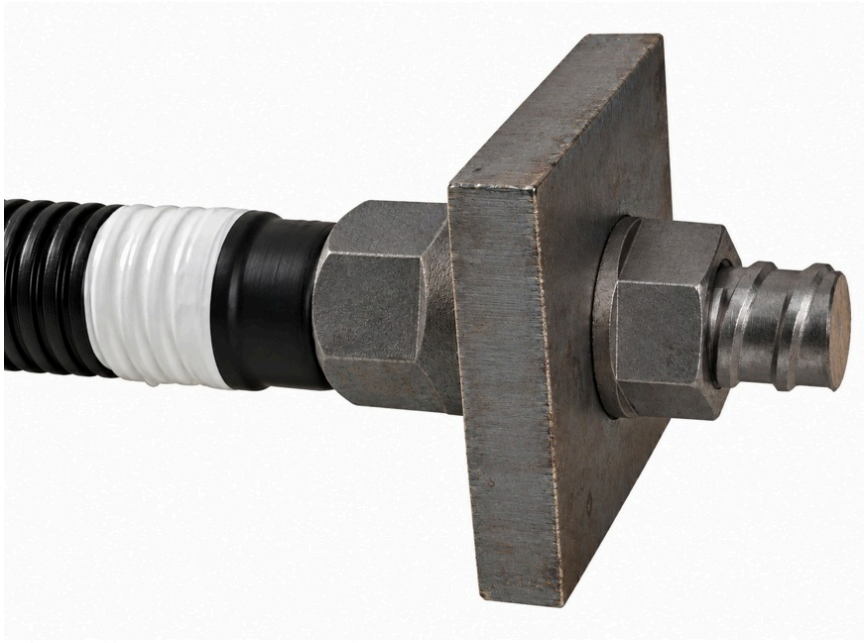
epd-global
Powered by EPD-Norway

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804+A2

ANP-Systems GmbH
DCP Pfahl



Owner of the declaration
ANP-Systems GmbH
Christophorusstraße 12
5061 Elsbethen
Austria

Product
DCP Pfahl

Declared unit
1 kg

This declaration is based on Product Category Rules
EN 15804:2012 + A2:2019,
NPCR Part A:2021 ,
NPCR 013 Part B for Steel and Aluminium Construction Products

Program operator:
EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway

Declaration number
NEPD-30410-30410-2

Registration number
NEPD-30410-30410-2

Issue date
13.11.2026

Valid to
12.11.2031

EPD Software
Emidat Platform v1.0.0

General Information

Product
DCP Pfahl

Program Operator
EPD Global
Majorstuen P.O. Box 5250
N-0303 Oslo
Norway
Phone: +47 23 08 80 00
Email: post@epd-norge.no

Declaration Number
NEPD-30410-30410-2

This declaration is based on Product Category Rules
EN 15804:2012 + A2:2019,
NPCR Part A:2021 ,
NPCR 013 Part B for Steel and Aluminium Construction Products

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

Declared unit
1 kg

General information on verification of EPD from EPD tools
Independent verification of data, other environmental information and the declaration according to ISO 14025:2011-10, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD Global, and iii) the process is reviewed annually by an independent third-party verifier. See Appendix G of EPD Global's General Programme Instructions for further information on EPD tools.

Verification
Independent third-party verification based on the verification of the EPD tool, background data and test-EPD in accordance with EPD Global's procedures and guidelines for verification and approval of EPD tools.
Third-party verifier: Charlotte Merlin, FORCE Technology

Owner of the declaration
ANP-Systems GmbH

Contact person
info@anp-systems.at

Phone
+43 662 253253-0

Email
info@anp-systems.at

Manufacturer
ANP-Systems GmbH
Christophorusstraße 12
5061 Elsbethen, Austria

Place of production
Elsbethen, Austria

Management system
ISO 14001 , ISO 9001

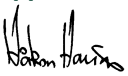
Issue date
13.11.2026

Valid to
12.11.2031

Year of study
2025

Comparability
EPDs of construction products may not be comparable if they do not comply with EN 15804 and are not seen in a building context. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database (including primary and secondary data).

