Environmental Product Declaration

In accordance with ISO 14025 and EN 15804 +A2

Owner of the declaration:
Hunton Fiber AS

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-4037-3072-EN

Registration Number:
NEPD-4037-3072-EN

Issue date: 16.12.2022
Valid to: 16.12.2027

ver-210324

Product name:

Hunton Vindtett 12 mm
Hunton Vindtett 15 mm
Hunton Vindtett 19 mm
Hunton Vindtett 25 mm

Manufacturer
Hunton Fiber AS

The Norwegian
EPD Foundation

General information

Product:
Hunton Fiber AS

Program Operator:
The Norwegian EPD Foundation
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Declaration Number:
NEPD-4037-3072-EN

This declaration is based on Product Category Rules:

NPCR Part A. Construction products and services vers.2; NPCR 010:03.2022 Part B for building boards (references to EN 15804 +A2).

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

Declared unit:
1 kg of installed Hunton Vindtett boards.

Declared unit with option:
N/A

Functional unit:
1m² of installed Hunton Vindtett boards, cradle to grave with 60 years lifetime.

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

internal ☐ external ☒

Sign

Independent verifier approved by EPD Norway

Owner of the declaration:
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Manufacturer:
Hunton Fiber AS

Place of production:
Gjøvik

Management system:
ISO 9001 and 50001, Eco-lighthouse, PEFC

Organisation no:
964014256

Issue date:
16.12.2022

Valid to:
16.12.2027

Year of study:
2021

Comparability:
EPDs from other programs than EPD Norge may not be comparable.

The EPD has been worked out by:
Maciej Biedacha, Ellen Soldal

Approved (Manager of EPD Norway)

Product

Product description:

Hunton Vindtett™ is a diffusion open windbarrier which protects against cold, wind and moisture. It is mainly made of wood fibre and impregnated to provide exceptional performance and robustness.

Product specification:

Calculations have been performed for a declared unit of an average 1 kg of Hunton Vindtett board.

Table 1. Material composition Vindtett boards

Materials	12 mm Vindtett		15 mm Vindtett		19 mm Vindtett		25 mm Vindtett	
	kg	%	kg	%	kg	%	kg	%
Wood fibre, dry matter	2.16	78.43	2.97	79.36	3.72	80.11	4.99	81.03
Water	0.11	4.00	0.15	4.00	0.19	4.00	0.25	4.00
Bitumen	0.31	11.27	0.42	11.23	0.52	11.19	0.68	11.04
Waste paper	0.11	4.03	0.11	2.97	0.11	2.39	0.11	1.80
Other	0.06	2.27	0.09	2.45	0.11	2.32	0.13	2.13
Total for product	2.75	100.00	3.74	100.00	4.65	100.00	6.16	100.00
Plastic packaging	0.00		0.01		0.01		0.01	
Wood packaging	0.04		0.05		0.06		0.08	
Total with packaging	2.80		3.80		4.72		6.25	

The results in this EPD are provided for a declared unit and shall be recalculated to a functional unit. The table 2 below provides scaling factors to 1 m^2 of all Hunton Vindtett variants. The environmental impact of the functional unit (1 m^2) can be calculated by multiplying results for the declared unit (given per 1 kg) by appropriate scaling factor.

Table 2. Scaling factor Hunton Vindtett.

Product	Functional unit	Scaling factor
Vindtett 12 mm	1 m^2	2.75
Vindtett 15 mm	1 m^2	3.74
Vindtett 19 mm	1 m^2	4.65
Vindtett 25 mm	1 m^2	6.16

Technical data:

Property	Standard EN	Value	Unit	Tolerance
Thickness	324-1	12 / 15 / 19 25	mm	± 1,2 mm ± 1,8 mm
Width	324-1	1200 1220 inkl. fals	mm	± 2 mm/m maks. ± 5 mm
Length	324-1	2440 / 2650 / 2680 / 2740 / 3000	mm	± 2 mm/m maks. ± 5 mm
Thermal conductivity λd	12667	0.049* 0.05**	W/mK	

* Hunton Vindtett 12 mm.
**Hunton Vindtett 15, 19 and 25mm.

