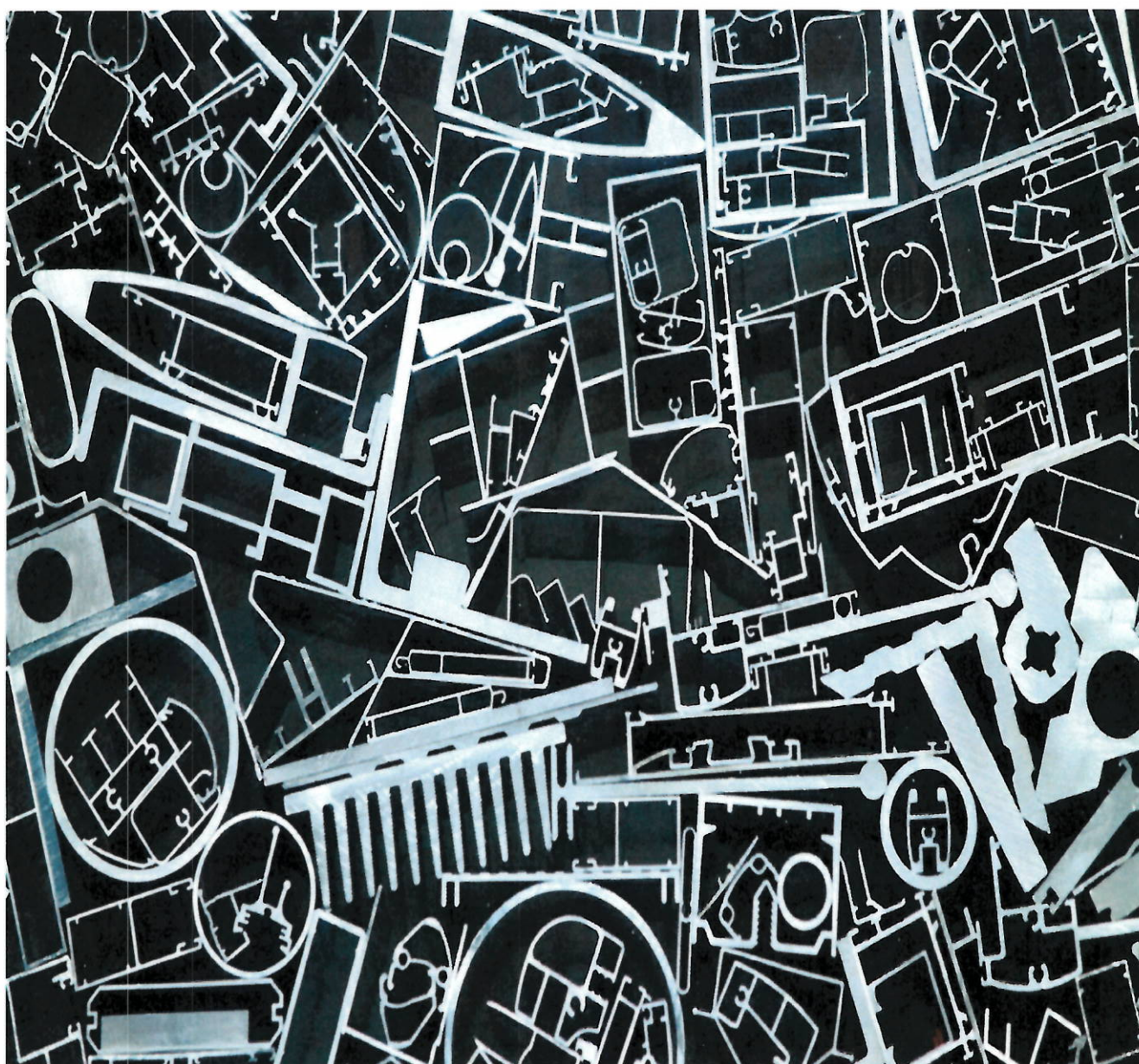


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*In accordance with ISO 14021*

***Environmental Product Declaration  
Aluminium Profiles***

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## ABOUT ALUMECO

Alumeco is an international trading company founded in 1983 with headquarters in Odense, Denmark. Alumeco is providing aluminium solutions for the metal-consuming industries. As a global supplier and partner, we have a far-reaching, international contact network as well as numerous subsidiaries in Europe, North America and China.

Via extensive investments in the company's physical framework and modern machinery, at its disposal, Alumeco has one of the largest stocks of aluminium in Northern Europe, its own coil centre, as well as two fully automatic high rack systems. All these initiatives combined makes it possible for us to meet our customers' requirements and adapt to market developments, and by doing so we always guarantee the best possible service.

Our special skills and knowledge come from more than 30 years of experience. Thanks to our dedicated and capable staff we are characterized by competent guidance and extensive in-house knowledge of aluminium. Each day, we work hard to realize and develop solutions that focus on the customer's specific requirements.