Development and verification of EPD
The declaration was created using the Emidat EPD tool v1.0, developed by Emidat GmbH which is third-party verified and approved as a Reference Flow Tool with internal review under administration and surveillance by EPD Global under provisions stated in general information on verification of EPD from EPD tools.
Developer of EPD: Maximilian Römer
Reviewer of company-specific input data and EPD: Christian Schwarzenbacher

Approved

Håkon Hauan, The Norwegian EPD Foundation

Product

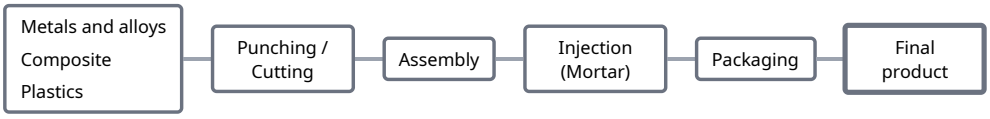
Product description

The Double Corrosion Protected (DCP) micropile is a permanent steel pile featuring a dual-layer corrosion protection system, combining a primary protective layer (e.g. mortar and corrugated HDPE-sheeting) with a secondary protective layer (e.g. mortar). This redundant protection prevents moisture and aggressive media from penetrating the steel surface, significantly extending service life compared to Single Corrosion Protected micropiles, and ensures durability even if one barrier is damaged. The system is supplied complete with pile head, coupler, and centralizer components based on national approvals in accordance with EN 14199 “Micropiles”.

Application description

Permanent DCP micropiles are used also in highly corrosive environments such as marine, harbor and waterfront structures, bridge foundations, mast foundations for power-lines/solar fields, up-lift anchorage, to seek balance against groundwater pressure, and in aggressive soils with high sulfate or chloride content. They are particularly suited for long-service-life structures (100+ years) where replacement or repair is difficult due to encapsulation in (concrete) floors and foundation structures.

Production process



Product specification

Name of ingredient	Share of total weight
Metals and alloys	50 - 70 %
Composite	30 - 50 %
Plastics	2 - 10 %

Packaging

Name	Quantity, kg
Softwood	1.03e-03
LDPE	1.64e-05
Engineered wood	3.32e-03
Steel	5.44e-04
Paper	1.61e-05
PET	2.68e-04
Wooden pallets	2.00e-03
PE foam	6.23e-06
Polypropylene	3.46e-05
PP (recycled)	2.23e-06