Hunton Vindtett average density ranges from 230 to 255 kg/m^3. All relevant technical information is available in the product's SINTEF Technical Approval nr. 2002.

Market:
Nordic and European market. Boards are being sold in Scandinavia under tradename Hunton Vindtett, nonetheless on the other markets Hunton Vindtät™, Tuulensuojalevy™, Windproof or Bitroc is being used. Scenarios assessed in this study were developed for Norway.

Reference service life product:
RSL is assumed to be equal with a reference study period of 60 years for a building.

Reference service life building:
60 years.

LCA: Calculation rules

Functional unit:
1 m2 of installed Hunton Vindtett boards, from cradle to grave, with lifetime of 60 years.

Declared unit:
The declared unit used for the calculations was 1 kg of installed Hunton Vindtett boards.

Data quality:
The Ecoinvent database (version 3.8) was used as the main source of data for modelling the background system and the whole value chain. All generic data used in the study are not older than 10 years. Specific system data were collected by the manufacturer and provided to the developer of the EPD using an appropriate data collection file. Data were discussed between the two involved parts to ensure representativity of the system and to produce a reliable model. Results were compared to similar production systems. Employed data were collected for the year 2021.

Allocation:
Allocation was done based on specifications stated in the newly published standard EN 15804 + A2:2019. Energy and water use. as well as generated waste were allocated evenly to the product using mass allocation. Material recycling and transport was also allocated accordingly.

System boundary:

