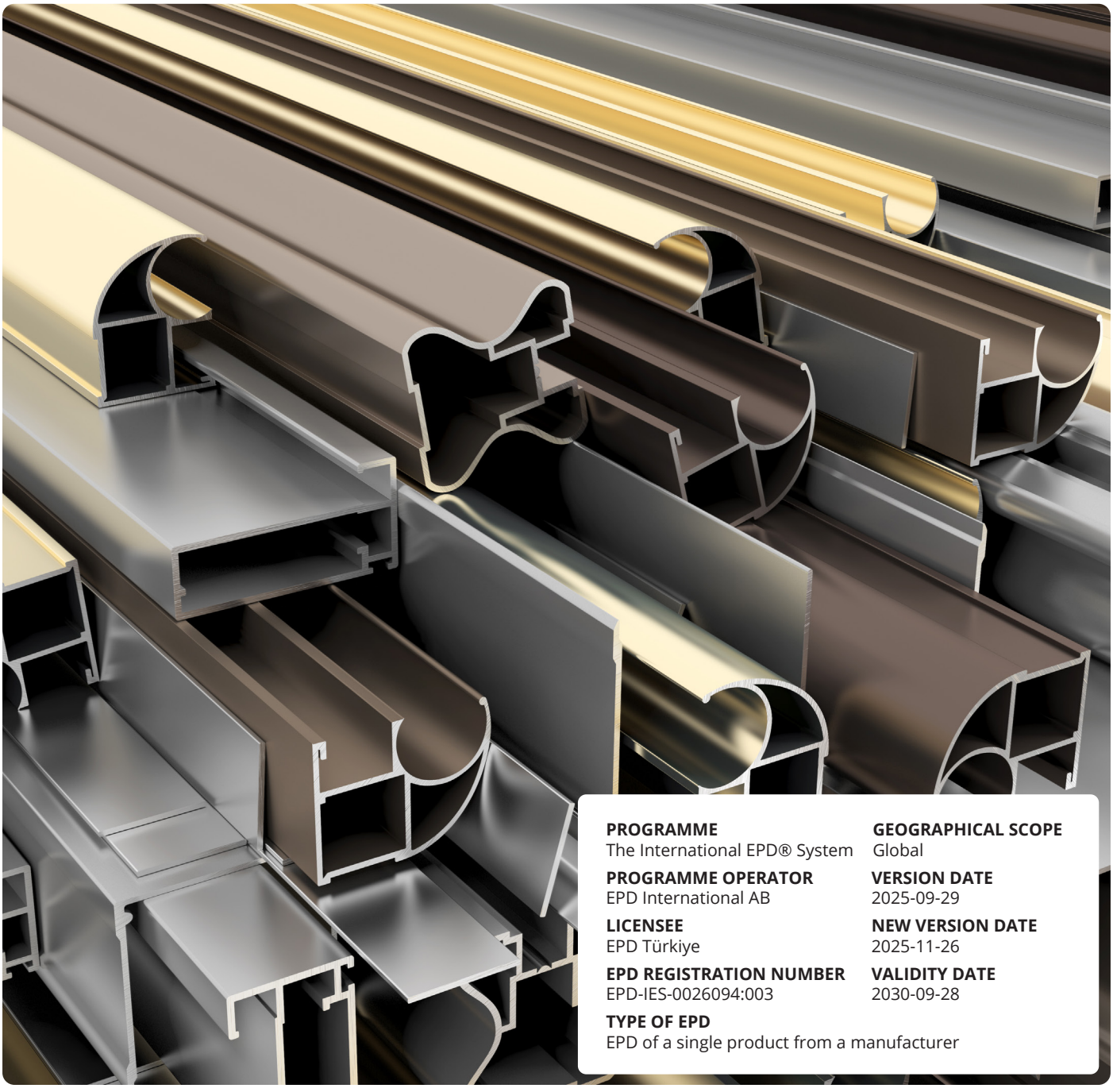
Environmental Product Declaration

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

Anodized Aluminium Profile

from

TEKNİKAL ALÜMİNYUM



PROGRAMME
The International EPD® System

PROGRAMME OPERATOR
EPD International AB

LICENSEE
EPD Türkiye

EPD REGISTRATION NUMBER
EPD-IES-0026094:003

GEOGRAPHICAL SCOPE
Global

VERSION DATE
2025-09-29

NEW VERSION DATE
2025-11-26

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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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 for a list of members.
Rob Rouwette (chair)
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Independent verification of the declaration and data, according to ISO 14025:2021:

☐ EPD process verification ☑ EPD verification

Third Party Verifier
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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
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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.

