

Environmental Product Declaration

In accordance with ISO14025:2006 and EN15804:2012+A2:2019

Fibo Aluminium profile E- Serie



Owner of the declaration:
Fibo AS

Product name:
Fibo Aluminium profile E-serie

Declared unit:
1 kg

Product category /PCR:
CEN Standard EN 15804 serves as core PCR
NPCR 013:2021

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-9696-9640

Registration number:
NEPD-9696-9640

Issue date:
10.04.2025

Valid to:
10.04.2030

General information

Product:

Fibo Aluminium profiles E- Serie

Program operator:

The Norwegian EPD Foundation
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Declaration number:

NEPD-9696-9640

This declaration is based on Product Category Rules:

CEN Standard EN 15804 serves as core PCR. NPCR PART A and NPCR 013 Part B for Steel and Aluminum Construction Products (references to EN15804+A2.

Statement of liability:

The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Declared unit:

1 kg of Aluminium profiles

Declared unit with option:

1 kg of Aluminium profiles with options (A4, C1, C2, C3, C4 &D

Functional unit:

-

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

internal

external

Sign



Julie Lyslo Skullestad

Independent verifier approved by EPD Norway

Owner of the declaration:

Fibo AS
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Manufacturer:

Fibo AS
Industriveien 2, NO-4580 Lyngdal, Norway
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Place of production:

Turkey and Norway

Management system: ISO 9001:2015;
ISO 14001:2015; PEFC ST2001:2020;
PEFC ST 2002:2020

Organisation no:

NO 964 193 991 MVA

Issue date:

10.04.2025

Valid to:

10.04.2030

Year of study:

2024

Comparability:

EPD of construction products may not be able to compare if they do not comply with EN 15804 and are seen in a building context.

The EPD has been worked out by:
Asplan Viak AS, Kristine Bjordal

Approved



Manager of EPD Norway

Product

Product description:

Fibo AS provide Aluminium Profiles which are a part of the Fibo wall system. There are a number of different profiles adapted to different purposes for the wall system. Products will vary in size and shape and are produced in accordance with specific project needs. This EPD covers the product type E- Serie.

Product specification:

This EPD covers the aluminium profiles from Fibo AS that are made from Aluminium. Aluminium is typically used in applications where minimal weight is key. The aluminum grade used for these products is EN AW 6063-T4/T6. The products start out as pre-produced aluminum profiles produced in Turkey.

Materials	Value	%
Aluminium, with alloys	1,00	100,00 %
Total weight product	1,00	100,0 %
Packaging	0,03	
Total weight of product incl. packaging	1,03	

Technical data:

This EPD covers the aluminium profiles within product type E- Serie from Fibo AS

Product type in the E- serie	Weight per piece (kg)	Product type	Weight per piece (kg)
102283-E	0,6192	163907-E	0,4272
102284-E	0,6192	163912-E	0,42
102286-E	0,6192	163915-E	0,42
102293-E	0,04	163917-E	0,42
102310-E	0,04	163921-E	0,669
102311-E	0,1	163924-E	1
102312-E	0,04	163927-E	1,1
102314-E	0,1	163929-E	1
163012-E	0,219	163931-E	1,06
163014-E	0,5352	163933-E	0,492
163016-E	0,2856	163935-E	0,615
163018-E	0,3672	163938-E	0,456
163020-E	0,3672	163941-E	0,219
163022-E	0,669	163948-E	0,2856
163128-E	0,2856	163953-E	0,3672

163312-E	1	163961-E	0,5352
163314-E	1,06	163962-E	0,57
163317-E	0,1752	163964-E	0,4608
163407-E	0,219	163966-E	0,576
163684-E	0,2616	163967-E	0,42
163800-E	0,5352	163968-E	0,56
163801-E	0,5352	163970-E	0,44
163805-E	0,669	163971-E	0,46
163806-E	0,62	163972-E	0,58
163807-E	0,68	166014-E	0,3
163808-E	0,68	166016-E	0,3
163901-E	0,3672	166300-E	0,3216
163906-E	0,4272	166310-E	0,3216

Market:

Norway, Northern Europe and North America. The scenarios are based on the Norwegian and European market.