Our vision is: " **TO BE NUMBER 1 – By creating competitiveness for our partners**" We hereby undertake to constantly increase our efforts in quality, for example by investing in a high rack systems, new saws, IT smart solutions as well as staff training. All our endeavours aim to ensure that our customers and suppliers always experience good cooperation with Alumeco.

## PRODUCT

### PRODUCT DESCRIPTION

The products in this EPD covers the following aluminium types: Aluminium profile, Anodized profile and powder coated profile within the alloys: 6005,6060, 6063 and 6082 in the tempers T4 and T6.

### APPLICATIONS

Aluminum profiles are mainly used in constructions as profile systems for doors, windows and facades etc. Aluminium profiles are also used in the transport industry for automotive such as profiles for trucks, busses, trains, cars and in the marines for ships etc. The profiles are also used for machine parts.<sup>1</sup>

### TECHNICAL DATA

The technical data in this EPD are based on data from EN 755-2 for the following alloys: 6005,6060, 6063 and 6082 in the tempers T4 and T6<sup>2</sup>

### CHEMICAL COMPOSITIONS ACCORDING TO EN 573-3:2013

The chemical compositions of those 4 alloys, do comply with the REACH legislation and therefore none of the 4 named alloys contains any substances which is included on the "Candidate list of substances of very high concern" higher than 0,1% in weight<sup>3</sup>.

Chemical composition EN573 – 3										
Alloys EN AW	Si%	Fe%	Cu%	Mn%	Mg%	Cr%	Zn%	Ti%	Other elements	
									Each	Together
6005	0,6 – 0,9	0,35	0,10	0,10	0,40-0,60	0,10	0,10	0,10	0,05	0,15
6060	0,30 – 0,6	0,10-0,30	0,10	0,10	0,35-0,6	0,05	0,15	0,10	0,05	0,15
6063	0,20 – 0,6	0,35	0,10	0,10	0,45-0,9	0,10	0,10	0,10	0,05	0,15
6082	0,7 – 1,3	0,50	0,10	0,40-1,0	0,60-1,2	0,25	0,20	0,10	0,05	0,15

### MECHANICAL PROPERTIES ACCORDING TO EN 755-2:2016

Mechanical properties for EN AW 6005. EN755 – 2 (Extruded Profile)					
Open profiles Thickness (mm)	Temper	Rm MPa	Rp0,2 MPa	A %	Hardness* HB
≤ 25	T4	Min. 180	Min. 90	15	50
≤ 5	T6	Min. 270	Min. 225	8	90
5 < t ≤ 10	T6	Min. 260	Min. 215	8	85
10 < t ≤ 25	T6	Min. 250	Min. 200	8	85

\* Only information.

<sup>1</sup> EAA - European Aluminium

<sup>2</sup> EN 755-2:2016

<sup>3</sup> EN 573-3:2013 & REACH



Mechanical properties for EN AW 6060. EN755 – 2 (Extruded Profile)					
Wall Thickness (mm)	Temper	Rm MPa	Rp <sub>0,2</sub> MPa	A %	Hardness* HB
≤ 25	T4	Min. 120	Min. 60	16	50
≤ 5	T6	Min. 190	Min. 150	8	70
5 < t ≤ 25	T6	Min. 170	Min. 140	8	70

\* Only information.

Mechanical properties for EN AW 6063. EN755 – 2 (Extruded Profile)					
Wall Thickness (mm)	Temper	Rm MPa	Rp <sub>0,2</sub> MPa	A %	Hardness* HB
≤ 25	T4	Min. 130	Min. 65	14	50
≤ 10	T6	Min. 215	Min. 170	8	75
10 < t ≤ 25	T6	Min. 195	Min. 160	8	75

\* Only information.

Mechanical properties for EN AW 6082. EN755 – 2 (Extruded Profile)					
Open profiles Thickness (mm)	Temper	Rm MPa	Rp <sub>0,2</sub> MPa	A %	Hardness* HB
≤ 25	T4	Min. 205	Min. 110	14	70
≤ 5	T6	Min. 290	Min. 250	8	95
5 < t ≤ 25	T6	Min. 310	Min. 260	10	95

\* Only information.

## SYSTEM BOUNDARY

Production			Construction		Use							End-of-life				Resource recovery
Raw Materials Supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction and demolition	Transport	Waste processing	Disposal	Reuse, recovery or recycling potentials
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D

X = declared module; MND = module not declared

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## LIFE CYCLE ANALYSIS

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### DECLARED UNIT

The declared units are based on the production of 1 kg. of aluminium profiles.

### GOAL AND SCOPE

This EPD includes the environmental impact of 1 kg Aluminium from cradle to where it leaves our company as a profile with option of disposal.

