

# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

## Anodised Aluminum Profiles



Programme:		Programme Operator:		Local Operator:	
The International EPD® System		EPD International AB		EPD Turkey	
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				Geographical Scope:	
				Turkey	



An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com).



## 2 Programme Information

ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR) Product Category Rules (PCR):

Product Category Rules (PCR): 2019:14 Version 1.2.5, 2024-12-20, Construction Products and CPC 54 Construction Services, EN 15804:2012 + A2:2019 Sustainability of Construction Works

PCR review was conducted by: The Technical Committee of the International EPD® System. Review chair: Claudia A. Peña, University of Concepción, Chile

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Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification

EPD verification

**X**

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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

**X**

Burak Alüminyum Sanayi ve Ticaret A.Ş. 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.

# About the Company

Burak Aluminium started manufacturing aluminium sheet production in İstanbul Bayrampaşa in 1984. In 1994, Hadimköy plant started to production. In 1995, electrostatic powder coating unit and foundry was opened. Burak made its first export in 1996.

Production of architectural aluminium building systems was commenced with the brand name “alu-line” in 2002. 1,400 and 2,000 tons of extrusion lines, anodization unit CNC mechanical processing machinery were commissioned, and the first phase construction of 12,500 sqm Lüleburgaz plant was constructed between 2003 and 2008.

The foundation of Luleburgaz plant was completed in 2011. Aksan Alüminyum joined the group in 2012. In 2013, Total 80,000 sqm Luleburgaz plant with 45,000 sqm indoor space was completed and set into operation.



# About the Product

The product investigated in this EPD is company's anodised aluminium profile which include around %87 aluminium content with some additional chemicals. The product is manufactured at company's Kirklareli plant.

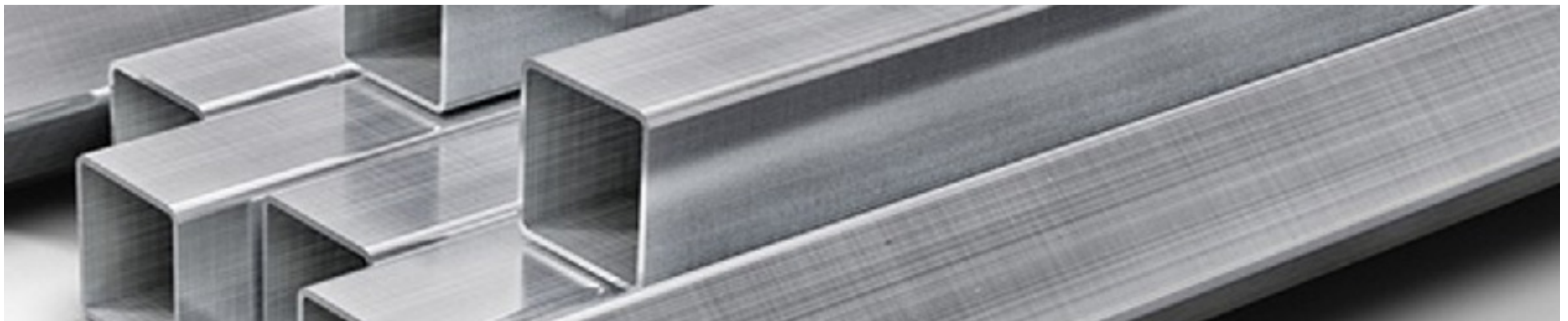
During the production, aluminium billets are heated up to 500°C in the annealing furnace and press profiles are produced by extrusion. Then, with the help of electric force, the press profiles are coated at the micron level.

Product composition and accompanying packaging are listed below.