Reference service life, product:

Not relevant

Reference service life, building:

Not relevant

Additional technical information

Not relevant

LCA: Calculation rules

Declared unit:

1 kg of Aluminium profiles of the product type E- Serie

Cut-off criteria:

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804+A2:2019. Incoming energy and water and waste production in house is allocated equally among all products through mass allocation. Allocation in upstream processes is used by default in ecoinvent v3.9.1.

Data quality:

The data quality complies with the guidelines for the use of generic and specific data according to EN 15804 and ISO 14044. The data used is representative of temporal, geographical and technological conditions.

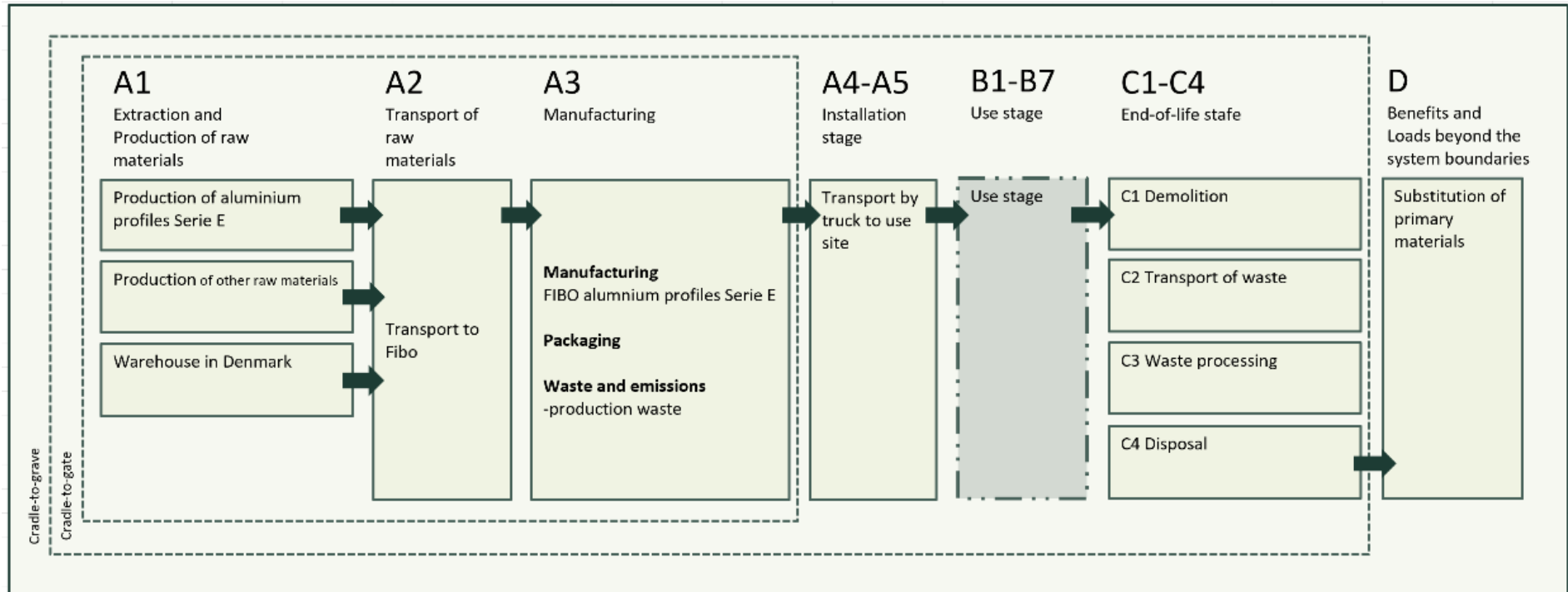
Manufacturing data from Fibo is collected in 2024 and is based on average data for 2023. Data for exported energy from waste processing are based on Statistics Norway and are representative for 2022. Background data are from ecoinvent v3.9.1 "Allocation cut-off by classification" but adjusted to improve representativeness. Modelling and LCA calculations are performed with SimaPro version 9.5.0.1.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

A flow chart with the system boundaries according to the modular approach is shown below.



LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

This declaration is based on a "cradle to gate with options, modules C1-C4 and module D" assessment. The production stage (A1-A3) includes production at the factory in Tyrkia, and Lyngdal, Norway. The products are utilized in different markets, and therefore two scenarios are included. A4a includes transport to a Norwegian use site, while A4b includes transport to a European market. The end-of-life stage (C1-C4) is based on a Norwegian market.

