Environmental Product Declaration

In accordance with ISO 14025:2006 for:

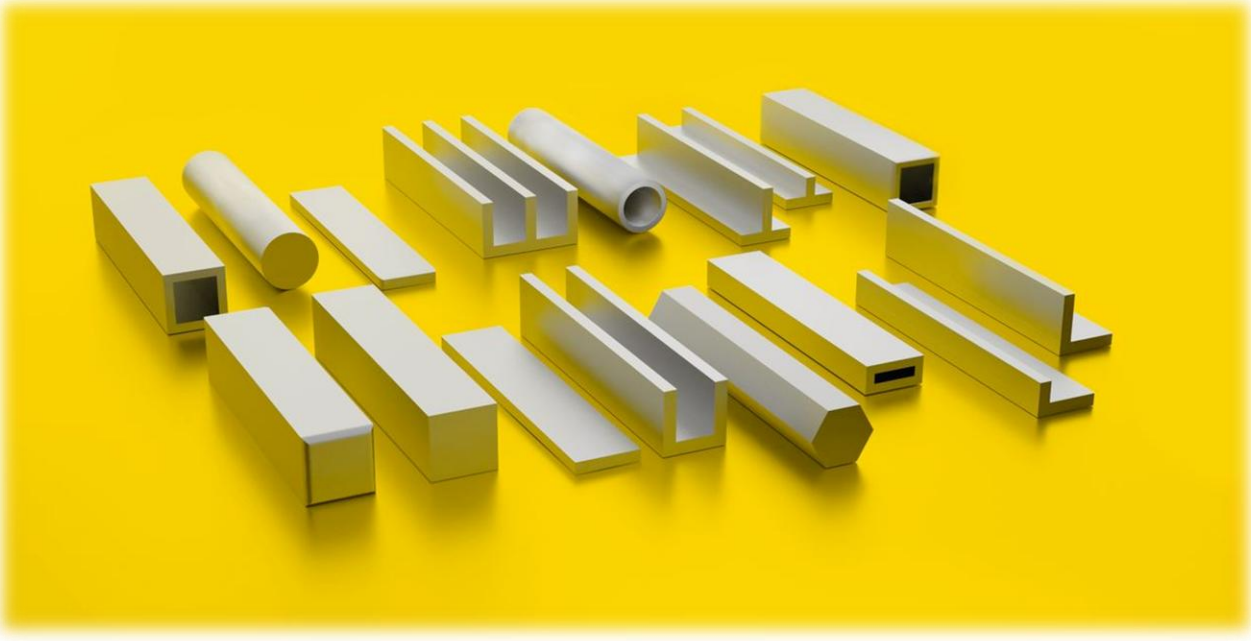
Aluminium Extrusion Profiles by primary billets

from

ESTRAL S.p.A.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-13502
Publication date:	2024-08-07
Valid until:	2029-08-06
Version date:	2025-12-05

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



Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
PCR: PCR 2022:08 Basic aluminium products and special alloys version 1.0
PCR review was conducted by: Chair of the PCR review: Hüdai Kara PCR review panel: The Technical Committee of the International EPD® System. A full list of members is available at www.environdec.com. The review panel may be contacted via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: ambiente s.r.l.
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verification: *TUV Italia s.r.l.* is an approved certification body accountable for the third-party verification The certification body is accredited by: *ACCREDIA*
Procedure for follow-up of data during EPD validity involves third-party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes 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 ISO 14025.