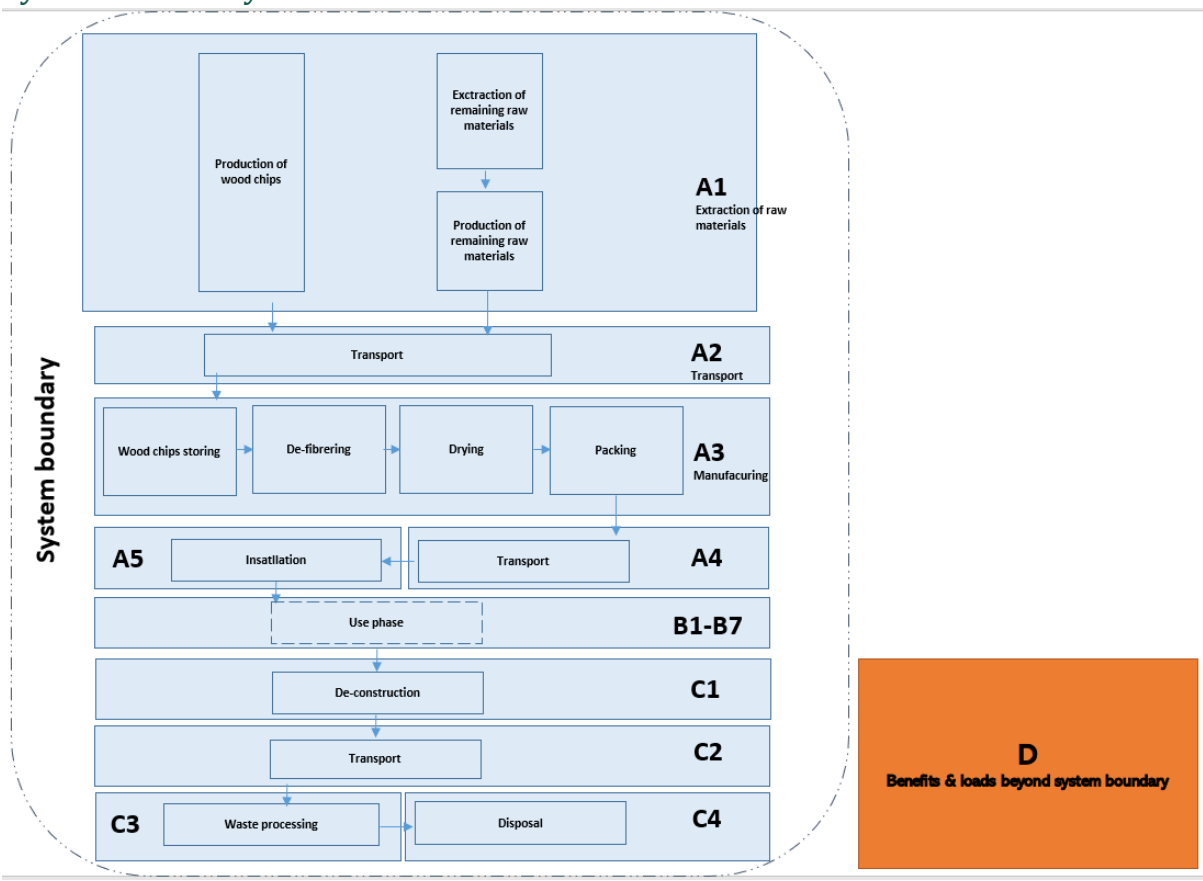

Figure 2. System boundaries.

The studied system includes the following modules: A1(raw materials), A2 (transport of raw materials), A3 (manufacturing), A4 (transport to the construction site), A5 (Assembly), C1 (disassembly), C2 (transport to waste processing), C3 (waste processing), C4 (waste disposal), and D (benefits beyond the system boundaries). The above phases were conducted in accordance with specifications in the new EN15804 + A2:2019 and NPCR Part A Construction products and services version 2. No scenarios were developed for the use phase (modules B1-B7) as the environmental impacts are negligible. Hunton Vindtett requires no maintenance, replacement nor additional treatment or energy if properly installed according to the existing guidelines.

Cut-off criteria:

All the important raw materials and energy use are included in the calculations. For some raw materials. proxy datasets were used in the model as approximations. This does not include hazardous materials. The calculations include 100% of materials that make up the product and the packaging.

LCA: Scenarios and additional technical information

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

For transport to a recycling facility, incineration and landfill, distances of 300 and 85 km have been used in this assessment.

Transport from production place to assembly/user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance (km)	Fuel/Energy consumption (l/tkm)	Value (l/t)
Truck	72.6%	Euro 6 [> 32t. diesel]	300	0.01	6.10

The distance of 300 km to the building site is taken as an average distance based on default values given in NPCR 010 2022 Part B (6.3.8.1).

Assembly (A5)

	Unit	Value
Material loss	kg	0.05
Output materials for waste treatment	kg	0.067

Material loss and materials being a subject of waste treatment are reported for a declared unit.

Use phase (B1-B7)

The product does not require any treatment, maintenance or replacement if properly installed.

End of Life (C1, C3, C4)

	Unit	
Hazardous waste disposed	kg	-
Collected as mixed construction waste	kg	1
Reuse	kg	-
Recycling	kg	-
Energy recovery	kg	1
To landfill	kg	0.012

No hazardous materials are disposed. Scenarios developed for treatment of Hunton Vindtett during waste processing are based on NPCR 010 2022.

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance (km)	Fuel/Energy consumption (l/tkm)	Value (l/t)
Truck	50%	Euro 6 [> 32t. diesel]	300	0.01	6.10
Truck	50%	Euro 6 [> 16-32t. diesel]	85	0.015	2.65

Transport for distances refers to recycling and incineration.

Benefits and loads beyond the system boundaries (D)

	Unit	Value
Electricity substitution	MJ	1.25
Thermal Heat substitution	MJ	14.3
Avoided materials	kg	0.001

Electricity and thermal heat substitution data are taken from SSB with 2021 as the basis year.

LCA: Results

The results in this EPD are provided for a declared unit and shall be recalculated to a functional unit. Table 2 with appropriate scaling factors is presented on page number three.