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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 m², including 12,000 m² 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:

Anodized Aluminium Profile

Anodized profiles are obtained by applying an electrolytic oxidation process to the extruded aluminium profiles, enhancing their corrosion resistance, surface hardness, and aesthetic appeal.

The anodizing process is conducted in-house and conforms to the QUALANOD standard, allowing for uniform surface finish and color stability. Profiles can be anodized up to 7 meters in length, with a coating thickness of up to 20 microns. These profiles are commonly used in architectural elements such as façades, windows, curtain wall systems, and decorative panels.

Intended Use of The Product

Anodized aluminium profiles are used in a broad range of high-performance applications requiring superior corrosion resistance, surface durability, and insulation. Common uses include architectural façades, window and door frames, lighting systems, consumer products, and electronic housings. The anodisation process creates a hard, transparent oxide layer that retains the metallic appearance while significantly enhancing the material's strength and resistance to wear, UV, and environmental degradation.

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

LCA Information

Declared Unit
1 kg of Anodized 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 process-ing	Disposal	Recycling po-tential
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**			-	-	-	-	-	-	-	-	-	-	-	-	-	-

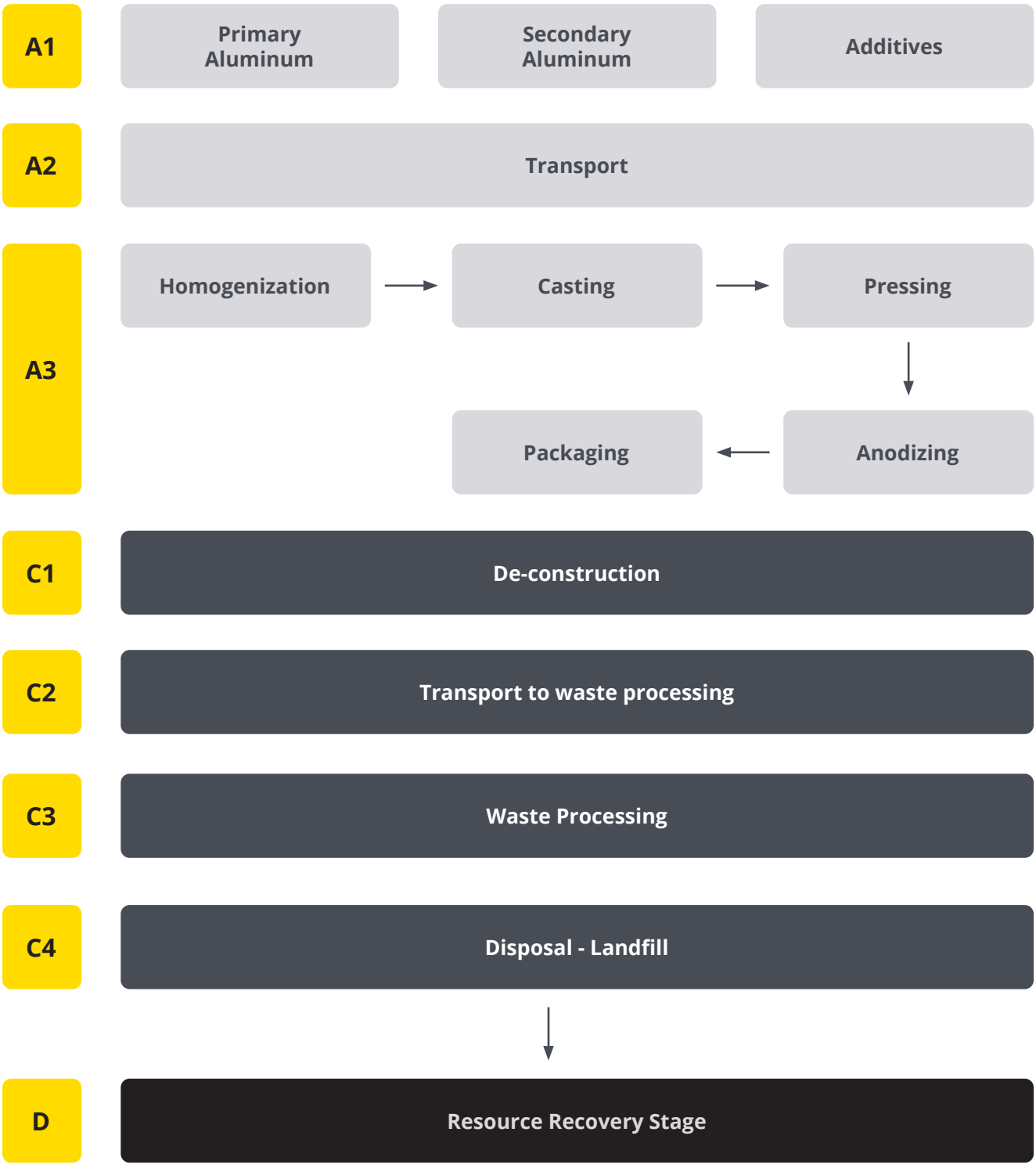
** Declaration of variation in results between products and sites. This EPD covers a single product manufactured at one site; therefore, no inter-product or inter-site variation applies (N/A).*

