

# Environmental Product Declaration

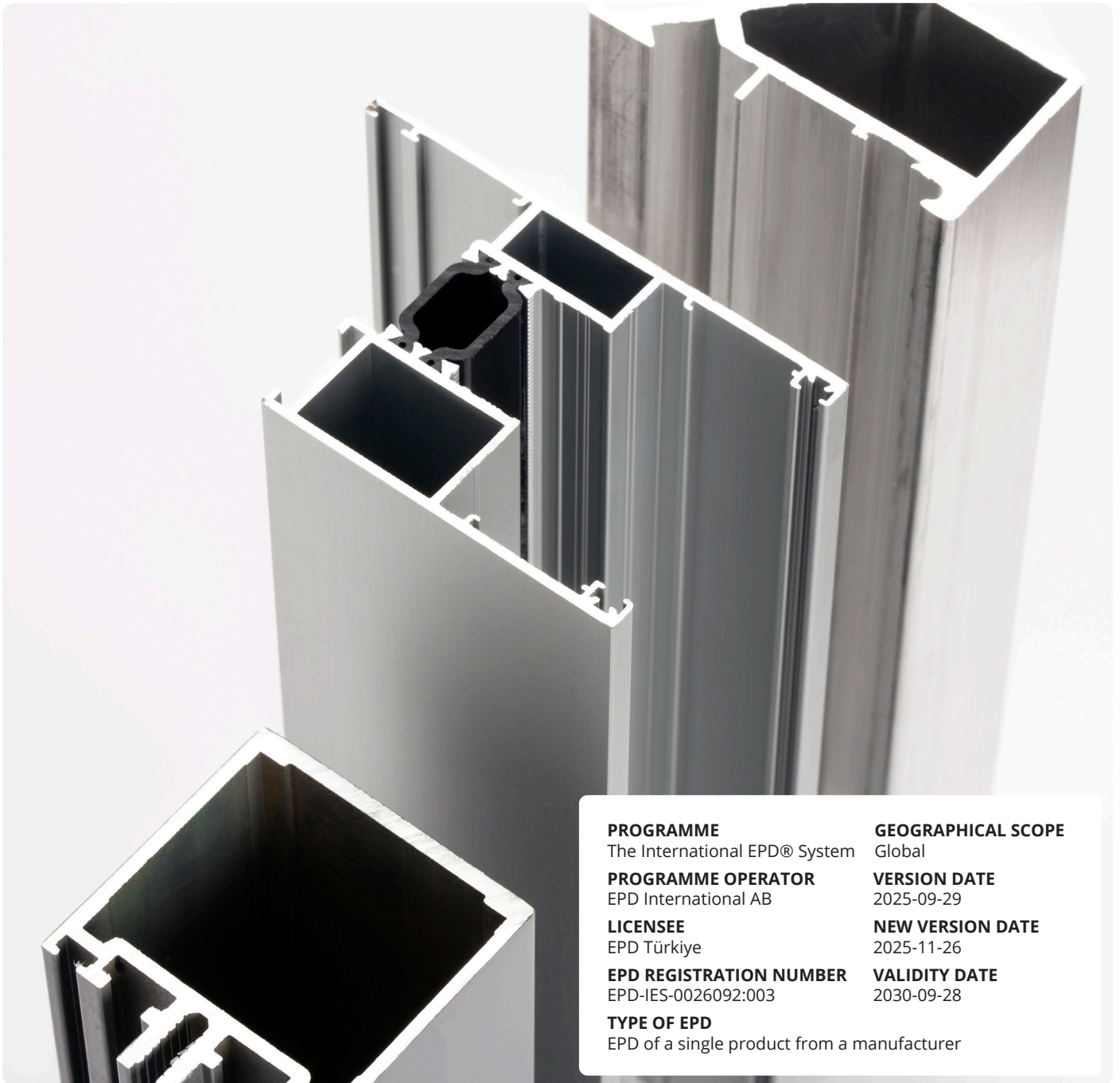


In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

## Mill Finished Aluminium Profile

from

**Teknikal**  
ALÜMİNYUM



**PROGRAMME**

The International EPD® System

**GEOGRAPHICAL SCOPE**

Global

**PROGRAMME OPERATOR**

EPD International AB

**VERSION DATE**

2025-09-29

**LICENSEE**

EPD Türkiye

**NEW VERSION DATE**

2025-11-26

**EPD REGISTRATION NUMBER**

EPD-IES-0026092:003

**VALIDITY DATE**

2030-09-28

**TYPE OF EPD**

EPD of a single product from a manufacturer

# Programme Information

**Programme:** The International EPD® System

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Stockholm, Sweden

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## Information about Product Category Rules (PCR) and Verification:

*Information about Product Category Rules (PCR) and Verification*

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

### Product category rules (PCR)

PCR 2019:14 Construction products (EN 15804:2012+A2:2019/AC:2021) (2.0.1), 2025

### PCR review was conducted by

*The Technical Committee of the International EPD® System. See [www.environdec.com/TC](http://www.environdec.com/TC) for a list of members.*

*Rob Rouwette (chair)*

*Noa Meron (co-chair)*

*[www.environdec.com/contact](http://www.environdec.com/contact).*

Independent verification of the declaration and data, according to ISO 14025:2021:

EPD process verification  EPD verification

### Third Party Verifier

Sunil KUMAR

SIPL Pvt. Ltd.

