epd-norway
Global Program Operator

Environmental Product Declaration

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

Construction timber

Owner of the declaration:
Albert Fjeld AS

Product name:
Construction timber

Declared unit:
1 m³

This EPD declares multiple products, the density is the same for all products and thus the results represent all variants.

Product category /PCR:
PCR 2019:14 for Construction products

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-8217-7882-EN

Registration number:
NEPD-8217-7882-EN

Issue date:
22.11.2024

Valid to:
22.11.2029

ALBERT FJELD AS

The Norwegian
EPD Foundation

General information

Product:
Construction timber

Program operator:
The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
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e-mail: post@epd-norge.no

Declaration number:
NEPD-8217-7882-EN

This declaration is based on Product Category Rules:
PCR 2019:14 for Construction products.

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.

Functional unit:
1 m^3 of construction timber

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

internal ☐ external ☒

Stephen Forson
Independent verifier approved by EPD Norway

Owner of the declaration:
Albert Fjeld
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Manufacturer:
Albert Fjeld AS
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Place of production:
Norway

Management system:
Albert Fjeld is PEFC (Programme for the Endorsement of Forest Certification)certified.

Organisation no:
911 666 197

Issue date:
22.11.2024

Valid to:
22.11.2029

Year of study:
2023

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:
Fanni Végvári, CarbonZero AB

Approved

Manager of EPD Norway

Company

Company information:

Albert Fjeld AS is a sawmill that produces lumber made from spruce and pine for industry and building material retailers. Established in 1971. For more information visit www.albertfjeld.no.

Product

Product description:

Construction timber manufactured by Albert Fjeld is robust and reliable materials for construction projects and can be used for the following products:

- C24 Construction timber (C24 Konstruksjonsvirke)
- Barge board (Lekter)
- Cladding (Kledning)
- Subpanel (Underpanel)
- Impregnated pine (Impregnert furu)
- Water board (Vannbrett)

The construction timber is made in different dimensions, but the density is the same for all products which makes the product the same for the declared unit of per m3. The weight per m3 is 488 kg.

Product specification:

Construction timber

Materials (product)	kg	%
Wood (39% spruce, 61% pine)	488	100
Total	**488**	**100**
Materials (packaging)	Kg	Weight-% versus product
Wooden block	1,6	0,33
Polyethylene	0,5	0,10

Technical information:

The construction timber is sold in different dimensions, which are mentioned below. As the declared unit is per m^3, and the density remains the same across all dimensions, all products have the same weight of 488 kg/m^3.

Properties	
Wood species	Spruce (Picea abies) 39% Pine (Pinus sylvestris) 61%
Moisture content	16-18%
Thickness	11mm-98mm
Widths	21mm-223mm
Lengths	3000mm-5400mm
Density	488 kg/m3
Strength class	C14-C24
Surface	Planed

Article number	NOBBnr.	GTIN	Description
j3698	54168164	7071687102014	36*098 justert konstruksjonsvirke T2/C24
j36123	54168656	7071687102021	36*123 justert konstruksjonsvirke T2/C24
j36148	54168622	7071687100157	36*148 justert konstruksjonsvirke T2/C24
j36198	54168217	7071687102045	36*198 justert konstruksjonsvirke T2/C24
j36223	54168172	7071687102052	36*223 justert konstruksjonsvirke T2/C24
j4898	54181975	7071687102069	48*098 justert konstruksjonsvirke T2/C24
j48123	54168058	7071687102076	48*123 justert konstruksjonsvirke T2/C24
j48148	54168005	7071687100164	48*148 justert konstruksjonsvirke T2/C24
j48198	54168145	7071687100171	48*198 justert konstruksjonsvirke T2/C24
j48223	54168043	7071687102090	48*223 justert konstruksjonsvirke T2/C24
j73148	54168361	7071687102106	73*148 justert konstruksjonsvirke T2/C24
j73173	54167960	7071687102113	73*173 justert konstruksjonsvirke T2/C24
j73198	54168497	7071687102120	73*198 justert konstruksjonsvirke T2/C24
j73223	54168285	7071687102137	73*223 justert konstruksjonsvirke T2/C24
j9898	54167941	7071687102144	98*098 justert konstruksjonsvirke T2/C24

Market:

Norway.

