0.040	4.0 %

### TECHNICAL DATA:

Property	Test Method	Values
Abrasion Resistance	ASTM D4060	20.7mg (1000 cycles)
Antibacterial test	ISO16869	Rating 0, no growth
Boiling test	EN 15534 EN322	Water absorption in weight: 0.08%
Degree of Chalking	EN 15534	Rating 0, no chalking
Formaldehyde Content	ASTM D6007-14	Not Detected
Heat reversion	EN15534 EN479	0.01% (Test Temperature: 100 °C)
Surface Shore D Hardness	ASTM D2240	62D
Scratch resistance	FLTM BO162-01(2009)	Apply 20N load, there was no visible gouging
TVOC	ASTM D5116-11	Not Detected

### MARKET:

Global

### REFERENCE SERVICE LIFE, PRODUCT:

25 years

## LCA: CALCULATION RULES

### DECLARED UNIT:

In this study, the declared unit is defined as 1kg of co-extruded aluminium profiles.

### DATA QUALITY:

Primary data (such as materials or energy flows that enter and leave the production system) is from NewTechWood for the period spanning September 2022 to August 2023 (annual average). Generic data related to the life cycle impacts of the material or energy flows that enter and leave the production system is sourced from Ecoinvent 3.9 "allocation, cut-off by classification - unit" database.

### ALLOCATION:

The allocation is made in accordance with the provisions of EN 15804. The consumption of raw materials, auxiliary materials, energy and water, emissions and waste generated during manufacturing was allocated by mass ratio.

Primary (first) production of materials is always allocated to the primary user of a material. If material is recycled, the primary producer does not receive any credit for the provision of any recyclable materials. Consequently, recyclable materials are available burden-free for recycling processes, and secondary (recycled) materials bear only the impacts of the recycling processes.

### SYSTEM BOUNDARY:

The system boundary considered in this LCA study is "cradle to gate with modules A4, C1-C4 and module D, with optional module B2".

### CUT-OFF CRITERIA:

The following criteria were followed for the exclusion of inputs and outputs:

- All inputs and outputs to a (unit) process are included in the calculation for which data is available. Data gaps are filled by conservative assumptions with average or generic data. Any assumption for such choices is documented;
- According to PCR, the total of neglected input flows per module, e.g. per module A1-A3, A4-A5, B1-B5, B6-B7, C1-C4 and module D shall be a maximum of 5 % of energy usage and mass. In addition, if less than 100% of the inflows are accounted for, proxy data or extrapolation should be used to achieve 100% completeness.

## LCA: SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The following information describes the scenarios in different modules of the EPD.

### TRANSPORT FROM PRODUCTION PLACE TO ASSEMBLY/USER (A4)

For domestic transportation, 16-32 metric ton, dataset for EURO6 type truck is used for modelling, while for sea transportation, dataset for container ship is used for modelling.

Transport from production place to assembly/user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck	36.7	430	Diesel	kg/tkm	0.036
Railway	-	-	-	-	-
Boat	70	6200	Heavy oil	kg/tkm	0.0025

### MAINTENANCE (B2)/REPAIR (B3)

During use, according to NewTechWood, the profiles require no maintenance, which results in negligible impacts.

	Unit	Value
Water consumption	m <sup>3</sup> /DU	-
Electricity consumption	kWh/DU	-

### END OF LIFE (C1, C3, C4)

For C1 stage, de-installation is assumed to be done manually, thus resulting in negligible impacts. For the waste scenario, the cap layer (mostly PE) is assumed to be 100% incinerated. 85% of the aluminium will be recycled, 6.75% incinerated and 8.25% will be sent to landfill.

### TRANSPORT TO WASTE PROCESSING (C2)

100km transportation distance from the installation site to waste treatment site (C2) is assumed.

Transport from installation site to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck	36.7	100	Diesel	kg/tkm	0.036

### BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES (D)

Module D assesses the impact of the net flows of recovered materials (recycled or reused) from the life cycle stages A to C. 85% of the aluminium will be recycled and the PE cap layer will be incinerated with energy recovery. Efforts required by secondary production, loss of materials and quality are considered.