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Sector-62, Noida,

UP-201014, India

### Approved by

The International EPD® System Technical  
Committee, supported by the Secretariat

Procedure for follow-up of data during EPD validity involves third party verifier

Yes  No

### LCA Study & EPD Design Conducted by

Semtrio Sustainability Consulting

BUDOTEK Teknopark, No 8/27

Umraniye / Istanbul Turkey

[www.semtrio.com](http://www.semtrio.com)



Teknikal Aluminyum has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/ functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.



# Company Information

## Owner of the EPD

### Teknikal Profil Alüminyum Sanayi ve Ticaret A.Ş.

Osman Gazi Neighborhood, Sanayi Street, No:21, 41700 Darıca - Kocaeli / Türkiye

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Teknikal Profil Alüminyum Sanayi ve Ticaret A.Ş. was established in 2006 with the objective of producing high-quality, precision-engineered aluminium profiles. Today, the company operates in Darıca, Kocaeli, Türkiye, with a total production area of 14,502 m<sup>2</sup>, including 12,000 m<sup>2</sup> of indoor facilities.

Teknikal manufactures a wide range of extruded aluminium profiles serving multiple sectors such as construction façades and systems, industrial manufacturing, furniture, interior design, automotive, electronics, lighting, and solar energy applications.

The company's production infrastructure consists of:

- In-house foundry with a melting furnace capacity of 14,000 kg per charge, producing approximately 2,940 tonnes of billets annually,
- Extrusion lines with 1,100-ton (5"), 1,800-ton (7"), and 2,600-ton (8") presses, achieving an annual capacity of over 14,000 tonnes with more than 15,000 dies available for diverse profile geometries,
- Surface treatment facilities, including:
  - Our powder coating lines, with PLC automation and Power & Free conveyor systems, have an annual production capacity of 7,000 tons. They are designed to handle profiles up to 7,500 mm in length.
  - Anodizing plant certified by QUALANOD, capable of processing profiles up to 7,000 mm in length and up to 20 microns thickness, in both standard and custom colours.

Teknikal Aluminium complies with major international product standards, including TSE EN 755-1, 755-2, 755-9, 573-3, 12020-1, 12020-2, and EN 15088. Its management systems are certified to ISO 9001 (Quality), ISO 14001 (Environmental), ISO 45001 (Occupational Health & Safety), and ISO 50001 (Energy Management). Surface treatments are supported by international quality certifications such as QUALICOAT for powder coating and QUALANOD for anodizing.

The company integrates environmental responsibility and energy efficiency into all production processes, focusing on resource optimization, waste reduction, and compliance with international environmental standards. Teknikal actively contributes to the protection of the environment and provides transparent environmental performance data to its stakeholders.



# Product Information

Product Name:

## Mill Finished Aluminium Profile

Mill finished aluminium profile are produced by extruding aluminium billets into the desired shapes and dimensions, without any surface treatment. These profiles are widely used in indoor applications or as intermediate semi-finished products for further processing.

Produced with high dimensional accuracy and mechanical performance, these profiles serve in applications such as furniture, partition systems, electronics, and machinery components. The absence of additional surface treatment results in a lower environmental footprint and allows for flexibility in downstream operations such as machining, welding, or coating.

## Intended Use of The Product

Mill finished aluminium profiles, produced without any surface treatment, are used in a wide variety of industrial and structural applications. These include modular constructions, furniture systems, lighting structures, solar energy systems, conveyor and automation equipment, and decorative applications. Their lightweight, machinability and corrosion-resistant properties make them suitable for both indoor and outdoor technical uses, especially where further coating or finishing is not required.





**UN CPC code: 41532 - Bars, rods and profiles, of aluminium**  
**Geographical scope: Global**

# LCA Information

## Declared Unit

1 kg of Mill Finished Aluminium Profile, with 0.017 kg of packaging

## Reference Service Life

> 50 years

## Time Representativeness

The inventory for the LCA study is based on the period of 1st January 2024 and 31st December 2024.

## Database(s) and LCA Software Used

SimaPro v9.6.0.1 LCA Software and Ecoinvent v3.10 Database

## Description of System Boundaries

Cradle to gate with options, modules C1–C4, module D (A1–A3 + C1–C4 + D).

## Data Quality and Data Collection

Data collection for this LCA study has been carried out in accordance with data requirement stated in ISO 14040-44, ISO 14025, ISO 14020, and the requirements given in the General Program Instructions v5.0.1; PCR Construction products 2019:14, version 2.0.1 by The International EPD® System and EN 15804:2012+A2:2019/AC:2021. There are two different data classifications that has been used as primary (specific) and secondary (selected generic) data. All primary data has been collected from Teknikal Alüminyum Plant. For secondary data Ecoinvent v3.10 database has been used.