Reference service life, product:

The reference service life of the product is 100 years as a standard, but depending on the application it can vary.

Time representativeness:
Year 2023. Specific data has been collected by the manufacturer and represents the production year of 2023 (January 2023 to January 2024). Generic data used from datasets represent the last three years as the oldest dataset is from 2021.

Time Database(s) and LCA software used:
Experts LCA software (v.10.7.1.28). The study mostly relies on Sphera and Ecoinvent (Ecoinvent v.3.8) datasets.

LCA: Calculation rules

Declared unit:
1 m^3 of construction timber that weighs 488 kg/m^3.

Cut-off criteria:
The following procedures were followed for the exclusion of inputs and output.

- All input and output flows in a unit process were considered i.e., taking into account the value of all flows in the unit process and the corresponding LCI where data was available
- Generic national data was used for modules C1-C4 and D as no specific data was able to be collected
- The use of cut-off criterion on mass inputs and primary energy at the unit process level (1%) and at the information module level (5%) was not applied as all inputs were included

In this study, no hazardous or toxic materials or substances are included in the product.

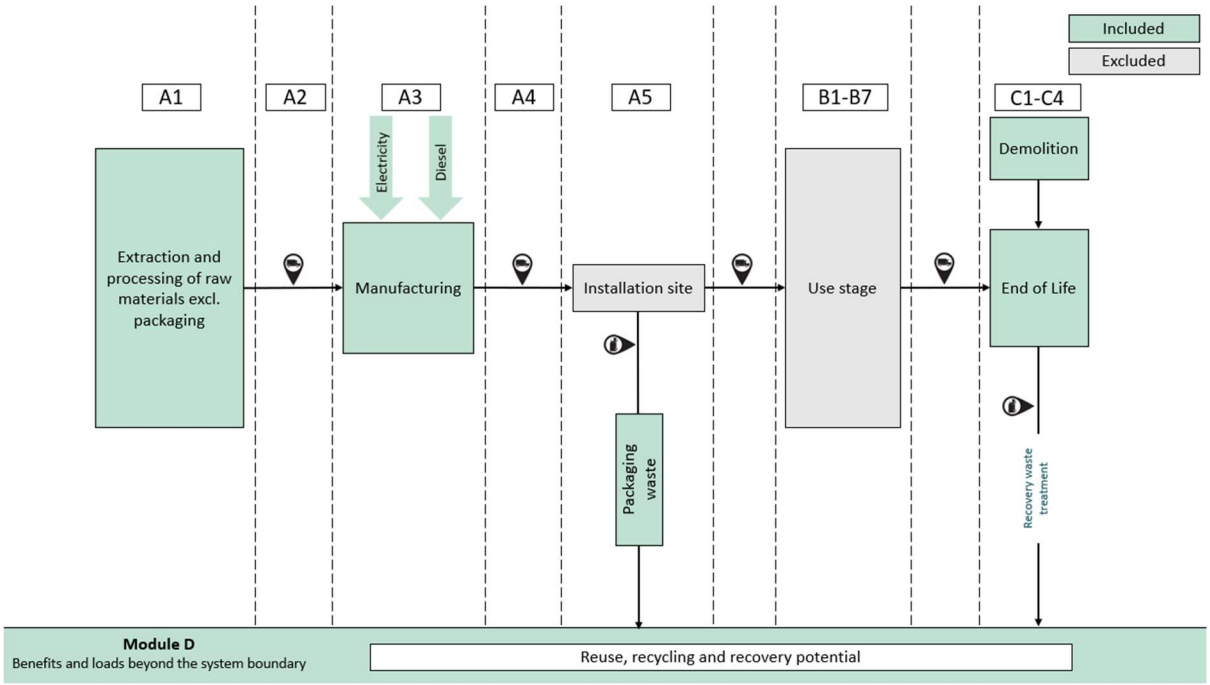
Allocation:
The incoming energy and water are allocated equally among all products through mass allocation. As the manufacturing process creates a co-product, wood chips, which is also sold, a mass allocation has been applied to the environmental impact. The main product accounts for 94,5% of the mass and therefore the results also represent the impact of this percentage.