## LCA: RESULTS

The LCA results show the environmental impacts and resource input and output flows calculated according to EN 15804:2012+A2. The results are shown per declared unit (1kg). The LCA results have been calculated using the LCA software SimaPro 9.5.

SYSTEM BOUNDARIES (X=INCLUDED, MND= MODULE NOT DECLARED, MNR=MODULE NOT RELEVANT)

Product stage			Assembly stage		Use stage								End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	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	MND	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X	

## CORE ENVIRONMENTAL IMPACT INDICATORS

Indicator	Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	1.73E+01	1.44E-01	0.00E+00	0.00E+00	1.85E-02	3.67E-01	1.29E-03	-1.44E+01
GWP-fossil	kg CO <sub>2</sub> eq.	1.73E+01	1.44E-01	0.00E+00	0.00E+00	1.85E-02	3.50E-01	1.11E-03	-1.45E+01
GWP-biogenic	kg CO <sub>2</sub> eq.	-6.70E-02	2.44E-05	0.00E+00	0.00E+00	1.69E-05	1.67E-02	1.76E-04	4.80E-02
GWP-LULUC	kg CO <sub>2</sub> eq.	3.38E-02	9.06E-05	0.00E+00	0.00E+00	9.12E-06	1.86E-05	3.23E-07	-4.23E-02
ODP	kg CFC11 eq.	1.85E-07	2.32E-09	0.00E+00	0.00E+00	4.02E-10	3.22E-10	2.94E-11	-1.44E-07
AP	mol H <sup>+</sup> eq.	1.17E-01	2.07E-03	0.00E+00	0.00E+00	4.04E-05	1.41E-04	7.23E-06	-9.69E-02
EP-freshwater	kg P eq.	5.50E-04	9.95E-07	0.00E+00	0.00E+00	1.50E-07	7.96E-07	1.19E-08	-4.58E-04
EP-marine	kg N eq.	1.70E-02	5.15E-04	0.00E+00	0.00E+00	9.94E-06	4.99E-05	2.93E-06	-1.47E-02
EP-terrestrial	mol N eq.	1.88E-01	5.68E-03	0.00E+00	0.00E+00	1.04E-04	4.74E-04	3.24E-05	-1.62E-01
POCP	kg NMVOC eq.	6.05E-02	1.67E-03	0.00E+00	0.00E+00	6.27E-05	1.30E-04	1.15E-05	-5.03E-02
ADP-M&M	kg Sb eq.	2.30E-05	3.24E-07	0.00E+00	0.00E+00	6.04E-08	4.03E-07	4.91E-09	5.38E-05
ADP-fossil	MJ	1.89E+02	1.91E+00	0.00E+00	0.00E+00	2.62E-01	2.11E-01	2.32E-02	-1.37E+02
WDP	m <sup>3</sup>	2.43E+00	6.73E-03	0.00E+00	0.00E+00	1.08E-03	3.01E-03	1.18E-04	-1.16E+00

**GWP-total:** Global Warming Potential; **GWP-fossil:** Global Warming Potential fossil fuels; **GWP-biogenic:** Global Warming Potential biogenic; **GWP-LULUC:** Global Warming Potential land use and land use change; **ODP:** Depletion potential of the stratospheric ozone layer; **AP:** Acidification potential, Accumulated Exceedance; **EP-freshwater:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; See "additional requirements" for indicator given as PO<sub>4</sub> eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

## RESOURCE USE

Parameter	Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
RPEE	MJ	2.40E+01	2.08E-02	0.00E+00	0.00E+00	4.12E-03	2.91E-02	4.25E-03	-1.44E+01
RPEM	MJ	8.34E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPE	MJ	2.48E+01	2.08E-02	0.00E+00	0.00E+00	4.12E-03	2.91E-02	4.25E-03	-1.44E+01
NRPE	MJ	1.97E+02	2.03E+00	0.00E+00	0.00E+00	2.79E-01	2.24E-01	2.46E-02	-1.45E+02
NRPM	MJ	3.41E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TRPE	MJ	2.01E+02	2.03E+00	0.00E+00	0.00E+00	2.79E-01	2.24E-01	2.46E-02	-1.45E+02
SM	kg	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
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
W	m <sup>3</sup>	6.89E-02	2.04E-04	0.00E+00	0.00E+00	3.54E-05	1.23E-04	3.26E-05	-5.26E-02