A1 data, raw materials production, transportation, fossil fuels and electricity data have been obtained from Ecoinvent v3.10 as secondary data. All manufacturing data in A3 has been gathered from Teknikal Alüminyum Plant. The manufacturing data are collected based on a mass balance. The production data in this LCA study represents the period of 1st December 2023 and 1st December 2024.

Mileage and tonnage figures for transport data to the core processes were provided by Teknikal Alüminyum procurement department specifically per origin of departures, however roadway and seaway upstream data per ton per kilometers were taken from Ecoinvent v3.10.

## Data Quality Assessment

Data quality assessment was carried out in line with EN 15941. Specific primary data used for module A3 was collected directly from Teknikal Profil Alüminyum Sanayi ve Ticaret A.Ş. for the production period between January and December 2024, ensuring high temporal representativeness. Generic secondary data used for A1 and A2 was sourced from Ecoinvent v3.10 and reflects relevant technology and regional conditions, ensuring technical and geographical representativeness. In total, datasets used in the LCA cover at least 80% of the total environmental impact results for the declared indicators. A detailed data quality evaluation is documented in the supporting LCA report.

Processes contributing more than 10% to the GWP-GHG indicator for A1-A3 include: Production of raw materials.

## Allocation

In this study, for the main input to the product system—post-consumer scrap aluminium the cut-off / end-of-waste rule has been applied. Scrap enters the system without carrying upstream burdens until it reaches the end-of-waste state; the burdens associated with collection, sorting, transport, and remelting are included within Modules A1–A3. The contribution of the recycled aluminium input to the GWP-GHG results of Modules A1–A3 does not exceed the 10% threshold.

## Cut-off Rule

Life Cycle Inventory data for a minimum of 99 % of total inflows to the three life cycle stages have been included and a cut-off rule of 1% regarding energy, mass, and environmental relevance was applied.

**Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation**

	Product Stage		Construction process stage			Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Recycling potential
MODULES	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	TR	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific data used	>35%		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	Not relevant		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	Not relevant		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

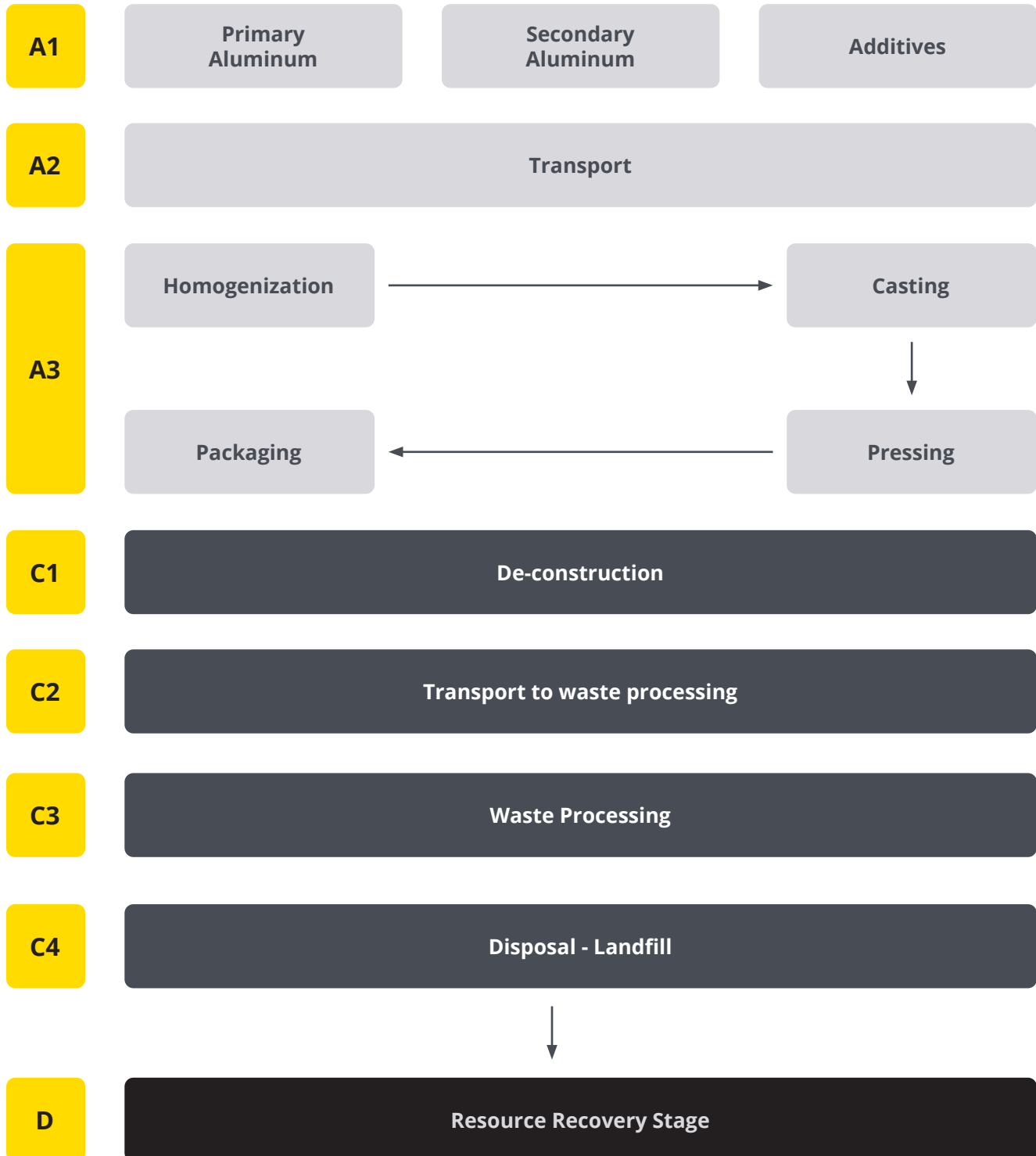
\* Declaration of variation in results between products and sites. This EPD covers a single product manufactured at one site; therefore, no inter-product or inter-site variation applies (N/A).