A4a - Transport from production place to assembly/user in a Norwegian market

Transport from production place to assembly/user (A4a)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck (EURO6)	50 %	430	0.33	l/km	141.9

Transport to building site in Norway is based on a scenario with 400 km transport from the factory to a builders' merchant in Oslo and then an additional 30 km to a building site.

A4b - Transport from production place to assembly/user in a European market

Transport from production place to assembly/user (A4b)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck (EURO6)	50 %	1188	0.33	l/km	392.0
Boat (ferry)	-	143	-	-	-

Transport to a building site in Europe is based on a scenario to Brussels, the capital in Belgium, with truck and boat transport from the factory directly to the building site.

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0
Reuse	kg	0
Recycling	kg	0,95
Incineration with energy recovery	kg	0
To landfill	kg	0,5

C1 – dismantling is assumed to be done by use of electrical tools. . C2 – the products are assumed to be 95% recycled and 5% landfilled. C3 – 95% of the product is recycled by remelting process to produce secondary aluminum billets, and C4 – 5% of the product is landfilled.

Transport to waste processing (C2)

Transport from production place to assembly/user (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value
Truck	43	297	0,03	l/tkm	

The transport of metal waste is based on an average distance of 297 km for Norway (Raadal et al., 2009).

Benefits and loads beyond the system boundaries (D)

Benefits and loads beyond the system boundaries (D)	Unit	Value
Substitution of primary aluminum with net new scrap	kg	0,25

LCA: Results

The LCA results show environmental impacts, resource use and outflows calculated according to EN 15804:2012+A2:2019. The results are per declared unit as described on page 2. These main results are shown with a location-based approach.

Core environmental impact indicators

Indicator	Unit	A1-A3	A4a	A4b
GWP - total	kg CO2 eq	1,41E+01	3,10E-02	1,03E-01
GWP - fossil	kg CO2 eq	1,38E+01	3,09E-02	1,03E-01
GWP - biogenic	kg CO2 eq	3,19E-01	6,68E-05	1,82E-04
GWP - luluc	kg CO2 eq	2,80E-02	1,42E-05	5,16E-05
ODP	kg CFC11 eq	1,84E-07	6,88E-10	2,17E-09
AP	molc H+ eq	1,03E-01	8,31E-05	7,55E-04
EP - freshwater	kg P eq	8,00E-04	2,74E-07	8,20E-07
EP -marine	kg N eq	1,46E-02	2,35E-05	1,98E-04
EP - terrestrial	molc N eq	1,60E-01	2,48E-04	2,16E-03
POCP	kg NMVOC eq	5,00E-02	1,40E-04	7,82E-04
ADP-M&M ²	kg Sb-Eq	4,00E-05	6,89E-08	2,06E-07
ADP-fossil ²	MJ	1,52E+02	4,73E-01	1,52E+00
WDP ²	m ³	-2,68E+00	2,42E-03	7,12E-03

Indicator	Unit	C1	C2	C3	C4	D
GWP - total	kg CO2 eq	0,00E+00	8,14E-02	2,56E-04	9,22E-04	-1,87E+00
GWP - fossil	kg CO2 eq	0,00E+00	8,13E-02	2,39E-04	7,90E-04	-1,82E+00
GWP - biogenic	kg CO2 eq	0,00E+00	1,55E-04	1,63E-05	1,32E-04	-1,36E-02
GWP - luluc	kg CO2 eq	0,00E+00	2,80E-05	8,60E-07	2,21E-07	-4,16E-02
ODP	kg CFC11 eq	0,00E+00	1,61E-09	5,86E-12	2,00E-11	-5,28E-08
AP	molc H+ eq	0,00E+00	2,41E-04	2,21E-06	4,92E-06	-1,13E-02
EP - freshwater	kg P eq	0,00E+00	4,67E-07	1,01E-08	8,11E-09	-9,44E-05
EP -marine	kg N eq	0,00E+00	8,88E-05	4,88E-07	2,00E-06	-1,30E-03
EP - terrestrial	molc N eq	0,00E+00	9,50E-04	5,58E-06	2,21E-05	-1,43E-02
POCP	kg NMVOC eq	0,00E+00	4,63E-04	1,73E-06	7,81E-06	-6,22E-03
ADP-M&M ²	kg Sb-Eq	0,00E+00	1,83E-07	1,46E-08	3,35E-09	-2,96E-06
ADP-fossil ²	MJ	0,00E+00	1,06E+00	3,76E-03	1,58E-02	-2,67E+01
WDP ²	m ³	0,00E+00	3,52E-03	1,14E-04	7,71E-05	-1,32E-01