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

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beoyond 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	X	X	X	X	X	X	X	X	X	X	X	X	X

Core environmental impact indicators

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5
GWP-total	kg CO2 eq.	-1.41E+00	1.07E-02	5.86E-02	-1.34E+00	2.21E-02	4,85E-02
GWP-fossil	kg CO2 eq.	1.10E-01	1.07E-02	4.89E-02	1.70E-01	2.21E-02	2,59E-02
GWP-biogenic	kg CO2 eq.	-1.52E+00	1.14E-05	9.35E-03	-1.51E+00	1.28E-05	2,26E-02
GWP-LULUC	kg CO2 eq.	6.23E-04	4.02E-06	2.72E-04	8.99E-04	5.01E-06	4,61E-05
ODP	kg CFC11 eq.	9.79E-08	2.67E-09	1.75E-09	1.02E-07	5.64E-09	5,86E-09
AP	mol H^+ eq.	9.23E-04	3.41E-05	1.84E-04	1.14E-03	6.88E-05	8,23E-05
EP-freshwater	kg P eq.	4.83E-06	7.65E-08	3.89E-06	8.79E-06	2.64E-07	5,14E-07
EP-marine	kg N eq.	1.49E-04	7.51E-06	3.38E-05	1.90E-04	1.41E-05	1,86E-05
EP-terrestial	mol N eq.	1.61E-03	8.35E-05	4.09E-04	2.11E-03	1.62E-04	2,08E-04
POCP	kg NMVOC eq.	8.04E-04	3.29E-05	1.10E-04	9.47E-04	6.46E-05	7,55E-05
ADP-M&M	kg Sb eq.	5.27E-07	2.56E-08	1.36E-06	1.92E-06	4.52E-08	1,07E-07
ADP-fossil	MJ	6.25E+00	1.74E-01	8.07E-01	7.24E+00	3.71E-01	4,10E-01
WDP	m^3	2.00E-01	6.00E-04	4.90E-02	2.49E-01	2.04E-03	3,97E-02

Indicator	Unit	B1-B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	0.00E+00	1.88E-04	1.39E-02	1.75E+00	4.13E-04	-2.71E-01
GWP-fossil	kg CO2 eq.	0.00E+00	4.75E-05	1.38E-02	3.02E-01	4.13E-04	-1.37E-01
GWP-biogenic	kg CO2 eq.	0.00E+00	2.04E-06	1.26E-05	1.45E+00	-6.64E-08	-1.27E-01
GWP-LULUC	kg CO2 eq.	0.00E+00	2.57E-07	5.54E-06	1.03E-05	1.45E-08	-6.51E-03
ODP	kg CFC11 eq.	0.00E+00	1.87E-12	3.21E-09	5.22E-09	1.48E-10	-1.73E-08
AP	mol H^+ eq.	0.00E+00	3.50E-07	3.93E-05	4.25E-04	3.14E-06	-1.31E-03
EP-freshwater	kg P eq.	0.00E+00	2.55E-09	9.87E-08	1.01E-06	4.94E-09	-1.19E-05
EP-marine	kg N eq.	0.00E+00	3.96E-08	7.81E-06	1.78E-04	1.23E-06	-4.88E-04
EP-terrestrial	mol N eq.	0.00E+00	5.01E-07	8.71E-05	2.02E-03	1.36E-05	-5.22E-03
POCP	kg NMVOC eq.	0.00E+00	1.37E-07	3.35E-05	5.30E-04	4.12E-06	-1.45E-03
ADP-M&M	kg Sb eq.	0.00E+00	5.54E-09	4.91E-08	1.03E-07	4.76E-10	-8.63E-07
ADP-fossil	MJ	0.00E+00	7.87E-04	2.10E-01	2.96E-01	1.11E-02	-2.18E+00
WDP	m^3	0.00E+00	4.84E-05	6.39E-04	5.35E-01	2.13E-02	-6.11E-02

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*

Additional environmental impact indicators

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5
PM	Disease incidence	6.23E-09	1.24E-09	2.06E-09	9.53E-09	2.48E-09	8,35E-10
IRP	kBq U235 eq.	2.56E-02	7.56E-04	1.78E-02	4.42E-02	1.71E-03	2,41E-03
ETP-fw	CTUe	3.57E+00	1.36E-01	1.08E+00	4.79E+00	2.28E-01	3,08E-01
HTP-c	CTUh	7.30E-11	3.71E-12	7.24E-11	1.49E-10	6.53E-12	1,94E-11
HTP-nc	CTUh	1.66E-09	1.43E-10	1.11E-09	2.92E-09	2.91E-10	2,65E-10
SQP	Dimensionless	9.71E+01	1.99E-01	2.81E-01	9.76E+01	4.31E-01	4,91E+00