X: Declared / ND: Not declared.

**Declaration of Sources of Primary Data**

Process	Source Type	Source	Reference Year	Data Category	Share of primary data, of GWP-GHG results for A1-A2-A3
<b>Manufacturing of product</b>	Collected Data	EPD Owner	2024	Primary Data	5%
<b>Generation of electricity used in manufacturing of product</b>	Database	Ecoinvent 3.10	2025	Primary Data	3%
<b>Transport of raw materials to manufacturing site</b>	Database	Ecoinvent 3.10	2025	Primary Data	2%
<b>Production of raw materials</b>	Database	Ecoinvent 3.10	2025	75% Generic Data 25% Primary Data	95%
<b>Total share of primary data, of GWG-GHG results for A1-A3</b>					<b>35%</b>

# System Boundry





# Description of Declared Modules

## A1 - Raw Materials Supply

This module includes the extraction and processing of raw materials and the energy used in these processes. The primary input material is aluminium, sourced in the form of primary and secondary aluminium ingots. The production of aluminium is modelled using the Ecoinvent 3.10 database, reflecting both virgin and recycled content, and includes electricity use and upstream emissions from bauxite mining, alumina refining, and aluminium smelting. For powder coated and anodised profiles, additional materials such as coating powders and anodizing chemicals are included, based on specific consumption data. Packaging materials are also considered under this module.

## A2 - Transport to the Manufacturer

This module accounts for the transportation of raw materials to Teknikal Profil Alüminyum's production facilities. Transportation is performed primarily via road transport. Average distances and vehicle types are based on supplier data and assumptions aligned with Ecoinvent 3.10 transport datasets.

## A3 - Manufacturing

This stage includes energy and water consumption during the manufacturing process. The processing of any waste arising from this stage is also included.

### Electricity

Input	GWP-GHG (kg CO2e/kwh)
<b>Electricity, medium voltage {TR}  market for electricity, medium voltage   EN15804, S</b>	0.164285

## A1-3 - Cradle to gate – Mandatory Module

The aggregation of the modules A1, A2 and A3 is allowed by EN 15804:2012+A2:2019. This rule is applied in this EPD and denoted by A1-3. This module represents the extraction and processing of raw materials, the transport to production sites and the manufacture.

## C1 - De-construction – Mandatory Module

It has been assumed that during the de-construction operations the same electricity is consumed.

Table 7 Parameters C1 Module

Parameters C1 Module		
Data	Amount	Unit
<b>Energy Consumption</b>	0.01	kWh/kg

\* It is assumed that electricity is consumed as energy.

**C2 - Transport to Waste Processing** – Mandatory Module

An average distance of 100 km has been assumed for the transport to scrap dealers. Transport is calculated on the basis of a scenario with the parameters described in the attached table.

Table 8 Parameters C2 Module

Parameters C2 Module	
<b>Transport by road*</b>	Lorry >32 metric ton
<b>Distance (km)</b>	100
<b>Database</b>	Ecoinvent v3.10

\* Technology is Euro 6

**C3 - Waste Processing for Reuse, Recovery and/or Recycling** – Mandatory Module

In Module C3, the waste processing operations required to prepare aluminium profiles for recycling are considered, including collection, sorting, cutting, and transport to recycling facilities. For aluminium, these energy and material requirements are assessed as negligible, in line with sectoral data, since the major energy demand occurs during primary aluminium production.

The electrical energy demand for waste processing has been assumed as 0.00231 kWh/kg of aluminium. Given the very low energy requirement compared to other life cycle stages, these burdens are considered negligible. This assumption is consistent with sectoral data and reflects the high efficiency of aluminium recycling.

At the end-of-life stage, a 95% recovery rate for aluminium during building dismantling is assumed, based on European Aluminium Association and IAI industry data. The remaining 5% losses are considered to go to landfill due to collection inefficiencies or contamination.