Technical data

	Unit	Value
Density	kg / m³	7290
Total mass	kg	1

Market

Global

Recipients

B2B

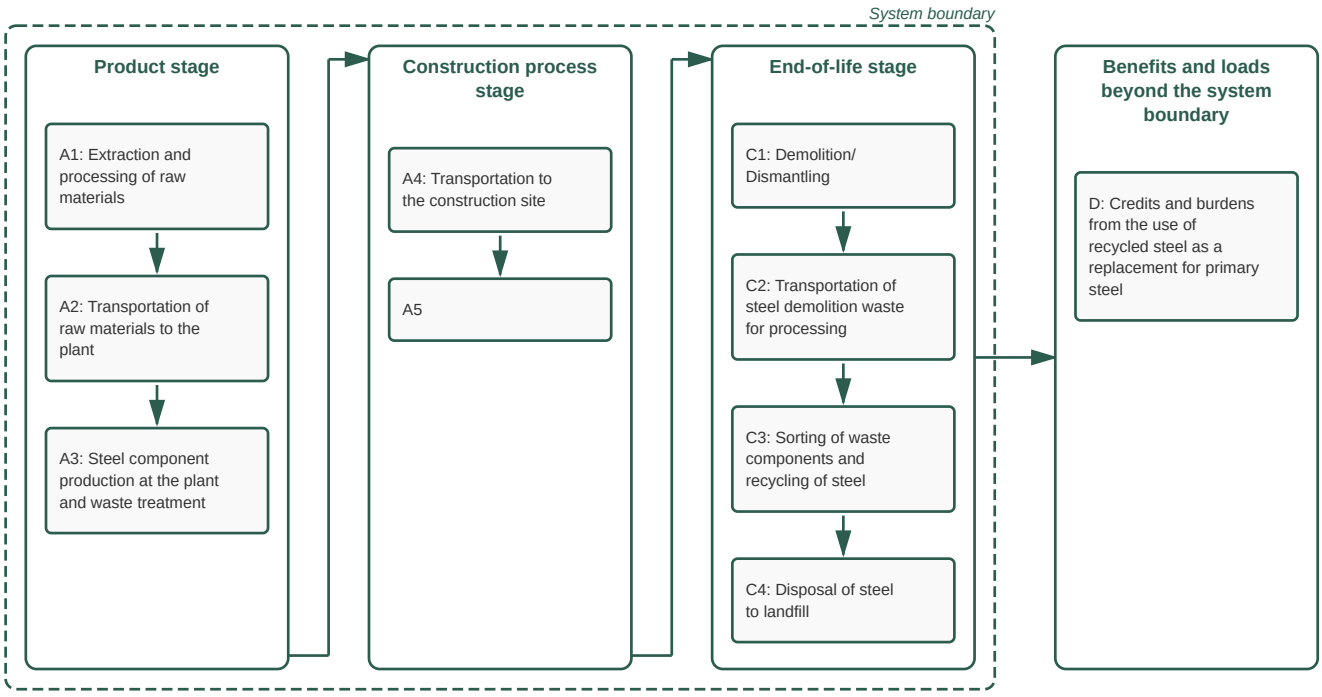
LCA: Calculation rules

Declared unit
1 kg

Product lifetime
100 years

Reference service life
Not declared

System boundary



Data quality
The foreground data are based on extensive and detailed data collection at the production site of the manufacturer, covering key processes such as raw material sourcing, formulation, and manufacturing. These foreground data are fully linked with corresponding datasets from the background database (ecoinvent 3.10) or with EN15804+A2-compliant EPDs, ensuring consistency, reliability, and maintaining alignment with the latest industry standards.

EN15804+A2-compliant EPDs were used as datasets in this EPD for the following materials:

Category	Source	Year
Metals and alloys	EPD International	2026
Metals and alloys	Kiwa	2023

The overall data representativeness is rated as good with an overall score of 4.00/5, in accordance with EN 15804+A2 Annex E guidance on data quality assessment for the calculation of the environmental footprint of products (Table E.2), considering geographical, technical, and temporal representativeness.

The following table discloses all processes or activities assessed with very poor or poor data representativeness according to EN 15804+A2, as well as those assessed as fair that contribute more than 30 % to any core impact indicator in A1–C4:

Item	Source	Year
Electricity from grid	ecoinvent 3.10	2023
Gas	ecoinvent 3.10	2023
Incineration	ecoinvent 3.10	2023
Landfill	ecoinvent 3.10	2023
Manufacturing fuels	ecoinvent 3.10	2023
Metals and alloys	ecoinvent 3.10	2023
Packaging	ecoinvent 3.10	2023
Recycling	ecoinvent 3.10	2023

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

	Product stage			Construction process stage		Use stage							End-of-life stage				Next product system
	Raw material supply	Transport	Manufacturing	Transport	Installation Process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Demolition	Transport	Waste Processing	Disposal	Benefits and loads beyond the system boundary
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
Geography			AT	Global	Global	MND	MND	MND	MND	MND	MND	MND	Global	Global	Global	Global	Global

For the geographies modeled in A1 and A2, refer to *Product specification*.

Type of EPD: Cradle to gate with options, modules A4, A5, C1-C4 + D

Product and construction stage

Module A1: Extraction and processing of raw materials

Module A2: Transportation of raw materials to the plant

Module A3: Steel component production at the plant and waste treatment

Module A4: Transportation to the construction site

Disposal Stage

Module C1: Demolition/Dismantling

Module C2: Transportation of steel demolition waste for processing

Module C3: Sorting of waste components and recycling of steel

Module C4: Disposal of steel to landfill

Credits and burdens outside the system boundaries
Module D: Credits and burdens from the use of recycled steel as a replacement for primary steel

Cut-off criteria

All inputs and outputs related to the declared modules of Steel, including raw materials, packaging, transportation, energy usage and ancillary materials, were comprehensively considered in line with EN 15804+A2 and if applicable the product-specific PCR. Furthermore, all known hazardous substances (within the REACH list and the Norwegian Priority List), regulated materials, and significant emissions were declared and are not excluded under the cut-off rules.