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
Modules	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	EU	EU	NO	NO	NO								NO	NO	NO	NO	NO
Specific data used	21%																
Variation products	0%																
Variation sites	0%																

System boundary:

The system boundaries are set to cradle to gate with options but excludes module B and module A5 only considers the waste management of the packaging that arises on the installation site. Albert Fjeld buys wood from sawmills (A1) which are transported (A2) to the factory and then undergo a planing process. The manufacturing factory uses electricity and diesel during the manufacturing process (A3). The products are then transported from Albert Fjeld to the costumers that are usually within a 150 km radius (A4). The installation is excluded from this study, however the waste management of the packaging is included (A5). The use phase is also excluded from this study (B). The waste management of the product is assumed to be in accordance with the Norwegian standards as the waste management occurs in Norway (C + D).



Albert Fjeld buys wood from pine and spruce from around the Nordics which they plane into different dimensions for construction timber. The finished timber is distributed out to customers in Norway

LCA: Scenarios and additional technical information

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

Product stage (A1-A3)

Material	Dataset	Database	Regional coverage	Time reference
Spruce	softwood forestry, spruce, sustainable forest management	Sphera	SE	2021
Pine	softwood forestry, pine, sustainable forest management	Sphera	SE	2021
Wood block	wood chips production, softwood, at sawmill	Sphera	Europe without Switzerland	2021
Polyethylene	Polyethylene low density granulate (LDPE/PE-LD)	Sphera	RER	2023

Transport from production place to assembly/user (A4)

Transport from production place to assembly/user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption
Truck	61	150	0,0247 l/tkm diesel

Installation (A5)

The installation of the construction timber is excluded from the study as there are multiple application areas. However, the waste management of the packaging material is included and the waste rates of the materials is seen below.

Material	Waste category	Value	Unit
Wood	Recycling	3	%
	Incineration*	96	%
	Landfill	1	%
Plastic	Recycling	50	%
	Incineration*	29	%
	Landfill	21	%

*Note that the incineration includes energy recovery in module D.

Deconstruction (C1)

Dataset	Database	Regional coverage	Time reference
Excavator, 100 kW, construction	Sphera	GLO	2022

Transport to waste processing (C2)

Transport from production place to assembly/user (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption
Truck	61	50	0,0247 l/tkm diesel

End of Life (C3, C4)

The data about waste rates from Norway has been used as these are the largest markets for this product. Statistics Norway was used as the market for the product is Norway and therefore the majority of the material will be waste managed in Norway.

Material	Waste category	Value	Unit
Wood	Recycling	3	%
	Incineration*	96	%
	Landfill	1	%

*Note that the incineration includes energy recovery in module D.

LCA: Results, per declared unit of 1 m³

Results are based on EN 15804:2012+A2:2019 EF 3.1.

Core environmental impact indicators

Indicator	Unit	Results per 1 m³							
		A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - total	kg CO_2 eq	-7,86E+02	4,97E+00	3,09E+00	2,80E-01	1,66E+00	8,35E+02	7,12E+00	-4,63E+00
GWP - fossil	kg CO_2 eq	5,06E+01	4,97E+00	3,30E-01	2,80E-01	1,66E+00	3,83E-01	3,30E-01	-4,63E+00
GWP - biogenic	kg CO_2 eq	-8,37E+02	4,57E-04	2,76E+00	2,48E-05	1,61E-04	8,34E+02	6,79E+00	-3,67E-03
GWP - luluc	kg CO_2 eq	3,98E-01	2,83E-04	-1,30E-05	1,56E-05	9,64E-05	2,16E-04	5,07E-04	-3,49E-04
ODP	kg CFC11 eq	9,34E-06	1,16E-06	-6,73E-10	6,44E-08	3,86E-07	2,49E-12	6,21E-13	-1,03E-11
AP	molc H+ eq	1,87E-01	1,46E-02	2,04E-04	1,70E-03	4,90E-03	3,73E-03	1,98E-03	-3,01E-03
EP- freshwater	kg P eq	5,04E-03	5,30E-05	-1,00E-05	2,94E-06	1,78E-05	6,40E-07	1,47E-05	-7,57E-06
EP -marine	kg N eq	5,98E-02	4,32E-03	2,08E-05	6,89E-04	1,45E-03	1,10E-03	8,50E-04	-1,24E-03
EP - terrestrial	molc N eq	6,32E-01	4,75E-02	1,09E-03	7,54E-03	1,59E-02	1,56E-02	7,75E-03	-1,28E-02
POCP	kg NMVOC eq	2,07E-01	1,08E-02	7,67E-05	1,99E-03	3,60E-03	3,01E-03	4,95E-03	-3,39E-03
ADP-M&M[2]	kg Sb-Eq	7,60E-05	9,02E-07	-2,86E-07	4,99E-08	3,02E-07	2,65E-08	1,31E-08	-3,01E-07
ADP-fossil[2]	MJ	7,94E+02	7,12E+01	-2,37E-02	3,93E+00	2,40E+01	5,49E+00	4,73E+00	-1,06E+02
WDP[2]	m³	4,53E+00	7,92E-02	2,82E-01	4,15E-03	2,94E-02	2,48E+00	3,81E-02	-3,49E-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