**C4 - Final Disposal** – Mandatory Module

In Module C4, final disposal is reported for the fraction of aluminium not recovered in Module C3. In line with EN 15804 requirements, all end-of-life aluminium profiles are assumed to be collected, with 95% entering recycling streams and 5% disposed of in landfill sites.

Recycling is modeled as a closed-loop process where recovered aluminium is reintroduced into the production system, replacing primary aluminium production in future product systems. This assumption reflects both aluminium’s high recyclability and established recovery infrastructure within the construction sector.

**D - Reuse, recovery or recycling** – Mandatory Module

According to World Steel Association (WSA), 95% of the steel from the product is assumed to be collected and sent for recycling at the end of life. Module D allows the modelling of avoided impacts resulting from the reuse, recovery, or recycling of steel at the product’s end-of-life minus that used at the production stage. The scrap inputs to the production stage are subtracted from the scrap to be recycled at the end of life to obtain the net scrap output. This ensures that only the net recycled scrap’s environmental impacts are considered, providing a more accurate assessment of the actual environmental impact of the recycling processes.





# Content Declaration

## Content Declaration of 1 kg of Mill Finished Aluminium Profile

Product Components	Aluminum product, kg	Others, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product
<b>Mill Finished Aluminium Profile</b>	0.996	0.004	60%**	-

\* The product does not contain "Candidate List of Substances of Very High Concern (SVHC)" compounds.

\*\* The declared 60% post-consumer recycled content originates entirely from scrap aluminium.

## Content Declaration of Packaging Materials

Biogenic carbon flows associated with the wooden pallets used in packaging have been fully balanced within modules A1–A3; therefore, no additional debits or credits are reported for these flows in A5/C (and, where applicable, Module D), and double counting is prevented.

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/ product or declared unit
<b>Metal</b>	0.00005	0.0027%	-
<b>Nylon</b>	0.01027	0.6002%	-
<b>Paperboard</b>	0.00661	0.3866%	-
<b>Tape</b>	0.00017	0.0098%	-
<b>Wood</b>	0.00001	0.0007%	0.000042

\* 1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO<sub>2</sub>.

# Environmental Performance

## Potential Environmental Impact

Mandatory Indicators According to EN 15804

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>GWP-fossil</b>	kg CO2 eq.	1.16E+01	0.00E+00	1.82E-02	1.31E-03	1.28E-03	-4.48E+00
<b>GWP-biogenic</b>	kg CO2 eq.	9.22E-02	0.00E+00	1.00E-04	4.15E-05	2.20E-05	-1.75E-02
<b>GWP-luluc</b>	kg CO2 eq.	1.90E-02	0.00E+00	7.43E-06	1.40E-05	1.59E-06	-6.02E-03
<b>GWP-total</b>	kg CO2 eq.	1.17E+01	0.00E+00	1.83E-02	1.37E-03	1.30E-03	-4.50E+00
<b>ODP</b>	kg CFC 11 eq.	5.39E-08	0.00E+00	2.67E-10	7.65E-12	2.29E-11	-1.67E-08
<b>AP</b>	mol H+ eq.	7.55E-02	0.00E+00	4.17E-05	8.55E-06	7.37E-06	-2.91E-02
<b>EP-freshwater</b>	kg P eq.	3.58E-03	0.00E+00	1.44E-06	1.32E-06	2.02E-07	-1.29E-03
<b>EP-marine</b>	kg N eq.	1.27E-02	0.00E+00	9.68E-06	1.51E-06	3.14E-06	-4.88E-03
<b>EP-terrestrial</b>	mol N eq.	1.33E-01	0.00E+00	1.05E-04	1.38E-05	2.78E-05	-5.10E-02
<b>POCP</b>	kg NMVOC eq.	4.13E-02	0.00E+00	5.84E-05	4.10E-06	8.72E-06	-1.55E-02
<b>ADP-minerals&amp;metals*</b>	kg Sb eq.	1.86E-05	0.00E+00	5.94E-08	1.46E-09	3.29E-09	-2.77E-06
<b>ADP-fossil*</b>	MJ	1.14E+02	0.00E+00	2.56E-01	1.45E-02	2.16E-02	-4.14E+01
<b>WDP</b>	m3	1.55E+00	0.00E+00	1.44E-03	4.64E-04	-8.21E-03	-5.19E-01

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

\*\* The results of this environmental product declaration (EPD) are only valid if modules A1–C4 are considered. The use of modules A1–A5 results alone without considering the end-of-life stage (module C) may lead to misinterpretation of the product's environmental performance.