The following processes are considered below the EN 15804+A2 cut-off threshold and were excluded:

- Impacts related to the manufacturer's infrastructure and assets
- Manufacturing of means of production, buildings or other capital goods
- Transportation of personnel to the plant
- Transportation of personnel within the plant
- Research and development activities
- Long-term emissions

Allocation

Foreground inventory data (energy and fuels, ancillary materials, emissions and waste) was collected at the production process level. Allocation based on mass was applied to allocate the total output of the production process in 2025 to the reference product.

Key assumptions and estimates

Production process flows are allocated to the reference product, as described under allocation. If applied, mass-based allocation assumes a uniform distribution of production impacts across products of the same production process. Where it is applied, foreground inventory data is checked for consistency of production process, to ensure the validity of the allocated results.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD. Mass and energy flows are reported per 1 kg of product.

Transport to the building site (A4)	Value	Unit
Location of the production site	Austria	
Location of the installation site	Global	
Transported mass: Product and packaging	1.01	kg
Transport modality: Truck	transport, freight, lorry >32 metric ton, EURO6	-
Distance	300.00	km
Litres of fuel	36.48	l / 100km
Energy demand	1.58	MJ / t*km
Energy demand (km)	1.60e-03	MJ / km
Capacity utilization	53.30	%

Transport of the product and its packaging from the production site to the installation site. Transport distances are based on external sources such as reported market averages, standards or PCRs.

Installation into the building (A5)	Value	Unit
Diesel for crane operation	0.04	MJ

The use of mechanized construction equipment during product installation is included as energy use under module A5.

End-of-life scenario (C1-C4)	Value	Unit
Diesel for deconstruction	-	kg
Collection process specified by type		
Collected individually	0	kg
Collected with mixed construction and demolition waste	0	kg
Recovery system specified by type		
Destined for reuse	0	kg
Destined for recycling	0	kg
Destined for energy recovery	0	kg
Disposal specified by type		
Product or material destined for final disposal	0	kg

Components are either embedded within concrete structures or permanently fixed, making their deconstruction, waste processing, and disposal negligible or non-existent at the end of the life cycle. Module C2 includes the impact of transportation of material after deconstruction, during the End-of-Life stage.

Reuse, recovery and/or recycling potentials (D)	Value	Unit
Amount of secondary material that the system takes in	0.55	kg
Installation (packaging): Material for recycling/reuse	2.27e-03	kg
Installation (packaging): Net flow of secondary material	2.27e-03	kg
End-of-life (product): Net flow of secondary material	0	kg
Substitution of wood chips	1.65e-03	kg
Substitution of plastics	1.37e-04	kg
Substitution of metals	4.62e-04	kg
Substitution of paper	1.40e-05	kg
Installation (packaging): Material eligible for incineration credits	1.42e-03	kg
Installation (packaging): Exported energy eligible for credits	9.09e-03	MJ
End-of-life (product): Material eligible for incineration credits	0	kg
End-of-life (product): Exported energy eligible for credits	0	MJ
Substitution of electricity production, grid mix	2.58e-03	MJ
Substitution of heat production from natural gas	6.51e-03	MJ

Calculation of loads and benefits per EN 15804+A2. Exported energy is credited only where it originates from the incineration of primary material; landfilled fractions receive no exported-energy credit and therefore no avoided primary energy consumption. Recycling or reuse benefits are credited for the net flow of secondary material.

LCA: Results

The following results are based on the market-based electricity approach applied to the foreground system (A3). Further details on electricity data are provided in the Additional Requirements section.

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO_2-eq.	9.39e-01	3.14e-02	1.57e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.93e-03
GWP-fossil	kg CO_2-eq.	9.40e-01	3.14e-02	4.88e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.93e-03
GWP-biogenic	kg CO_2-eq.	-1.44e-03	4.92e-07	1.08e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.42e-06
GWP-luluc	kg CO_2-eq.	3.72e-04	1.31e-05	6.28e-07	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.03e-06
ODP	kg CFC-11-Eq	6.13e-08	5.05e-10	7.11e-11	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-3.63e-11
AP	mol H+-Eq	3.01e-03	8.00e-05	4.06e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-4.00e-06
EP-freshwater	kg P-Eq	1.49e-04	2.54e-06	2.56e-07	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-3.91e-07
EP-marine	kg N-Eq	7.32e-04	2.03e-05	1.90e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.03e-06
EP-terrestrial	mol N-Eq	8.01e-03	2.20e-04	2.02e-04	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.10e-05
POCP	kg NMVOC-Eq	2.93e-03	1.21e-04	6.05e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-6.28e-06
ADPE	kg Sb-Eq	3.70e-06	9.07e-08	2.54e-09	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-3.51e-09
ADPF	MJ, net calorific value	1.29e+01	4.72e-01	6.06e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-3.13e-02
WDP	m^3 world Eq deprived	1.44e-01	2.26e-03	3.09e-04	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-2.62e-04