X: Declared / ND: Not declared.

Declaration of Sources of Primary Data

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

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 anodized 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)
Electricity, medium voltage {TR}| market for electricity, medium voltage | EN15804, S	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
Energy Consumption	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	
Transport by road*	Lorry >32 metric ton
Distance (km)	100
Database	Ecoinvent v3.10

** Technology is Euro 6*

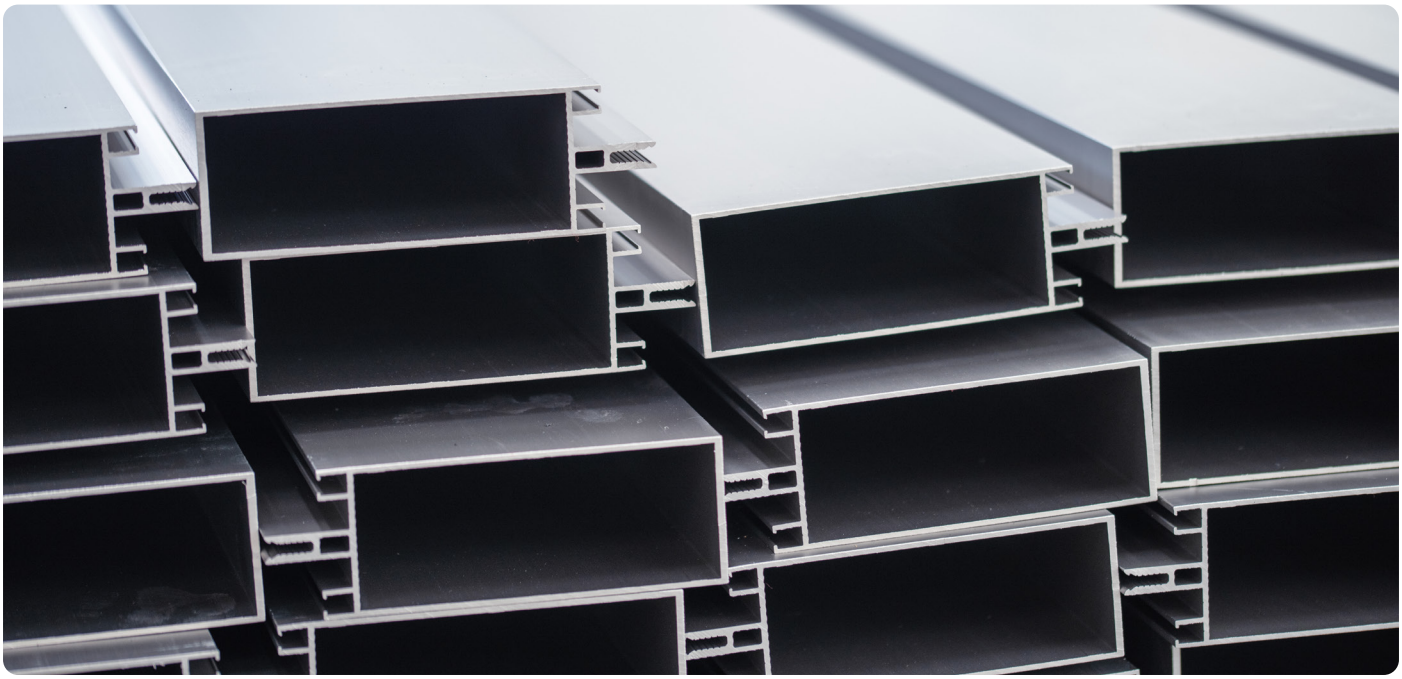
C3 - Waste Processing for Reuse, Recovery and/or Recycling – Mandatory Module
In Module C3, the waste processing operations required to prepare aluminium profiles for recycling are considered, including collection, sorting, cutting, and transport to recycling facilities. For aluminium, these energy and 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 Anodized Aluminium Profile