**RPEE:** Renewable primary energy resources used as energy carrier; **RPEM:** Renewable primary energy resources used as raw materials; **TPE:** Total use of renewable primary energy resources; **NRPE:** Non-renewable primary energy resources used as energy carrier; **NRPM:** Non-renewable primary energy resources used as materials; **TRPE:** 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; **W:** Use of net fresh water

## END OF LIFE – WASTE

Parameter	Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
HW	kg	1.77E-03	1.12E-05	0.00E+00	0.00E+00	1.67E-06	1.24E-06	9.98E-08	7.89E-04
NHW	kg	3.37E+00	5.82E-02	0.00E+00	0.00E+00	1.30E-02	1.46E-02	7.45E-02	-2.64E+00
RW	kg	2.56E-04	3.46E-07	0.00E+00	0.00E+00	8.63E-08	6.64E-07	4.50E-08	-5.66E-05

**HW:** Hazardous waste disposed; **NHW:** Non-hazardous waste disposed; **RW:** Radioactive waste disposed

## END OF LIFE – OUTPUT FLOW

Parameter	Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
CR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.57E-01	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	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.11E-01	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.18E+00	0.00E+00	0.00E+00

**CR:** Components for reuse; **MR:** Materials for recycling; **MER:** Materials for energy recovery; **EEE:** Exported electric energy; **ETE:** Exported thermal energy

## INFORMATION DESCRIBING THE BIOGENIC CARBON CONTENT AT THE FACTORY GATE

Biogenic carbon content	Unit (per DU)	Co-extruded aluminium profile
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging	kg C	0.03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>

## ADDITIONAL REQUIREMENTS

### GREENHOUS GAS EMISSION FROM THE USE OF ELECTRICITY IN THE MANUFACTURING PHASE

Dataset for China southern power grid electricity mix is applied for the manufacturing process (A3).

National electricity grid	Unit	Value
Electricity, low voltage {CSG}  market for electricity, low voltage   Cut-off, U	kg CO <sub>2</sub> -eq/kWh	0.65

### ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS REQUIRED IN NPCR PART A FOR CONSTRUCTION PRODUCTS

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Indicator	Unit	A1-A3	A4	B2	C1	C2	C3	C4	D
GWP-IOBC	kg CO <sub>2</sub> eq.	1.73E+01	1.44E-01	0.00E+00	0.00E+00	1.85E-02	3.50E-01	1.11E-03	-1.45E+01

**GWP-IOBC:** Global warming potential calculated according to the principle of instantaneous oxidation.

### HAZARDOUS SUBSTANCES

The sample of NewTechWood co-extruded aluminium profiles has been tested according to REACH Regulation (EC) No. 1907/2006. The substances of Very High Concern concentration are less than 0.1%. Test reports are available upon request to EPD owner.



## BIBLIOGRAPHY

- [1] Ecoinvent, 2021. Swiss Centre for Life Cycle Assessment, v3.9 ([www.ecoinvent.ch](http://www.ecoinvent.ch)).
- [2] EN 15804:2012+A2:2019/AC:2021, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.
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- [4] ISO 14040: 2006/Amd 1:2020 Environmental management - Life cycle assessment - Principles and framework Amendment 1 (ISO 2020).
- [5] ISO 14044: 2006/Amd 2:2020 Environmental management - Life cycle assessment - Requirements and guidelines Amendment 2 (ISO 2020).
- [6] ISO 21930:2017, Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.
- [7] NPCR Part A: Construction products and services. Ver. 2.0. April 2021, EPD-Norge.
- [8] NPCR 013 Part B for Steel and Aluminium Construction Products (A2-2019 edit)

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