GWP-total: Global Warming Potential - total , **GWP-fossil**: Global warming potential - fossil , **GWP-biogenic**: Global Warming Potential - biogenic , **GWP-luluc**: Global Warming Potential - luluc , **ODP**: Depletion potential of the stratospheric ozone layer , **AP**: Acidification potential, Accumulated Exceedance , **EP-freshwater**: Eutrophication potential - freshwater , **EP-marine**: Eutrophication potential - marine , **EP-terrestrial**: Eutrophication potential - terrestrial , **POCP**: Photochemical Ozone Creation Potential , **ADPE**: Abiotic depletion potential - non-fossil resources , **ADPF**: Abiotic depletion potential - fossil resources , **WDP**: Water (user) deprivation potential . **ADPE, ADPF, WDP**: The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with these indicators.

Additional indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	disease incidence	ND	3.08e-09	1.14e-09	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-5.41e-11
IRP	kBq U235-Eq	ND	4.17e-04	6.92e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-2.20e-05
ETP-fw	CTUe	ND	1.14e-01	1.01e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-6.17e-02
HTP-c	CTUh	ND	1.61e-10	1.93e-11	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-2.29e-10
HTP-nc	CTUh	ND	3.10e-10	1.37e-11	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.02e-11
SQP	dimensionless	ND	4.75e-01	6.50e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.96e-02

PM: Potential incidence of disease due to PM emissions , **IRP**: Potential Human exposure efficiency relative to U235 , **ETP-fw**: Potential Comparative Toxic Unit for ecosystems , **HTP-c**: Potential Comparative Toxic Unit for humans - cancer effects , **HTP-nc**: Potential Comparative Toxic Unit for humans - non-cancer effects , **SQP**: Potential Soil quality index . **IRP**: 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. **ETP-fw, HTP-c, HTP-nc, SQP**: The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with these indicators.

Use of resources

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	8.62e-01	6.19e-03	2.02e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.15e-02
PERM	MJ	1.30e-01	0.00e+00	-7.14e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-2.88e-02
PERT	MJ	9.91e-01	6.19e-03	-5.12e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-7.26e-03
PENRE	MJ	1.14e+01	4.72e-01	6.40e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-2.55e-02
PENRM	MJ	1.40e+00	0.00e+00	-9.41e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-5.80e-03
PENRT	MJ	1.28e+01	4.72e-01	5.46e-02	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-3.13e-02
SM	kg	6.31e-01	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	2.27e-03
RSF	MJ	0.00e+00	0.00e+00	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	0.00e+00	0.00e+00
FW	m^3	4.69e-03	6.95e-05	5.37e-07	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-5.81e-06

PERE: Primary energy resources - renewable: use as energy carrier , **PERM**: Primary energy resources - renewable: used as raw materials , **PERT**: Primary energy resources - renewable: total , **PENRE**: Primary energy resources - non-renewable: use as energy carrier , **PENRM**: Primary energy resources - non-renewable: used as raw materials , **PENRT**: Primary energy resources - non-renewable: total , **SM**: Use of secondary material , **RSF**: Renewable secondary fuels , **NRSF**: Non-renewable secondary fuels , **FW**: Net use of fresh water

Waste flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	kg	9.40e-05	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
NHWD	kg	2.59e-02	0.00e+00	2.97e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
RWD	kg	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00

HWD: Hazardous waste disposed , **NHWD**: Non hazardous waste disposed , **RWD**: Radioactive waste disposed