Product Composition	% (by weight)
Primary Aluminium	87
Inorganic chemicals	13

Packaging	% (by weight)
Cardboard	61
Plastic film	39

Products Specifications	Unit	Value	Reference
Density	g/cm <sup>3</sup>	2.70	Scientific Literature
Melting Range	°C	585 - 650	Scientific Literature
Thermal conductivity	W/Mk	200 - 220	Scientific Literature
Thermal expansion (20-100 °C)	10 <sup>-6</sup> /K	23.4	Scientific Literature
Tensile strength, wall thickness <5 mm	Mpa	125	EN 755-2:2016
Tensile strength, 5<wall thickness<25 mm	Mpa	195	EN 755-2:2016
Elongaiotn A50 mm	% min	6	EN 755-2:2016



# System Boundaries

## Transport

Transport of final product to customers are considered and the routes and distances are calculated accordingly. Transport routes were provided by the manufacturer for 2021.



## Raw Material Supply

Raw material supply stage includes raw material extraction and pre-treatment processes before the production. The raw materials used in the product are mainly primary aluminium billets with inorganic chemical addition.



## Manufacturing

This stage includes the following steps: loading the extrusion line, heating the log, shearing the billet, feeding the press, extruding the profile and cutting on the fly, stretching, batching and sawing, final preparation, and packaging of the final product.

## Transport

Transport is relevant for delivery of raw materials and packaging materials to the plant and transport of materials within the plant. The transport distances and routes are calculated based on the given information from the manufacturer for 2021.