Indicator	Unit	B1-B7	C1	C2	C3	C4	D
PM	Disease incidence	0.00E+00	2.89E-12	1.11E-09	3.42E-09	5.85E-11	-9.52E-08
IRP	kBq U235 eq.	0.00E+00	1.66E-05	9.11E-04	1.19E-03	1.95E-05	-1.38E-02
ETP-fw	CTUe	0.00E+00	2.43E-03	1.65E-01	9.02E-01	1.22E-02	-1.34E+01
HTP-c	CTUh	0.00E+00	1.52E-13	5.30E-12	3.47E-10	8.69E-13	-2.18E-10
HTP-nc	CTUh	0.00E+00	3.40E-12	1.66E-10	1.40E-09	2.91E-11	-1.29E-08
SQP	Dimensionless	0.00E+00	3.42E-04	1.46E-01	8.18E-02	2.25E-02	-1.81E+01

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

Classification of disclaimers to the declaration of core and additional environmental impact indicators

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	Acidification potential. Accumulated Exceedance (AP)	None
	Eutrophication potential. Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential. Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential. Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential. deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 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 are also not measured by this indicator.

Disclaimer 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	A2	A3	A1-A3	A4	A5
RPEE	MJ	1,68E+01	2,23E-03	8,19E+00	2,50E+01	6,55E-03	2,06E+00
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,68E+01	2,23E-03	8,19E+00	2,50E+01	6,55E-03	2,06E+00
NRPE	MJ	6,25E+00	1,74E-01	8,08E-01	7,24E+00	3,71E-01	4,10E-01
NRPM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	6,25E+00	1,74E-01	8,08E-01	7,24E+00	3,71E-01	4,10E-01
SM	kg	2,79E-02	0,00E+00	0,00E+00	2,79E-02	0,00E+00	1,39E-03
RSF	MJ	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
W	m3	4,77E-03	2,07E-05	6,00E-02	6,48E-02	7,90E-05	3,89E-03

Parameter	Unit	B1-B7	C1	C2	C3	C4	D
RPEE	MJ	0.00E+00	7.59E-03	3.01E-03	1.63E+01	1.38E-04	-1.40E+01
RPEM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPE	MJ	0.00E+00	7.59E-03	3.01E-03	1.63E+01	1.38E-04	-1.40E+01
NRPE	MJ	0.00E+00	7.87E-04	2.10E-01	2.96E-01	1.11E-02	-2.18E+00
NRPM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TRPE	MJ	0.00E+00	7.87E-04	2.10E-01	2.96E-01	1.11E-02	-2.18E+00
SM	kg	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	-6.77E-04
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
W	m3	0.00E+00	5.56E-05	2.38E-05	1.29E-02	4.97E-04	-3.99E-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 nonrenewable primary energy resources;* ***SM*** *Use of secondary materials;* ***RSF*** *Use of renewable secondary fuels;* ***NRSF*** *Use of nonrenewable secondary fuels;* ***W*** *Use of net fresh water*

End of life - Waste

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5
HW	kg	1.24E-04	4.22E-07	6.62E-07	1.25E-04	1.89E-07	6,35E-06
NHW	kg	2.91E-02	1.73E-02	7.79E-02	1.24E-01	3.40E-02	1,26E-02
RW	kg	4.12E-05	1.18E-06	8.43E-06	5.08E-05	2.61E-06	2,82E-06

Parameter	Unit	B1-B7	C1	C2	C3	C4	D
HW	kg	0.00E+00	7.45E-10	5.48E-07	9.27E-07	5.00E-09	-2.06E-06
NHW	kg	0.00E+00	1.32E-04	1.24E-02	7.46E-02	4.75E-02	-7.57E-02
RW	kg	0.00E+00	7.91E-09	1.42E-06	1.23E-06	1.37E-08	-1.14E-05

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

End of life – output flow

Parameter	Unit	A1	A2	A3	A1-A3	A4	A5
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	0,00E+00	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
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,21E-02
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,42E-01

Parameter	Unit	B1-B7	C1	C2	C3	C4	D
CR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	0.00E+00	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
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	1.24E+00	0.00E+00	-1.25E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	1.29E+01	0.00E+00	-1.43E+01

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

Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in the product	kg C	0.412
Biogenic carbon content in the accompanying packaging	kg C	0.006

Additional Norwegian requirements

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

For the calculation electricity with certificate of origins has been applied (A3).