### SYSTEM BOUNDARY

In scope of this EPD, the chosen system boundaries we have collected data on from official sources are from those stages, A1 raw material supply, A2 transport, A3 manufacturing, C4 disposal and D resources and recovery stage.

### ESTIMATES AND ASSUMPTIONS

The product stage, recycling and disposal rates comes from official databases, regarding aluminium production, because we have a lot of suppliers around the world, therefore is this EPD based on data from two aluminium profiles EPD's from the international EPD system<sup>4</sup>

### DATABASE (BACKGROUND DATA)

The data are an average from two aluminium profiles EPD's from the international EPD system<sup>5</sup> therefore, they are not based on one database but different databases.

### DATA QUALITY

The data quality is based on data two aluminium profiles EPD's from the international EPD system<sup>6</sup> the official databases for EPD's, have collected EPD's from different big manufacture of aluminium, and this one is based on data from two of EPD's from the site.

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<sup>4</sup> [EPD System - The International EPD System](#)

<sup>5</sup> [EPD System - The International EPD System](#)

<sup>6</sup> [EPD System - The International EPD System](#)

## RESULTS MILL-FINISHED ALUMINIUM PROFILE<sup>7</sup>

ENVIRONMENTAL IMPACTS	UNIT	MILL-FINISEHD PROFILE A1-A3	MILL-FINISEHD PROFILE C4	MILL-FINISEHD PROFILE D
GWP	kg CO <sub>2</sub> eq	9,0980	0,0041	-5,2023
ODP	kg CFC-11 eq	8,84E-07	0,05E-10	-5,23E-07
AP	kg SO <sub>2</sub> eq	0,0570	0,0000	-0,0318
EP	kg PO <sub>4</sub> <sup>-3</sup> eq	0,0206	0,0000	-0,0086
POCP	kg C <sub>2</sub> H <sub>2</sub> eq	0,0047	0,0000	-0,0030
ADPE	kg Sb eq	0,0505	0,0000	-0,274
ADPF	MJ	89,6565	0,0570	-48,1012
<b>RESSOURCE USE</b>	<b>UNIT</b>			
PERE	MJ	0,4133	0,0612	-74,9153
PERM	MJ	41,1203	0,0000	0,0000
PERT	MJ	41,5336	0,0612	-74,9153
PENRE	MJ	12,9706	0,0039	-27,4155
PENRM	MJ	118,6672	0,0000	0,0000
PENRT	MJ	131,6378	0,0039	-27,4155
SM	MJ	0,2000	0,0000	0,0000
RSF	MJ	0,0000	0,0000	0,0000
NRSF	MJ	0,0000	0,0000	0,0000
FW	M <sup>3</sup>	0,1246	0,0000	-0,0815
<b>WASTE CATEGORIES</b>	<b>UNIT</b>			
HWD	kg	0,0001	0,0000	0,0000
NHWD	kg	0,0036	0,1000	0,0000
RWD	kg	0,0000	0,0000	0,0000
<b>OUTPUT</b>	<b>UNIT</b>			
CRU	kg	-	-	-
MFR	kg	0,2216	0,0000	0,9000
MER	kg	-	-	-
EE	MJ	-	-	-

<sup>7</sup> The data here is from this EPD:  
[EPD 2 - ETEM Aluminium Extrusion](#)



## RESULTS ANODIZED ALUMINIUM PROFILE<sup>8</sup>

ENVIRONMENTAL IMPACTS	UNIT	ANODIZED PROFILE A1-A3	ANODIZED PROFILE C4	ANODIZED PROFILE D
GWP	kg CO <sub>2</sub> eq	11,8	8,88E-04	-3,96
ODP	kg CFC-11 eq	3,03E-06	1,58E-11	-2,02E-11
AP	kg SO <sub>2</sub> eq	7,95E	3,20E-06	-2,02E-02
EP	kg PO <sub>4</sub> <sup>-3</sup> eq	4,15E-03	0,02E-05	-1,07E-03
POCP	kg C <sub>2</sub> H <sub>2</sub> eq	4,26E-03	2,81E-07	-1,07E-03
ADPE	kg Sb eq	1,20E-05	4,04E-11	-1,93E-06
ADPF	MJ	3,99E+02	9,56E-03	-4,15E+01
RESSOURCE USE	UNIT			
PERE	MJ	40,2	1,70E-04	-22,3
PERM	MJ	0	0	0
PERT	MJ	40,2	1,70E-04	-22,3
PENRE	MJ	4,20E+02	1,01E-02	-4,88E+01
PENRM	MJ	0	0	0
PENRT	MJ	4,20E+02	1,01E-02	-4,88E+01
SM	MJ	4,61E-01	0	4,88E-01
RSF	MJ	0	0	0
NRSF	MJ	0	0	0
FW	M <sup>3</sup>	14,7	0	-1,74E-01
WASTE CATEGORIES	UNIT			
HWD	kg	3,99E-01	1,97E-08	-2,58E-01
NHWD	kg	2,19	8,66E-05	-1,20E+00
RWD	kg	4,67E-03	0	-2,93E-03
OUTPUT	UNIT			
CRU	kg	0	0	0
MFR	kg	2,38E-01	0	0
MER	kg	0	0	0
EE	MJ	0	0	0