Product Components	Aluminum product, kg	Others, kg	Post-consumer recycled material, weight-% of product	Biogenic material, weight-% of product
Anodized Aluminium Profile	0.819	0.181	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
Metal	0.00005	0.0027%	-
Nylon	0.01027	0.6002%	-
Paperboard	0.00661	0.3866%	-
Tape	0.00017	0.0098%	-
Wood	0.00001	0.0007%	0.000042

** 1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO2.*

Environmental Performance

Potential Environmental Impact

Mandatory Indicators According to EN 15804

Results for 1 kg of Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO2 eq.	1.25E+01	0.00E+00	1.82E-02	1.31E-03	1.28E-03	-4.48E+00
GWP-biogenic	kg CO2 eq.	1.16E-01	0.00E+00	1.00E-04	4.15E-05	2.20E-05	-1.75E-02
GWP-luluc	kg CO2 eq.	2.57E-02	0.00E+00	7.43E-06	1.40E-05	1.59E-06	-6.02E-03
GWP-total	kg CO2 eq.	1.26E+01	0.00E+00	1.83E-02	1.37E-03	1.30E-03	-4.50E+00
ODP	kg CFC 11 eq.	6.87E-08	0.00E+00	2.67E-10	7.65E-12	2.29E-11	-1.67E-08
AP	mol H+ eq.	8.19E-02	0.00E+00	4.17E-05	8.55E-06	7.37E-06	-2.91E-02
EP-freshwater	kg P eq.	4.30E-03	0.00E+00	1.44E-06	1.32E-06	2.02E-07	-1.29E-03
EP-marine	kg N eq.	1.37E-02	0.00E+00	9.68E-06	1.51E-06	3.14E-06	-4.88E-03
EP-terrestrial	mol N eq.	1.42E-01	0.00E+00	1.05E-04	1.38E-05	2.78E-05	-5.10E-02
POCP	kg NMVOC eq.	4.47E-02	0.00E+00	5.84E-05	4.10E-06	8.72E-06	-1.55E-02
ADP-minerals&metals*	kg Sb eq.	2.83E-05	0.00E+00	5.94E-08	1.46E-09	3.29E-09	-2.77E-06
ADP-fossil*	MJ	1.29E+02	0.00E+00	2.56E-01	1.45E-02	2.16E-02	-4.14E+01
WDP	m3	2.28E+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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq.	1.26E+01	0.00E+00	1.83E-02	1.37E-03	1.30E-03	-4.50E+00
Results for 1 kg of Anodized Aluminium Profile							
PM	disease inc.	9.74E-07	0.00E+00	1.36E-09	3.80E-11	1.35E-10	-3.74E-07
IRP	kBq U-235 eq	1.50E-01	0.00E+00	2.12E-04	1.07E-05	4.74E-05	-3.39E-02
ETP-fw	CTUe	4.46E+02	0.00E+00	3.02E-01	3.49E-02	6.76E+02	-1.49E+02
HT-C	CTUh	3.16E-08	0.00E+00	9.71E-11	1.68E-12	7.37E-12	-7.89E-09
HT-nc	CTUh	1.92E-07	0.00E+00	3.20E-10	1.87E-11	4.03E-10	-5.96E-08
SQP	Pt	7.76E+01	0.00E+00	1.55E-01	1.80E-03	3.30E-02	-7.87E+00
Net use of fresh water_0422	m3	5.31E-01	0.00E+00	2.31E-04	7.99E-05	5.19E-05	-1.70E-01
Eutrophication	kg PO4--- eq	1.79E-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_2 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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.26E+01	0.00E+00	3.40E-03	6.11E-03	6.39E-04	-2.53E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.26E+01	0.00E+00	3.40E-03	6.11E-03	6.39E-04	-2.53E+00
PENRE	MJ	1.38E+02	0.00E+00	2.72E-01	1.56E-02	2.30E-02	-4.41E+01
PENRM	MJ.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.38E+02	0.00E+00	2.72E-01	1.56E-02	2.30E-02	-4.41E+01