Output flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CRU	kg	0.00e+00	0.00e+00	2.00e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
MFR	kg	1.91e-03	0.00e+00	2.27e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
MER	kg	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
EEE	MJ	8.84e-03	0.00e+00	2.58e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00
EET	MJ	1.89e-02	0.00e+00	6.52e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	0.00e+00

CRU: Components for re-use , **MFR**: Materials for recycling , **MER**: Materials for energy recovery , **EEE**: Exported electrical energy , **EET**: Exported thermal energy

Name	Value	Unit
Biogenic carbon content in product	0.00e+00	kg C
Biogenic carbon content in accompanying packaging	2.95e-03	kg C

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

Electricity consumption in the manufacturing phase is composed from the sources below. This EPD follows the market-based approach.

Approach	Electricity	Emission Factor [kg CO_2e/kWh]
market-based	ecoinvent: electricity production, hydro, pumped storage (NO)	0.03
market-based	ecoinvent: electricity production, wood, future (GLO)	0.05
(location-based)	(ecoinvent: market for electricity, medium voltage (AT))	(0.23)
market- and location-based	ecoinvent: electricity production, photovoltaic, 3kWp slanted-roof installation, single-Si, panel, mounted (AT)	0.11

The amount of electricity used in the manufacturing stage is not disclosed as it is proprietary information.

Rows marked with () are provided for reference and not used in the assessment.

Dangerous substances

The product does not contain substances listed in the Candidate List of Substances of Very High Concern (SVHC) for Authorisation and the Norwegian priority list (N-priority).

Additional environmental information

Secondary content

The product contains 54.56 % secondary material. Secondary material includes recycled, recovered and by-product content.

Additional environmental impact indicators required in NPCR Part A for construction products

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-IOBC	kg CO_2-eq.	9.43e-01	3.14e-02	4.98e-03	0.00e+00	0.00e+00	0.00e+00	0.00e+00	-1.93e-03

GWP-IOBC: Global Warming Potential - Instantaneous oxidation of biogenic carbon

Bibliography

EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
EN 15941:2024	Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
EN 15942:2022-04	Sustainability of construction works - Environmental product declarations - Communication format business-to-business
ISO 14025:2011-10	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14040:2021-02	Environmental management - Life cycle assessment - Principles and framework
ISO 14044:2021-02	Environmental management - Life cycle assessment - Requirements and guidelines
EF 3.1	Environmental Footprint (EF) Life Cycle Impact Assessment method - Characterisation Factors version 3.1, European Commission, Joint Research Centre (JRC)
ecoinvent 3.10	ecoinvent, Zurich, Switzerland, database version 3.10
NPCR Part A:2021	Construction products and services, Version 2.0. Issue date: 24.03.2021; validity extended to 31.12.2026.
NPCR 013:2021	Product category rules, Part B: Steel and aluminium construction products. Issue date: 06.10.2021; validity extended to 31.12.2026.

epd-global Powered by EPD-Norway	**Program Operator**	Phone	+47 23 08 80 00
	EPD Global		
	P.O. Box 5250 Majorstuen, N-0303 Oslo	Email	post@epd-norge.no
	Norway	Web	www.epd-global.no
epd-global Powered by EPD-Norway	**Publisher**	Phone	+47 23 08 80 00
	EPD Global		
	P.O. Box 5250 Majorstuen, N-0303 Oslo	Email	post@epd-norge.no
	Norway	Web	www.epd-global.no
ANP SYSTEMS	**Owner of the declaration**	Phone	+43 662 253253-0
	ANP-Systems GmbH		
	Christophorusstraße 12, 5061 Elsbethen	Email	info@anp-systems.at
	Austria	Web	https://www.anp-systems.at/
ANP SYSTEMS	**Author of the life cycle assessment**	Phone	+43 662 253253-0
	ANP-Systems GmbH		
	Christophorusstraße 12, 5061 Elsbethen	Email	info@anp-systems.at
	Austria	Web	https://www.anp-systems.at/
EMIDAT	**Developer of EPD generator**	Phone	+49 176 56 96 77 91
	Emidat GmbH		
	Sandstraße 33, 80335 München	Email	epd@emidat.com
	Germany	Web	www.emidat.com
ECO PLATFORM EPD VERIFIED	ECO Platform	Web	www.eco-platform.org
	ECO Portal	Web	ECO Portal