GWP-total: Global Warming Potential; **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; See "additional Norwegian requirements" for indicator given as PO4 eq. **EP-marine:** Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **EP-terrestrial:** Eutrophication potential, Accumulated Exceedance; **POCP:** Formation potential of tropospheric ozone; **ADP-M&M:** Abiotic depletion potential for non-fossil resources (minerals and metals); **ADP-fossil:** Abiotic depletion potential for fossil resources; **WDP:** Water deprivation potential, deprivation weighted water consumption

Reading example: 9,0 E-03 = 9,0*10⁻³ = 0,009

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4a	A4b
PM	Disease incidence	8,05E-07	3,27E-09	9,52E-09
IRP ¹	kBq U235 eq.	3,43E-01	2,63E-04	7,68E-04
ETP-fw ²	CTUe	4,28E+01	2,65E-01	8,43E-01
HTP-c ²	CTUh	1,22E-08	1,28E-11	4,24E-11
HTP-nc ²	CTUh	2,52E-07	5,19E-10	1,54E-09
SQP ²	Dimensionless	4,32E+01	6,69E-01	1,86E+00

Indicator	Unit	C1	C2	C3	C4	D
PM	Disease incidence	0,00E+00	6,21E-09	2,97E-11	1,06E-10	-1,18E-07
IRP ¹	kBq U235 eq.	0,00E+00	4,33E-04	4,94E-05	5,66E-05	-1,57E-01
ETP-fw ²	CTUe	0,00E+00	5,32E-01	2,12E-03	7,93E-02	-5,40E+00
HTP-c ²	CTUh	0,00E+00	2,67E-11	8,05E-13	1,38E-12	-5,61E-09
HTP-nc ²	CTUh	0,00E+00	8,02E-10	1,69E-11	2,85E-11	-7,78E-08
SQP ²	Dimensionless	0,00E+00	4,75E-01	1,62E-02	3,14E-02	-1,90E+00

PM: Particulate matter emissions; **IRP:** Ionising radiation, human health; **ETP-fw:** Ecotoxicity (freshwater); **ETP-c:** Human toxicity, cancer effects; **HTP-nc:** Human toxicity, non-cancer effects; **SQP:** Land use related impacts / soil quality

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.

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

Resource use

Parameter	Unit	A1-A3	A4a	A4b
RPEE	MJ	1,56E+01	7,88E-03	2,31E-02
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,56E+01	7,88E-03	2,31E-02
NRPE	MJ	1,51E+02	4,73E-01	1,52E+00
NRPM	MJ	1,52E+00	0,00E+00	0,00E+00
TRPE	MJ	1,52E+02	4,73E-01	1,52E+00
SM	kg	7,00E-01	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00
W	m ³	-2,54E-03	7,68E-05	2,27E-04

Parameter	Unit	C1	C2	C3	C4	D
RPEE	MJ	0,00E+00	1,32E-02	1,50E-02	2,89E-03	-1,09E+01
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	0,00E+00	1,32E-02	1,50E-02	2,89E-03	-1,09E+01
NRPE	MJ	0,00E+00	1,06E+00	3,76E-03	1,58E-02	-2,67E+01
NRPM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	0,00E+00	1,06E+00	3,76E-03	1,58E-02	-2,67E+01
SM	kg	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m ³	0,00E+00	1,46E-04	1,06E-04	2,22E-05	-7,58E-02

RPEE Renewable primary energy resources used as energy carrier; *RPEM* Renewable primary energy resources used as raw materials; *TPE* Total use of renewable primary energy resources; *NRPE* Nonrenewable primary energy resources used as energy carrier; *NRPM* Nonrenewable primary energy resources used as materials; *TRPE* Total use of non-renewable primary energy resources; *SM* Use of secondary materials; *RSF* Use of renewable secondary fuels; *NRSF* Use of non-renewable secondary fuels; *W* Use of net fresh water.