SM	kg	7.60E-01	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m3	5.31E-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 Anodized 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 Anodized 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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO2 eq.	1.25E+01	0.00E+00	1.82E-02	1.31E-03	2.55E-02	0.00E+00
GWP-biogenic	kg CO2 eq.	1.16E-01	0.00E+00	1.00E-04	4.15E-05	4.41E-04	0.00E+00
GWP-luluc	kg CO2 eq.	2.57E-02	0.00E+00	7.43E-06	1.40E-05	3.17E-05	0.00E+00
GWP-total	kg CO2 eq.	1.26E+01	0.00E+00	1.83E-02	1.37E-03	2.60E-02	0.00E+00
ODP	kg CFC 11 eq.	6.87E-08	0.00E+00	2.67E-10	7.65E-12	4.59E-10	0.00E+00
AP	mol H+ eq.	8.19E-02	0.00E+00	4.17E-05	8.55E-06	1.47E-04	0.00E+00
EP-freshwater	kg P eq.	4.30E-03	0.00E+00	1.44E-06	1.32E-06	4.04E-06	0.00E+00
EP-marine	kg N eq.	1.37E-02	0.00E+00	9.68E-06	1.51E-06	6.29E-05	0.00E+00
EP-terrestrial	mol N eq.	1.42E-01	0.00E+00	1.05E-04	1.38E-05	5.56E-04	0.00E+00
POCP	kg NMVOC eq.	4.47E-02	0.00E+00	5.84E-05	4.10E-06	1.74E-04	0.00E+00
ADP-minerals&metals*	kg Sb eq.	2.83E-05	0.00E+00	5.94E-08	1.46E-09	6.58E-08	0.00E+00
ADP-fossil*	MJ	1.29E+02	0.00E+00	2.56E-01	1.45E-02	4.31E-01	0.00E+00
WDP	m3	2.28E+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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq.	1.26E+01	0.00E+00	1.83E-02	1.37E-03	2.60E-02	0.00E+00
Results for 1 kg of Anodized Aluminium Profile							
PM	disease inc.	9.74E-07	0.00E+00	1.36E-09	3.80E-11	2.70E-09	0.00E+00
IRP	kBq U-235 eq	1.50E-01	0.00E+00	2.12E-04	1.07E-05	9.48E-04	0.00E+00
ETP-fw	CTUe	4.46E+02	0.00E+00	3.02E-01	3.49E-02	1.35E+04	0.00E+00
HT-C	CTUh	3.16E-08	0.00E+00	9.71E-11	1.68E-12	1.47E-10	0.00E+00
HT-nc	CTUh	1.92E-07	0.00E+00	3.20E-10	1.87E-11	8.07E-09	0.00E+00
SQP	Pt	7.76E+01	0.00E+00	1.55E-01	1.80E-03	6.61E-01	0.00E+00
Net use of fresh water_0422	m3	5.31E-01	0.00E+00	2.31E-04	7.99E-05	1.04E-03	0.00E+00
Eutrophication	kg PO4--- eq	1.79E-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_2 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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.26E+01	0.00E+00	3.40E-03	6.11E-03	1.28E-02	0.00E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.26E+01	0.00E+00	3.40E-03	6.11E-03	1.28E-02	0.00E+00
PENRE	MJ	1.38E+02	0.00E+00	2.72E-01	1.56E-02	4.60E-01	0.00E+00
PENRM	MJ.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.38E+02	0.00E+00	2.72E-01	1.56E-02	4.60E-01	0.00E+00
SM	kg	7.60E-01	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m3	5.31E-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 Anodized 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 Anodized 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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO2 eq.	1.25E+01	0.00E+00	1.82E-02	1.31E-03	0.00E+00	-4.72E+00