### Acronyms

**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; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption

## Potential Environmental Impact

### Additional Mandatory and Voluntary Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>GWP-GHG[1]</b>	kg CO2 eq.	1.17E+01	0.00E+00	1.83E-02	1.37E-03	1.30E-03	-4.50E+00
Results for 1 kg of Mill Finished Aluminium Profile							
<b>PM</b>	disease inc.	9.38E-07	0.00E+00	1.36E-09	3.80E-11	1.35E-10	-3.74E-07
<b>IRP</b>	kBq U-235 eq	1.28E-01	0.00E+00	2.12E-04	1.07E-05	4.74E-05	-3.39E-02
<b>ETP-fw</b>	CTUe	4.16E+02	0.00E+00	3.02E-01	3.49E-02	6.76E+02	-1.49E+02
<b>HT-C</b>	CTUh	2.83E-08	0.00E+00	9.71E-11	1.68E-12	7.37E-12	-7.89E-09
<b>HT-nc</b>	CTUh	1.67E-07	0.00E+00	3.20E-10	1.87E-11	4.03E-10	-5.96E-08
<b>SQP</b>	Pt	7.59E+01	0.00E+00	1.55E-01	1.80E-03	3.30E-02	-7.87E+00
<b>Net use of fresh water_0422</b>	m3	4.55E-01	0.00E+00	2.31E-04	7.99E-05	5.19E-05	-1.70E-01
<b>Eutrophication</b>	kg PO4--- eq	1.54E-02	0.00E+00	7.97E-06	4.55E-06	1.85E-06	-5.62E-03

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

#### Acronyms

**GWP-GHG** = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology; **IRP** = Ionizing radiation, human health; **ET-freshwater** = Eco-toxicity (freshwater); **HT-cancer** = Human toxicity, cancer effects; **HT-non-cancer** = Human toxicity, non-cancer effects; **SQP** = Potential soil quality index (SQP)

## Resource Use Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>PERE</b>	MJ	1.95E+01	0.00E+00	3.40E-03	6.11E-03	6.39E-04	-2.53E+00
<b>PERM</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>PERT</b>	MJ	1.95E+01	0.00E+00	3.40E-03	6.11E-03	6.39E-04	-2.53E+00
<b>PENRE</b>	MJ	1.21E+02	0.00E+00	2.72E-01	1.56E-02	2.30E-02	-4.41E+01
<b>PENRM</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>PENRT</b>	MJ	1.21E+02	0.00E+00	2.72E-01	1.56E-02	2.30E-02	-4.41E+01
<b>SM</b>	kg	7.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>RSF</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>NRSF</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>FW</b>	m3	4.55E-01	0.00E+00	2.31E-04	7.99E-05	5.19E-05	-1.70E-01

### Acronyms

**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 re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water

## Waste Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-02	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

## Output Flow Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	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	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	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	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\* The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

**Mandatory environmental performance indicators according to EN 15804 (100% Landfill Scenario)****Potential Environmental Impact**

Mandatory Indicators According to EN 15804

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>GWP-fossil</b>	kg CO2 eq.	1.16E+01	0.00E+00	1.82E-02	1.31E-03	2.55E-02	0.00E+00
<b>GWP-biogenic</b>	kg CO2 eq.	9.22E-02	0.00E+00	1.00E-04	4.15E-05	4.41E-04	0.00E+00
<b>GWP-luluc</b>	kg CO2 eq.	1.90E-02	0.00E+00	7.43E-06	1.40E-05	3.17E-05	0.00E+00
<b>GWP-total</b>	kg CO2 eq.	1.17E+01	0.00E+00	1.83E-02	1.37E-03	2.60E-02	0.00E+00
<b>ODP</b>	kg CFC 11 eq.	5.39E-08	0.00E+00	2.67E-10	7.65E-12	4.59E-10	0.00E+00
<b>AP</b>	mol H+ eq.	7.55E-02	0.00E+00	4.17E-05	8.55E-06	1.47E-04	0.00E+00
<b>EP-freshwater</b>	kg P eq.	3.58E-03	0.00E+00	1.44E-06	1.32E-06	4.04E-06	0.00E+00
<b>EP-marine</b>	kg N eq.	1.27E-02	0.00E+00	9.68E-06	1.51E-06	6.29E-05	0.00E+00
<b>EP-terrestrial</b>	mol N eq.	1.33E-01	0.00E+00	1.05E-04	1.38E-05	5.56E-04	0.00E+00
<b>POCP</b>	kg NMVOC eq.	4.13E-02	0.00E+00	5.84E-05	4.10E-06	1.74E-04	0.00E+00
<b>ADP-minerals&amp;metals*</b>	kg Sb eq.	1.86E-05	0.00E+00	5.94E-08	1.46E-09	6.58E-08	0.00E+00
<b>ADP-fossil*</b>	MJ	1.14E+02	0.00E+00	2.56E-01	1.45E-02	4.31E-01	0.00E+00
<b>WDP</b>	m3	1.55E+00	0.00E+00	1.44E-03	4.64E-04	-1.64E-01	0.00E+00

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

\*\* The results of this environmental product declaration (EPD) are only valid if modules A1–C4 are considered. The use of modules A1–A5 results alone without considering the end-of-life stage (module C) may lead to misinterpretation of the product's environmental performance.