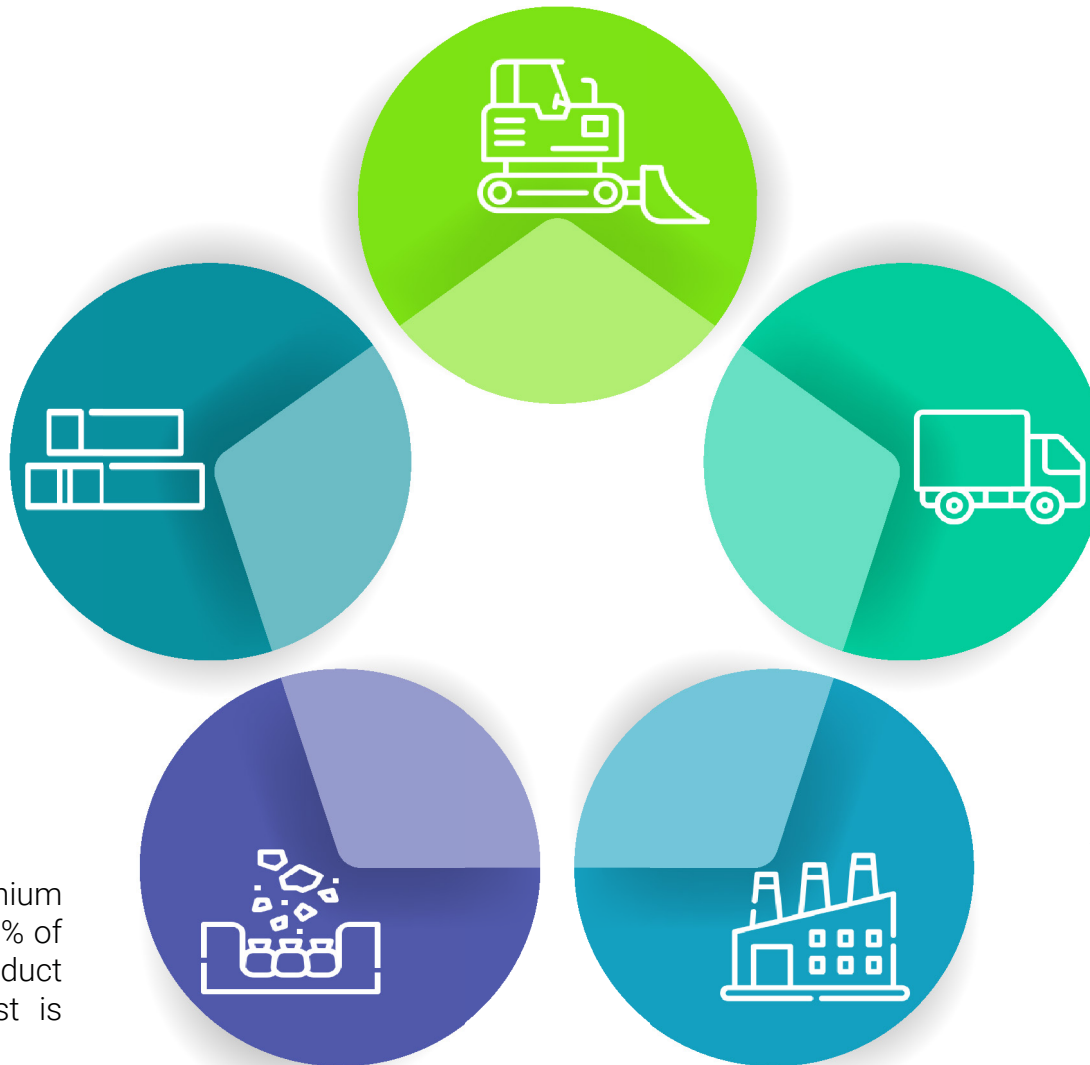
# System Boundaries

## Benefits

According to International Aluminium Institute's (IAI) the global recycling efficiency rate of aluminium is 76% (2020). Thus, 76% of the aluminium that is recycled is assumed as benefit.

## Disposal

The recyclability rate of aluminium is high and assumed that 90 % of the aluminium used in the product is recycled whereas the rest is landfilled.



## Deconstruction

It is assumed that manual removal of the product is sufficient. Thus, the effect of C1 stage is assumed to be zero.

## Transport

This step includes the transport of materials after their use phase. The average distance was assumed 100 km from demolition site to a waste processing area.

## Waste Processing

Waste materials can be recycled directly or disposed of by considering different scenarios. It is assumed that no process is needed for this stage.

# LCA Information

	Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits and Loads
	Raw Material Supply	Transport	Manufacturing	Transport	Construction Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction / demolition	Transport	Waste Processing	Disposal	Future reuse, recycling or energy recovery potentials
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules Declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	TR	GLO	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Specific Data Used	>90%	>90%	>90%	>90%	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%					-	-	-	-	-	-	-	-	-	-	-	-
Variation - Sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

X = Module declared, ND = Module not declared, NR = Not Relevant

# LCA Information

## Declared Unit

1 kg of 'Anodised Aluminium Profile' manufactured by Burak Alüminyum.

## Time Representativeness

The data used for LCA study concerns the year 2021.

## Database and LCA Software

Ecoinvent version 3.8 with SimaPro software version 9.3 is used as secondary data.

## System Boundaries

Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + A4 + C + D)

## Allocations

Water consumption, energy consumption and raw material transportation were weighted according to 2021 production figures. In addition, hazardous and non-hazardous waste amounts were also allocated from the total waste generation in 2021.

## Cut-Off Criteria

1% cut-off is applied. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

## REACH Regulation

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in this product either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

## LCA Modelling, Calculation and Data Quality

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR. There are no co-product allocations within the LCA study underlying this EPD. The regional energy datasets were used for all energy calculations.