National electricity grid	Unit	Value
El-mix low-voltage Norway (ecoinvent 3.8)	g CO_2 -eq/kWh	26
El-mix medium-voltage Norway (ecoinvent 3.8)	g CO_2 -eq/kWh	23

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

In order to increase the transparency of biogenic carbon contribution to climate impact. the indicator for GWP has been sub-divided into the following:

GWP-IOBC Climate impacts calculated according to the principle of instantaneous oxidation
GWP-BC Climate impacts from the net uptake and emission of biogenic carbon from each module.

In addition. EP-freshwater shall also be declared as PO4 eq.

Indicator	Unit	A1	A2	A3	A1-A3	A4	A5
EP-freshwater*	kg PO4 eq.	9.83E-05	3.72E-06	2.88E-04	3.90E-04	7.71E-06	2,34E-05
GWP-IOBC	kg CO2 eq.	1.11E-01	1.07E-02	5.07E-02	1.72E-01	2.21E-02	2,60E-02
GWP-BC	kg CO2 eq.	-1.52E+00	7.13E-06	7.85E-03	-1.51E+00	5.03E-06	2,25E-02
GWP	kg CO2 eq.	-1.41E+00	1.07E-02	5.86E-02	-1.34E+00	2.21E-02	4,85E-02

Indicator	Unit	B1-B7	C1	C2	C3	C4	D
EP-freshwater*	kg PO4 eq.	0.00E+00	2,76E-08	4,10E-06	7,06E-05	4,61E-07	-3,06E-04
GWP-IOBC	kg CO2 eq.	0.00E+00	4,90E-05	1,39E-02	3,03E-01	4,14E-04	-1,47E-01
GWP-BC	kg CO2 eq.	0.00E+00	8,52E-07	7,27E-06	1,45E+00	-2,45E-07	-1,24E-01
GWP	kg CO2 eq.	0.00E+00	4,98E-05	1,39E-02	1,75E+00	4,13E-04	-2,71E-01

EP-freshwater* *Eutrophication potential. fraction of nutrients reaching freshwater end compartment. Declared as PO4 eq.* ***GWP-IOBC*** *Global warming potential calculated according to the principle of instantaneous oxidation.* ***GWP-BC*** *Global warming potential from net uptake and emissions of biogenic carbon from the materials in each module.* ***GWP*** *Global warming potential*

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 or the Norwegian priority list.
- ☒ The product contains substances given by the REACH Candidate list or the Norwegian priority 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 or the Norwegian Priority list, see table.
- ☐ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiften. Annex III). see table.

According to SINTEF Technical Approval nr 2002 Hunton Vindtett does not contain any substances from the priority list in quantities which might be assessed as hazardous for health or environment.

Indoor environment

The product meets the M1 requirements specified in the classification of indoor air 2018 as well as in the general specifications for the classification of building.

Carbon footprint

Calculations related to climate change and global warming potential (GWP) include greenhouse gas emissions from fossil sources and land use change connected to extraction of raw materials. Biogenic emissions of CO2 are also calculated and included.

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ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
ISO 9001:2015	Quality management system
ISO 50001:2018	Energy management system
EN 15804:2012+A2:2019	Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products
Eco-Lighthouse Certification (2021)	Environmental management certificate
ISO 21930:2007	Sustainability in building construction - Environmental declaration of building products
NPCR	PART A: Construction products and services Version: 2.0
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SINTEF Certification (2021)	SINTEF Technical Approval nr 2002 Hunton Vindtett / Hunton Bitroc

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