**Acronyms**

**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; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption

# Potential Environmental Impact

## Additional Mandatory and Voluntary Indicators

### Results for 1 kg of Mill Finished Aluminium Profile

Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>GWP-GHG[1]</b>	kg CO2 eq.	1.17E+01	0.00E+00	1.83E-02	1.37E-03	2.60E-02	0.00E+00

### Results for 1 kg of Mill Finished Aluminium Profile

<b>PM</b>	disease inc.	9.38E-07	0.00E+00	1.36E-09	3.80E-11	2.70E-09	0.00E+00
<b>IRP</b>	kBq U-235 eq	1.28E-01	0.00E+00	2.12E-04	1.07E-05	9.48E-04	0.00E+00
<b>ETP-fw</b>	CTUe	4.16E+02	0.00E+00	3.02E-01	3.49E-02	1.35E+04	0.00E+00
<b>HT-C</b>	CTUh	2.83E-08	0.00E+00	9.71E-11	1.68E-12	1.47E-10	0.00E+00
<b>HT-nc</b>	CTUh	1.67E-07	0.00E+00	3.20E-10	1.87E-11	8.07E-09	0.00E+00
<b>SQP</b>	Pt	7.59E+01	0.00E+00	1.55E-01	1.80E-03	6.61E-01	0.00E+00
<b>Net use of fresh water_0422</b>	m3	4.55E-01	0.00E+00	2.31E-04	7.99E-05	1.04E-03	0.00E+00
<b>Eutrophication</b>	kg PO4--- eq	1.54E-02	0.00E+00	7.97E-06	4.55E-06	3.69E-05	0.00E+00

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

### Acronyms

**GWP-GHG** = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology; **IRP** = Ionizing radiation, human health; **ET-freshwater** = Eco-toxicity (freshwater); **HT-cancer** = Human toxicity, cancer effects; **HT-non-cancer** = Human toxicity, non-cancer effects; **SQP** = Potential soil quality index (SQP)

## Resource Use Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>PERE</b>	MJ	1.95E+01	0.00E+00	3.40E-03	6.11E-03	1.28E-02	0.00E+00
<b>PERM</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>PERT</b>	MJ	1.95E+01	0.00E+00	3.40E-03	6.11E-03	1.28E-02	0.00E+00
<b>PENRE</b>	MJ	1.21E+02	0.00E+00	2.72E-01	1.56E-02	4.60E-01	0.00E+00
<b>PENRM</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>PENRT</b>	MJ	1.21E+02	0.00E+00	2.72E-01	1.56E-02	4.60E-01	0.00E+00
<b>SM</b>	kg	7.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>RSF</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>NRSF</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>FW</b>	m3	4.55E-01	0.00E+00	2.31E-04	7.99E-05	1.04E-03	0.00E+00

### Acronyms

**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 re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water

## Waste Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-01	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

## Output Flow Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	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	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	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	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\* The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

**Mandatory environmental performance indicators according to EN 15804 (100% Recycling Scenario)****Potential Environmental Impact**

Mandatory Indicators According to EN 15804

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>GWP-fossil</b>	kg CO2 eq.	1.16E+01	0.00E+00	1.82E-02	1.31E-03	0.00E+00	-4.72E+00
<b>GWP-biogenic</b>	kg CO2 eq.	9.22E-02	0.00E+00	1.00E-04	4.15E-05	0.00E+00	-1.85E-02
<b>GWP-luluc</b>	kg CO2 eq.	1.90E-02	0.00E+00	7.43E-06	1.40E-05	0.00E+00	-6.34E-03
<b>GWP-total</b>	kg CO2 eq.	1.17E+01	0.00E+00	1.83E-02	1.37E-03	0.00E+00	-4.74E+00
<b>ODP</b>	kg CFC 11 eq.	5.39E-08	0.00E+00	2.67E-10	7.65E-12	0.00E+00	-1.75E-08
<b>AP</b>	mol H+ eq.	7.55E-02	0.00E+00	4.17E-05	8.55E-06	0.00E+00	-3.06E-02
<b>EP-freshwater</b>	kg P eq.	3.58E-03	0.00E+00	1.44E-06	1.32E-06	0.00E+00	-1.35E-03
<b>EP-marine</b>	kg N eq.	1.27E-02	0.00E+00	9.68E-06	1.51E-06	0.00E+00	-5.14E-03
<b>EP-terrestrial</b>	mol N eq.	1.33E-01	0.00E+00	1.05E-04	1.38E-05	0.00E+00	-5.37E-02
<b>POCP</b>	kg NMVOC eq.	4.13E-02	0.00E+00	5.84E-05	4.10E-06	0.00E+00	-1.63E-02
<b>ADP-minerals&amp;metals*</b>	kg Sb eq.	1.86E-05	0.00E+00	5.94E-08	1.46E-09	0.00E+00	-2.91E-06
<b>ADP-fossil*</b>	MJ	1.14E+02	0.00E+00	2.56E-01	1.45E-02	0.00E+00	-4.36E+01
<b>WDP</b>	m3	1.55E+00	0.00E+00	1.44E-03	4.64E-04	0.00E+00	-5.46E-01

\* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

\*\* The results of this environmental product declaration (EPD) are only valid if modules A1–C4 are considered. The use of modules A1–A5 results alone without considering the end-of-life stage (module C) may lead to misinterpretation of the product's environmental performance.