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Impact Category	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP - Fossil	kg CO <sub>2</sub> eq	11.9	0.020	1.43	13.3	0.150	0	0.017	0	0.004	-6.19
GWP - Biogenic	kg CO <sub>2</sub> eq	0.031	26.5E-6	0.008	0.039	142E-6	0	36.2E-6	0	118E-6	-0.016
GWP - Luluc	kg CO <sub>2</sub> eq	0.238	10.8E-6	0.006	0.244	97.6E-6	0	7.08E-6	0	4.62E-6	-0.127
GWP - Total	kg CO <sub>2</sub> eq	12.1	0.020	1.45	13.6	0.150	0	0.017	0	0.004	-6.34
ODP	kg CFC-11 eq	909E-9	4.40E-9	97.1E-9	1.01E-6	31.9E-9	0	3.83E-9	0	452E-12	-437E-9
AP	mol H+ eq	0.094	0.000	0.007	0.101	0.003	0	71.9E-6	0	27.5E-6	-0.049
*EP - Freshwater	kg P eq	0.004	1.24E-6	0.001	0.005	8.17E-6	0	1.31E-6	0	1.22E-6	-0.002
EP - Marine	kg N eq	0.012	58.9E-6	0.001	0.013	0.001	0	21.2E-6	0	6.8E-6	-0.006
EP - Terrestrial	mol N eq	0.125	0.001	0.011	0.137	0.007	0	231E-6	0	73.1E-6	-0.065
POCP	kg NMVOC	0.039	0.000	0.003	0.042	0.002	0	57.4E-6	0	19.2E-6	-0.020
ADPE	kg Sb eq	28.7E-6	41.9E-9	2.30E-6	31.1E-6	294E-9	0	59.2E-9	0	9.16E-9	-12.3E-6
ADPF	MJ	114	0.291	18.3	132	2.09	0	0.256	0	0.059	-59.1
WDP	m³ depriv.	3.18	0.001	4.00	7.18	0.006	0	0.001	0	0.002	-1.59
PM	disease inc.	1.14E-6	1.41E-9	30.6E-9	1.17E-6	8.67E-9	0	1.20E-9	0	392E-12	-602E-9
IR	kBq U-235 eq	1.27	0.001	0.025	1.30	0.010	0	0.001	0	343E-6	-0.667
ETP - FW	CTUe	346	0.229	13.2	359	1.56	0	0.223	0	65.7	-181
HTTP - C	CTUh	34.3E-9	9.02E-12	466E-12	34.7E-9	79.3E-12	0	6.54E-12	0	3.84E-12	-18.1E-9
HTTP - NC	CTUh	505E-9	215E-12	12.2E-9	517E-9	1.36E-9	0	213E-12	0	101E-12	-260E-9
SQP	Pt	27.1	0.257	2.00	29.4	1.41	0	0.180	0	0.078	-13.8
Acronyms	GWP-total: Climate change, GWP-fossil: Climate change- fossil, GWP-biogenic: Climate change - biogenic, GWP-luluc: Climate change - land use and transformation, ODP: Ozone layer depletion, AP: Acidification terrestrial and freshwater, EP-freshwater: Eutrophication freshwater, EP-marine: Eutrophication marine, EP-terrestrial: Eutrophication terrestrial, POCP: Photochemical oxidation, ADPE: Abiotic depletion - elements, ADPF: Abiotic depletion - fossil resources, WDP: Water scarcity, PM: Respiratory inorganics - particulate matter, IR: Ionising radiation, ETP-FW: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use related impacts, soil quality.										
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A4: Transport, C1: Deconstruction, C2: Waste Transport, C3: Waste Processing: C4: Disposal, D: Benefits										
Disclaimer 1	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.										
Disclaimer 2	The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.										



# References

/GPI/ General Programme Instructions of the International EPD® System. Version 4.0.

/EN ISO 9001/ Quality Management Systems - Requirements

/EN ISO 14001/ Environmental Management Systems - Requirements

/EN ISO 50001/ Energy Management Systems - Requirements

/ISO 14020:2000/ Environmental Labels and Declarations — General principles

/EN 15804:2012+A2:2019/ Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products

/ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

/ISO 14040/44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

/PCR for Construction Products and CPC 54 Construction Services/ Product Category Rules (PCR): 2019:14 Version 1.2.5, 2024-12-20, Construction Products and CPC 54 Construction Services, EN 15804:2012 + A2:2019 Sustainability of Construction Works

/The International EPD® System/ The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025.

/Ecoinvent / Ecoinvent Centre, [www.ecoinvent.org](http://www.ecoinvent.org)

/SimaPro/ SimaPro LCA Software, Pré Consultants, the Netherlands, [www.pre-sustainability.com](http://www.pre-sustainability.com)

/ <https://www.burak.com.tr/en/index.html>

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