Company information

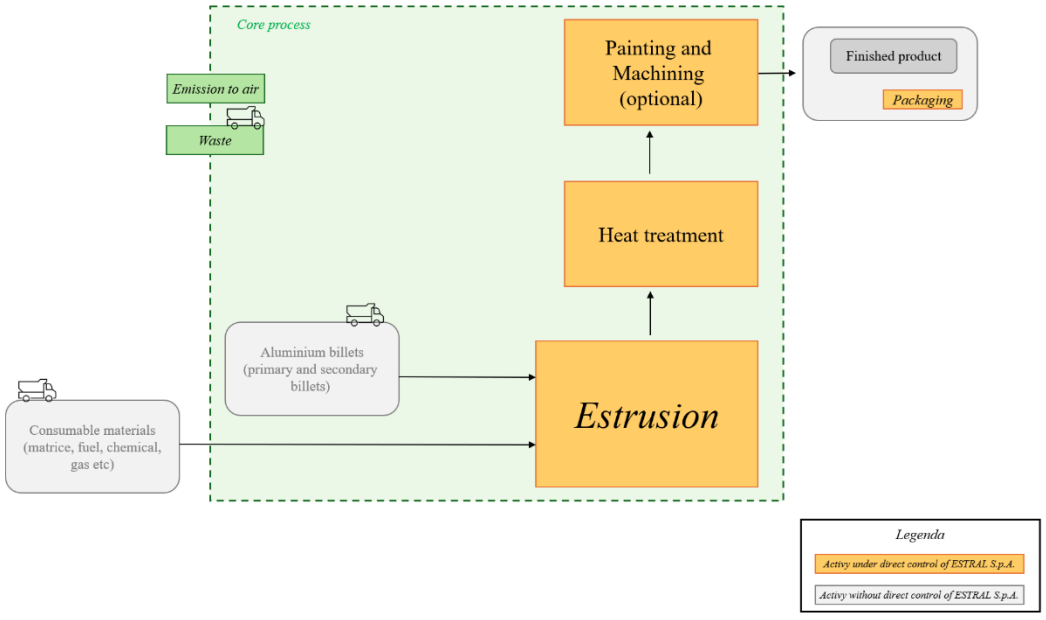
Owner of the EPD: ESTRAL S.p.A.
Contact: *estral@estral.it*
Description of the organisation: ESTRAL bases its business mainly on the production and marketing of aluminium extrusion profiles. ESTRAL is specialized in the production of aluminium profiles from billets, mainly producing alloys of the 6000 family.
Product-related or management system-related certifications:
ISO 9001
ISO 14001
ISO 45001
ISO 50001
Name and location of production site: ESTRAL S.p.A., *Via Artigianale, n.19 – Manerbio (BS)*

Product information

Product name: Aluminium Extrusion Profiles by primary billets
Product identification: Rough Aluminium profiles by primary billets 606x alloy
Product description: The designed profiles are an intermediate product destined for the automotive sector and others. The billets procured are produced by DERAL S.p.A. or other companies that produce primary aluminum billets. In accordance with PCR 2022:08, the production of billets has been included in the core process, but it is important to emphasize that the production process of billets is outside the control of ESTRAL S.p.A.
UN CPC code:
415 “Semi-finished products of copper, nickel, aluminium, lead, zinc and tin or their alloys”
Geographical scope: Europe

LCA information

Declared unit: 1 kg of rough aluminium extrusion profiles.
Reference service life: N.A.
Time representativeness: LCA study was conducted in 2025, taking into consideration production data for the calendar year 2024.
Database(s) and LCA software used: software OpenLCA 2.0.2, database: Ecoinvent 3.9.1
System diagram:



Description of system boundaries: cradle-to-gate
Excluded lifecycle stages:
In accord with the exclusions granted by PCR 2022:08 the following processes were not included in the upstream process:
• the packaging of the raw materials used for processing, as it is considered irrelevant;
• the transport of steel matricies.
Proxies weren't used for the model.
The downstream process was not included in the present LCA study, in line with the system boundaries required by PCR 2022:08.
More information: In accordance with PCR 2022:08, the production of billets has been included in the core process, but it is important to emphasize that the production process of billets is outside the control of ESTRAL S.p.A.
Website: www.estral.it
Name and contact information of LCA practitioner: ambiente s.r.l.

Content declaration

Product

Product components	[Unit]	%	Environmental / hazardous properties
Aluminium Scrap	0,000	0	
Primary Aluminium	1,000	100	
TOTAL	1,000	100	

Estral S.p.A. declares that its raw products do not include any pf the substances describe as SVHC (Substance of Very High Concern) and listed in the Candidate List published on the web page of European Chemicals Agency.

Packaging

Distribution packaging: The packaging varies according to customer needs (paper, cardboard, LDPE, wood, nylon, PE or PVC)
Consumer packaging: N.A.