End of life – Waste

Parameter	Unit	A1-A3	A4a	A4b
HW	kg	3,98E-02	1,40E-05	4,12E-05
NHW	kg	2,59E+00	5,88E-02	1,63E-01
RW	kg	2,31E-04	1,68E-07	4,84E-07

Parameter	Unit	C1	C2	C3	C4	D
HW	kg	0,00E+00	2,15E-05	5,25E-07	1,87E-03	-6,62E-04
NHW	kg	0,00E+00	3,79E-02	1,16E-04	5,07E-02	-5,24E-01
RW	kg	0,00E+00	2,73E-07	2,27E-08	3,07E-08	-1,26E-04

HW Hazardous waste disposed; *NHW* Non-hazardous waste disposed; *RW* Radioactive waste disposed.

End of life – output flow

Parameter	Unit	A1-A3	A4a	A4b
CR	kg	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00

EEE	MJ	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00

Parameter	Unit	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	9,50E-01	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

CR Components for reuse; *MR* Materials for recycling; *MER* Materials for energy recovery; *EEE* Exported electric energy; *ETE* Exported thermal energy.

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	0
Biogenic carbon content in the accompanying packaging	kg C	0

Additional requirements

Location based electricity mix from the use of electricity in manufacturing

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (foreground/core) per functional unit. This is used for the main results in this EPD.

National electricity grid	Data source	Foreground / core [kWh]	GWP _{total} [kg CO ₂ -eq/kWh]	SUM [kg CO ₂ -eq]
<i>Electricity, low voltage {NO} market for electricity, low voltage Cut-off, U</i>	ecoinvent	0,234	0,039	0,009

Guarantees of origin from the use of electricity in the manufacturing phase

Where guarantees of origin is applied instead of national production mix – the electricity for the manufacturing process (A3) shall be stated clearly in the EPD per functional unit. The guarantee of origin utilized in this EPD is provided by Å Entelios and 100% of hydro power is used. The declaration is valid for 2024. Contact the EPD-owner to get more information on the guarantee of origin.

Electricity source	Foreground / core [kWh]	GWP _{total} [kg CO ₂ -eq/kWh]	SUM [kgCO ₂ -eq]
Guarantee of origin electricity used in the foreground	234	0,019	0,004
Residual mix electricity used in the foreground	0	0,521	0

The environmental impact when using the marked based approach is presented in the following table.

Indicator	Unit	A1-A3
GWP - total	kg CO ₂ eq	1,41E+01
GWP - fossil	kg CO ₂ eq	1,38E+01
GWP - biogenic	kg CO ₂ eq	3,18E-01
GWP - luluc	kg CO ₂ eq	2,79E-02

Additional environmental impact indicators required for construction products

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Parameter	Unit	A1-A3	A4a	A4b
GWP-IOBC	kg	1,41E+01	3,10E-02	1,03E-01

Parameter	Unit	C1	C2	C3	C4	D
GWP-IOBC	kg	0,00E+00	8,14E-02	2,56E-04	9,22E-04	-1,87E+00

GWP-IOBC Global warming potential calculated according to the principle of instantaneous oxidation.

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- The product contains no substances given by the REACH Candidate list.
- The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.
- The product contains dangerous substances, more than 0,1% by weight, given by the REACH Candidate List, see table.
- The product is classified as hazardous waste, see table.

Indoor environment






Not relevant to this product.

Carbon footprint

While a carbon footprint analysis has not been conducted for the product separately, the results section does include an evaluation of Global Warming Potential (GWP) with such an analysis. The GWP total results presented in this EPD document represents the carbon footprint of the product studied

Bibliography

ISO 14025:2010	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 21930:2007	Sustainability in building construction - Environmental declaration of building products
Ecoinvent v3.9	Swiss Centre of Life Cycle Inventories. https://www.ecoinvent.org/
SimaPro	LCA software, developed by PRé Sustainability https://simapro.com/
NPCR 013 2021 ver. 4.0	Part B for steel and aluminium construction products
Bjordal, Kristine, 2024	LCA Report Fibo Aluminium profiles version 01

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