**Acronyms**

**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; **EP-marine** = Eutrophication potential, fraction of nutrients reaching marine end compartment; **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance; **POCP** = Formation potential of tropospheric ozone; **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources; **ADP-fossil** = Abiotic depletion for fossil resources potential; **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption

## Potential Environmental Impact

### Additional Mandatory and Voluntary Indicators

#### Results for 1 kg of Mill Finished Aluminium Profile

Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>GWP-GHG[1]</b>	kg CO2 eq.	1.17E+01	0.00E+00	1.83E-02	1.37E-03	0.00E+00	-4.74E+00

#### Results for 1 kg of Mill Finished Aluminium Profile

<b>PM</b>	disease inc.	9.38E-07	0.00E+00	1.36E-09	3.80E-11	0.00E+00	-3.94E-07
<b>IRP</b>	kBq U-235 eq	1.28E-01	0.00E+00	2.12E-04	1.07E-05	0.00E+00	-3.56E-02
<b>ETP-fw</b>	CTUe	4.16E+02	0.00E+00	3.02E-01	3.49E-02	0.00E+00	-1.57E+02
<b>HT-C</b>	CTUh	2.83E-08	0.00E+00	9.71E-11	1.68E-12	0.00E+00	-8.30E-09
<b>HT-nc</b>	CTUh	1.67E-07	0.00E+00	3.20E-10	1.87E-11	0.00E+00	-6.28E-08
<b>SQP</b>	Pt	7.59E+01	0.00E+00	1.55E-01	1.80E-03	0.00E+00	-8.28E+00
<b>Net use of fresh water_0422</b>	m3	4.55E-01	0.00E+00	2.31E-04	7.99E-05	0.00E+00	-1.79E-01
<b>Eutrophication</b>	kg PO4--- eq	1.54E-02	0.00E+00	7.97E-06	4.55E-06	0.00E+00	-5.92E-03

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO<sub>2</sub> is set to zero.

#### Acronyms

**GWP-GHG** = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology; **IRP** = Ionizing radiation, human health; **ET-freshwater** = Eco-toxicity (freshwater); **HT-cancer** = Human toxicity, cancer effects; **HT-non-cancer** = Human toxicity, non-cancer effects; **SQP** = Potential soil quality index (SQP)

## Resource Use Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
<b>PERE</b>	MJ	1.95E+01	0.00E+00	3.40E-03	6.11E-03	0.00E+00	-2.67E+00
<b>PERM</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>PERT</b>	MJ	1.95E+01	0.00E+00	3.40E-03	6.11E-03	0.00E+00	-2.67E+00
<b>PENRE</b>	MJ	1.21E+02	0.00E+00	2.72E-01	1.56E-02	0.00E+00	-4.64E+01
<b>PENRM</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>PENRT</b>	MJ	1.21E+02	0.00E+00	2.72E-01	1.56E-02	0.00E+00	-4.64E+01
<b>SM</b>	kg	7.60E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>RSF</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>NRSF</b>	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
<b>FW</b>	m3	4.55E-01	0.00E+00	2.31E-04	7.99E-05	0.00E+00	-1.79E-01

### Acronyms

**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 re-sources; **SM** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels; **FW** = Use of net fresh water

## Waste Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	C1	C2	C3	C4	D
Hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-01	0.00E+00
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

## Output Flow Indicators

Results for 1 kg of Mill Finished Aluminium Profile							
Indicator	Unit	A1-3 total	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	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	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	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

\* The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

# Abbreviations

Abbreviation	Definition
EPD	Environmental Product Declaration
PCR	Product Category Rules
LCA	Life Cycle Assessment
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
SVHC	Substances of Very High Concern
GLO	Global
ND	Not Declared

## Version History

**Original Version of the EPD**, 2025-09-29

**New Version Date:** 2025-11-26

- "Addition of 100% landfill and 100% recycling end-of-life scenario tables in the environmental performance section"



# References

**ISO 14040** 2021 Environmental management - Life cycle assessment - Principles and framework

**ISO 14044** 2021 Environmental management - Life cycle assessment - Requirements and guidelines

**ISO 14025** 2006 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

**ISO 14020** 2000 Environmental labels and declarations - General principles

**EN 15804:2012+A2.2019/AC:2021** Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products

**The International EPD® System** [www.environdec.com](http://www.environdec.com)

**The International EPD® System** The General Programme Instructions v5.0.1

**The International EPD® System** PCR 2019:14 Construction products v2.0.1 (EN 15804:2012+A2.2019/AC:2021)

**Ecoinvent** 3.10 <http://www.ecoinvent.org/>

**SimaPro LCA Software** [www.simapro.com](http://www.simapro.com)

**Teknikal Profil Alüminyum Sanayi ve Ticaret A.Ş.** [www.teknikal.com.tr](http://www.teknikal.com.tr)

**EN 15804 reference package based on EF 3.1** [eplca.jrc.ec.europa.eu](http://eplca.jrc.ec.europa.eu)

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