<sup>8</sup> The data here is from this EPD:

[EPD 1 - The Aluminium Spanish Association \(AEA\)](#)



## RESULTS POWDER COATED ALUMINIUM PROFILE<sup>9</sup>

ENVIRONMENTAL IMPACTS	UNIT	COATED PROFILE A1-A3	COATED PROFILE C4	COATED PROFILE D
GWP	kg CO <sub>2</sub> eq	10,0582	0,0041	4,525
ODP	kg CFC-11 eq	3,52E-06	40,05E-10	-5,23E-07
AP	kg SO <sub>2</sub> eq	0,0612	3,54E-06	-0,0318
EP	kg PO <sub>4</sub> <sup>-3</sup> eq	0,0224	1,93E-05	1,76E-02
POCP	kg C <sub>2</sub> H <sub>2</sub> eq	0,0052	3,18E-07	-0,0030
ADPE	kg Sb eq	0,0561	1,12E-10	-0,0274
ADPF	MJ	99,9016	1,02E-02	-48,1012
RESSOURCE USE	UNIT			
PERE	MJ	20,424	0,0612	-48,9143
PERM	MJ	20,8213	0	0
PERT	MJ	42,2233	0,612	-48,9143
PENRE	MJ	19,2639	1,08E-02	-27,4155
PENRM	MJ	62,4345	0	0
PENRT	MJ	144,1037	0,0039	-27,4155
SM	MJ	4,61E-01	0	4,26E-01
RSF	MJ	0	0	0
NRSF	MJ	0	0	0
FW	M <sup>3</sup>	7,3454	3,62E-04	-0,815
WASTE CATEGORIES	UNIT			
HWD	kg	0,0001	1,88E-08	-2,25E-01
NHWD	kg	2,19	0,1000	-1,05E+00
RWD	kg	4,67E-03	0	-2,56E-03
OUTPUT	UNIT			
CRU	kg	0	0	0
MFR	kg	0,2216	0	0,9000
MER	kg	0	0	0
EE	MJ	0	0	0

<sup>9</sup> The data here is an average from those two EPD's:

[EPD 1 - The Aluminium Spanish Association \(AEA\)](#)

[EPD 2 - ETEM Aluminium Extrusion](#)

## DEFINITION FOR THE DIFFERENT TERMS, USED IN THE RESULTS

### ENVIRONMENTAL IMPACTS.

**ADPE:** Abiotic depletion potential for non-fossil resources

**ADPF:** Abiotic depletion potential for fossil resources.

**AP:** Acidification potential of land and water

**EP:** Eutrophication potential

**GWP:** Global warming potential

**ODP:** Ozone depletion potential

**POCP:** Photochemical ozone creation potential

### RESOURCE USE.

**FW:** Use of net fresh water.

**NRSF:** Use of non-renewable secondary fuels

**PENRE:** Non-renewable primary energy as energy carrier

**PENRM:** Non-renewable primary energy as material utilization

**PENRT:** Total use of non-renewable primary energy resources

**PERE:** Renewable primary energy as energy carrier

**PERM:** Renewable primary energy resource as material utilization

**PERT:** Total use of renewable primary energy resources

**RSF:** Use of renewable secondary fuels

**SM:** Use of secondary materials

### WASTE CATEGORIES.

**HWD:** Hazardous waste disposed

**NHWD:** Non-hazardous waste disposed

**RWD:** Radioactive waste disposed.

### OUTPUT FLOWS.

**CRU:** Components for re-use

**EE:** Exported energy per energy carrier.

**MER:** Materials for energy recovery

**MFR:** Materials for recycling



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## REFERENCE LIST

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- ISO 14021:2016 - Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling)
- EN 755-2:2016 - Aluminium and aluminium alloys — Extruded rod/bar, tube and profiles — Part 2: Mechanical properties
- EN 573-3:2013 - Aluminium and aluminium alloys. Chemical composition and form of wrought products. Chemical composition and form of products
- REACH Legislation EC 1907/2006
- <https://www.aluminum.org/sustainability/environmental-product-declarations>
- [EPD System - The International EPD System](#)
- [EPD 1 - The Aluminium Spanish Association \(AEA\)](#)
- [EPD 2 - ETEM Aluminium Extrusion](#)
- [EAA - European Aluminium](#)

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