GWP-biogenic	kg CO2 eq.	1.16E-01	0.00E+00	1.00E-04	4.15E-05	0.00E+00	-1.85E-02
GWP-luluc	kg CO2 eq.	2.57E-02	0.00E+00	7.43E-06	1.40E-05	0.00E+00	-6.34E-03
GWP-total	kg CO2 eq.	1.26E+01	0.00E+00	1.83E-02	1.37E-03	0.00E+00	-4.74E+00
ODP	kg CFC 11 eq.	6.87E-08	0.00E+00	2.67E-10	7.65E-12	0.00E+00	-1.75E-08
AP	mol H+ eq.	8.19E-02	0.00E+00	4.17E-05	8.55E-06	0.00E+00	-3.06E-02
EP-freshwater	kg P eq.	4.30E-03	0.00E+00	1.44E-06	1.32E-06	0.00E+00	-1.35E-03
EP-marine	kg N eq.	1.37E-02	0.00E+00	9.68E-06	1.51E-06	0.00E+00	-5.14E-03
EP-terrestrial	mol N eq.	1.42E-01	0.00E+00	1.05E-04	1.38E-05	0.00E+00	-5.37E-02
POCP	kg NMVOC eq.	4.47E-02	0.00E+00	5.84E-05	4.10E-06	0.00E+00	-1.63E-02
ADP-minerals&metals*	kg Sb eq.	2.83E-05	0.00E+00	5.94E-08	1.46E-09	0.00E+00	-2.91E-06
ADP-fossil*	MJ	1.29E+02	0.00E+00	2.56E-01	1.45E-02	0.00E+00	-4.36E+01
WDP	m3	2.28E+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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq.	1.26E+01	0.00E+00	1.83E-02	1.37E-03	0.00E+00	-4.74E+00
Results for 1 kg of Anodized Aluminium Profile							
PM	disease inc.	9.74E-07	0.00E+00	1.36E-09	3.80E-11	0.00E+00	-3.94E-07
IRP	kBq U-235 eq	1.50E-01	0.00E+00	2.12E-04	1.07E-05	0.00E+00	-3.56E-02
ETP-fw	CTUe	4.46E+02	0.00E+00	3.02E-01	3.49E-02	0.00E+00	-1.57E+02
HT-C	CTUh	3.16E-08	0.00E+00	9.71E-11	1.68E-12	0.00E+00	-8.30E-09
HT-nc	CTUh	1.92E-07	0.00E+00	3.20E-10	1.87E-11	0.00E+00	-6.28E-08
SQP	Pt	7.76E+01	0.00E+00	1.55E-01	1.80E-03	0.00E+00	-8.28E+00
Net use of fresh water_0422	m3	5.31E-01	0.00E+00	2.31E-04	7.99E-05	0.00E+00	-1.79E-01
Eutrophication	kg PO4--- eq	1.79E-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_2 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 Anodized Aluminium Profile							
Indicator	**Unit**	**A1-3 total**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.26E+01	0.00E+00	3.40E-03	6.11E-03	0.00E+00	-2.67E+00
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.26E+01	0.00E+00	3.40E-03	6.11E-03	0.00E+00	-2.67E+00
PENRE	MJ	1.38E+02	0.00E+00	2.72E-01	1.56E-02	0.00E+00	-4.64E+01
PENRM	MJ.	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.38E+02	0.00E+00	2.72E-01	1.56E-02	0.00E+00	-4.64E+01
SM	kg	7.60E-01	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
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m3	5.31E-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 Anodized 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 Anodized 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
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SimaPro LCA Software www.simapro.com
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EN 15804 reference package based on EF 3.1 eplca.jrc.ec.europa.eu

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