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product: pre-consumer and post-consumer aluminium, present in the billet, comes respectively from companies that use aluminium billets and profiles as input material to their production system and from companies that collect end-of-life material. The pre-consumer and post-consumer aluminium is sourced entirely in Europe, with the majority coming from Italian suppliers

Results of the environmental performance indicators

Impact category indicators

PARAMETER		UNIT	Upstream	Core	TOTAL
Global warming potential (GWP)	Fossil	kg CO_2 eq.	4.92E-02	1.80E+01	1.80E+01
	Biogenic	kg CO_2 eq.	1.30E-04	1.32E-02	1.34E-02
	Land use and land transformation	kg CO_2 eq.	2.09E-07	2.54E-05	2.56E-05
	TOTAL	kg CO_2 eq.	4.94E-02	1.80E+01	1.81E+01
Ozone layer depletion (ODP)		kg CFC 11 eq.	2.02E-08	5.55E-07	5.75E-07
Acidification potential (AP)		mol H^+ eq.	2.63E-04	9.61E-02	9.63E-02
Eutrophication potential (EP)	Aquatic freshwater	kg P eq.	2.62E-05	4.36E-03	4.38E-03
	Aquatic marine	kg N eq.	5.37E-05	1.52E-02	1.52E-02
	Aquatic terrestrial	mol N eq.	5.42E-04	1.62E-01	1.63E-01
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1.78E-04	6.56E-02	6.58E-02
Abiotic depletion potential (ADP)*	Metals and minerals	kg Sb eq.	7.04E-07	2.45E-05	2.52E-05
	Fossil resources	MJ, net calorific value	7.05E-01	2.66E+02	2.67E+02
Water deprivation potential (WDP)*		m^3 world eq. deprived	5.76E-02	5.87E+00	5.92E+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.*

Resource use indicators

PARAMETER		UNIT	Upstream	Core	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	9.08E-02	1.79E+01	1.79E+01
	Used as raw materials	MJ, net calorific value	0.00E+00	1.07E+00	1.07E+00
	TOTAL	MJ, net calorific value	9.08E-02	1.89E+01	1.90E+01
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	7.05E-01	2.66E+02	2.67E+02
	Used as raw materials	MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00
	TOTAL	MJ, net calorific value	7.05E-01	2.66E+02	2.67E+02
Secondary material (optional)		kg	0.00E+00	0.00E+00	0.00E+00
Renewable secondary fuels (optional)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00
Non-renewable secondary fuels (optional)		MJ, net calorific value	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (optional)		m^3	1.33E-03	1.30E-01	1.32E-01

Waste indicators

PARAMETER	UNIT	Upstream	Core	TOTAL
Hazardous waste disposed	kg	3.60E-03	2.80E+00	2.80E+00
Non-hazardous waste disposed	kg	7.67E-03	3.28E+00	3.29E+00
Radioactive waste disposed	kg	2.52E-06	1.90E-04	1.92E-04

Output flow indicators

PARAMETER	UNIT	Upstream	Core	TOTAL
Components for reuse	kg	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	2.98E-04	2.98E-04
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ per energy carrier	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ per energy carrier	0.00E+00	0.00E+00	0.00E+00

Additional indicators

PARAMETER	UNIT	Upstream	Core	TOTAL
GWP-GHG	kg CO2 eq	4.94E-02	1.80E+01	1.81E+01

VERSION HISTORY

Original Version of the EPD, *2024*-08-07

Revision 1, 2025-12-05,
Differences versus the previously published version:

- Update of the electricity mix consumed in module A3 (69% italian residual mix, 25% renewable with G.O.,6% photovoltaic plant);
- Update of activity data (module A3);
- Update of upstream data (primary aluminum).

References

[1] 14040:2006 «Principles and framework»

[2] ISO 14044:2006 «Requirements and guidelines»

[3] ISO 14040:2006/AMD 1:2020

[4] ISO 14044:2006/AMD 1:2017

[5] ISO 14044:2006/AMD 2:2020

[6] UNI EN ISO 14025:2010, Environmental labels and declarations — Type III environmental declarations — Principles and procedures (ISO 14025:2006)

[7] General Programme Instructions for the International EPD® System – Version 4.0

[8] PCR 2022:08 *Basic aluminium products and special alloys version 1.0*

[9] ambiente s.r.l. - *Studio di Life Cycle Assessment (LCA) relativo ai profili di alluminio prodotti da ESTRAL S.p.A.*

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