[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

[3] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO2 is set to zero.

Voluntary environmental impact indicators

Indicator	Unit	Results per 1 m³							
		A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG[3]	kg CO_2 eq	5,09E+01	4,97E+00	3,46E-01	2,80E-01	1,66E+00	3,85E-01	6,48E+00	-4,63E+00

Additional environmental impact indicators

Indicator	Unit	Results per 1 m³							
		A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	1,47E-06	7,64E-08	-1,04E-08	1,70E-08	2,55E-08	2,49E-08	1,90E-08	-4,04E-08
IRP[1]	kBq U235 eq.	3,93E+00	3,37E-01	3,93E-03	1,78E-02	1,24E-01	4,70E-02	8,64E-03	-1,33E+00
ETP-fw[2]	CTUe	2,19E+02	1,90E+01	-2,27E-02	1,06E+00	6,34E+00	2,36E+00	2,16E+00	-2,02E+00
HTP-c[2]	CTUh	2,06E-08	3,17E-10	-1,56E-10	1,69E-11	1,14E-10	2,37E-10	8,52E-11	-1,49E-09
HTP-nc[2]	CTUh	2,00E-07	5,57E-09	8,41E-10	3,11E-10	1,90E-09	1,26E-08	1,29E-08	-1,48E-08
SQP[2]	Dimensionless	6,02E+04	8,94E+00	-4,35E-01	4,80E-01	3,18E+00	1,75E+00	4,59E-01	-2,29E+01

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*

Resource use

Parameter	Unit	Results per 1 m³							
		A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	9,45E+03	7,91E-01	3,04E+01	1,03E-02	6,68E-01	1,55E+00	9,27E+01	-4,65E+01
RPEM	MJ	5,38E+03	0,00E+00	-3,02E+01	0,00E+00	0,00E+00	-9,13E+03	-9,22E+01	0,00E+00
TPE	MJ	1,87E+04	7,91E-01	1,72E-01	1,03E-02	6,68E-01	-9,13E+03	4,83E-01	-4,65E+01
NRPE	MJ	7,94E+02	7,12E+01	-2,37E-02	3,93E+00	2,40E+01	5,49E+00	4,73E+00	-1,06E+02
NRPM	MJ	2,19E+01	0,00E+00	-2,19E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	8,17E+02	7,12E+01	-2,37E-02	3,93E+00	2,40E+01	5,49E+00	4,73E+00	-1,06E+02
SM	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
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
W	m³	1,21E-01	2,54E-03	7,01E-03	9,64E-05	1,38E-03	5,82E-02	1,04E-03	-6,17E-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	Results per 1 m³							
		A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	2,72E-08	9,64E-10	8,71E-10	0,00E+00	9,64E-10	3,23E-09	8,29E-10	-7,38E-08
NHW	kg	5,81E-02	6,40E-04	1,21E-01	0,00E+00	6,40E-04	4,18E-01	2,80E+00	-6,46E-02
RW	kg	9,79E-03	1,50E-04	3,76E-05	0,00E+00	1,50E-04	2,96E-04	5,80E-05	-1,15E-02

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

End of life – output flow

Parameter	Unit	Results per 1 m³							
		A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,00E+00	0,00E+00	1,51E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	0,00E+00	2,98E-01	0,00E+00	0,00E+00	1,38E+01	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	0,00E+00	0,00E+00	3,90E+00	0,00E+00	0,00E+00	3,13E+01	0,00E+00	0,00E+00
ETE	MJ	0,00E+00	0,00E+00	7,03E+00	0,00E+00	0,00E+00	5,64E+01	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	2,03E+02
Biogenic carbon content in the accompanying packaging	kg C	7,90E-01

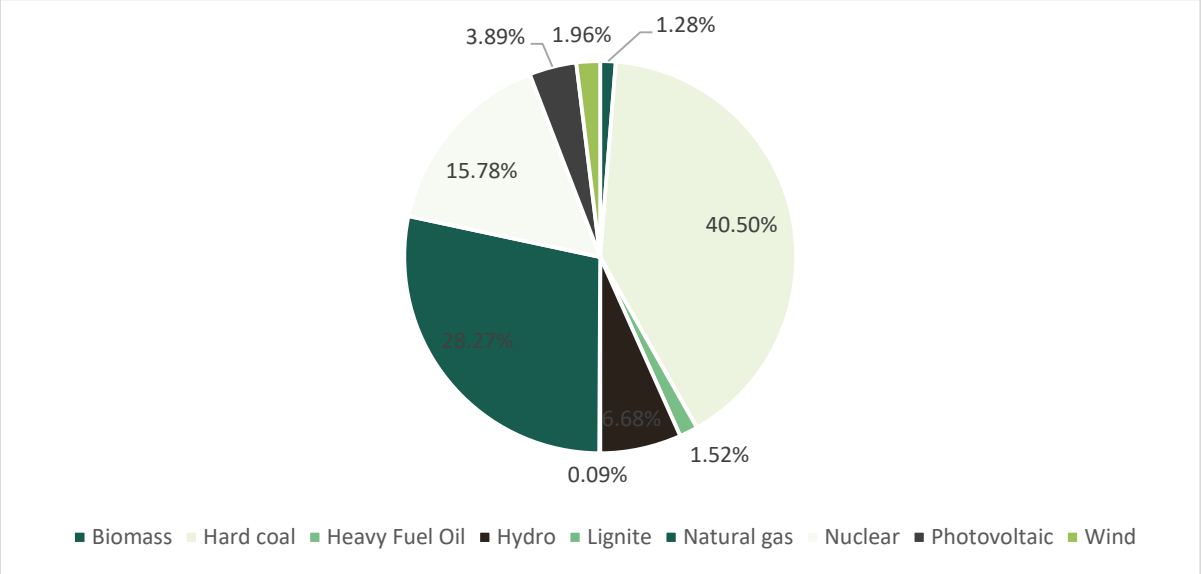
*44/12 is the ratio between the molecular mass of CO2 and C molecules

Additional requirements

Location based electricity mix from the use of electricity in manufacturing

The manufacturing process has been modelled and calculated according to the Norweigan national energy mix with data retrieved from the International Energy Agency (2023).

National electricity grid	Data source	GWP excl. biogenic [kg CO2 -eq/kWh]
Norway residual mix	IEA (2023)	0,048



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 then 0,1% by weight, given by the REACH Candidate List, see table.
- ☐ The product is classified as hazardous waste, see table.

Bibliography

Association of Issuing Bodies	European Residual Mixes 2022. Version 1.0. (2023) https://www.aib-net.org/sites/default/files/assets/facts/residual-mix/2022/AIB_2022_Residual_Mix_Results_inclAnnex.pdf
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
ISO 14020:2000	Environmental labels and declarations — General principles
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
ISO 21930:2007	Sustainability in building construction - Environmental declaration of building products
NPCR Part A	Construction Products and Services Version 2.0
SSB	Statistics Norway. (2022) Waste account for Norway (1 000 tonnes), by treatment, contents, year and material. https://www.ssb.no/en/statbank/table/10513/

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