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The Norwegian EPD Foundation

ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025, ISO 21930 and EN 15804

Owner of the declaration:	Hunton Fiber AS
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration number:	NEPD-2792-1490-EN
Registration number:	NEPD-2792-1490-EN
ECO Platform reference number:	-
Issue date:	20.04.2021
Valid to:	20.04.2026

Hunton Silencio sound absorption board

Hunton Fiber AS

www.epd-norge.no



General information

Product:

Hunton Silencio sound absorption board
Hunton Silencio Thermo

Program operator:

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Declaration number:

NEPD-2792-1490-EN

ECO Platform reference number:
This declaration is based on Product Category Rules:

CEN Standard EN 15804 serves as core PCR
NPCR010 v3.0 Building boards (04/2019).

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 information, life cycle assessment data and evidences.

Declared unit:
Declared unit with option:

1 m2 of wood fibreboard installed with a 36 mm thickness, from cradle-to-grave.

Functional unit:
Verification:

The CEN Norm EN 15804 serves as the core PCR.
Independent verification of the declaration and data, according to ISO14025:2010

internal external

Third party verifier:

Alexander Borg

Alexander Borg, Asplan Viak AS
(Independent verifier approved by EPD Norway)

Owner of the declaration:

Hunton Fiber AS
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Manufacturer:

Hunton Fiber AS

Place of production:

Gjøvik, Norway

Management system:

ISO 50001:2011
ISO 9001:2015
PEFC ST 2002:2013

Organisation no:

964 014 256

Issue date:

20.04.2021

Valid to:

20.04.2026

Year of study:

2020-2021

Comparability:

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

The EPD has been worked out by:

Lars G. F. Tellnes

Lars G. F. Tellnes

NORSUS

Approved

Håkon Hauan

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

Hunton Silencio is woodfibre softboard made of 12 mm sheets glued together with water glass adhesive. The boards have rebated edges or tongue and groove on all four sides. Hunton Silencio Thermo is the same product as Hunton Silencio, but is supplied with slotted grooves for pipes.

Hunton Silencio is used as supporting layer and sound insulation material in floor constructions.

Product specification:

The life cycle assessment has been performed for 36 mm thick boards made by three 12 mm boards.

Materials	kg	%
Wood, dry weight	8,032	89,8 %
Water, in wood	0,524	5,9 %
Paraffin wax	0,13	1,5 %
Aluminium sulfate	0,05	0,6 %
Waterglass adhesive	0,21	2,3 %
Total for product	8,94	100 %
Pallets	0,35	
Plastic packaging	0,01	
Paper packaging	0,04	
Total product + packaging	9,34	

Technical data:

Board density is about 250 kg/m³, which gives a board weight of about 9 kg/m² for 36 mm thickness.

Market:

Norway and Europe. The scenario is based on use in Norway.

Reference service life, product:

Same as the building.

Reference service life, building:

Typically, reference service life of 60 years is used for buildings.

Calculation to other thicknesses:

The results of the LCA can be recalculated to a board with 24 based on the volume. For a 24 mm board it will have 2/3 the impact of 36 mm per square meter.

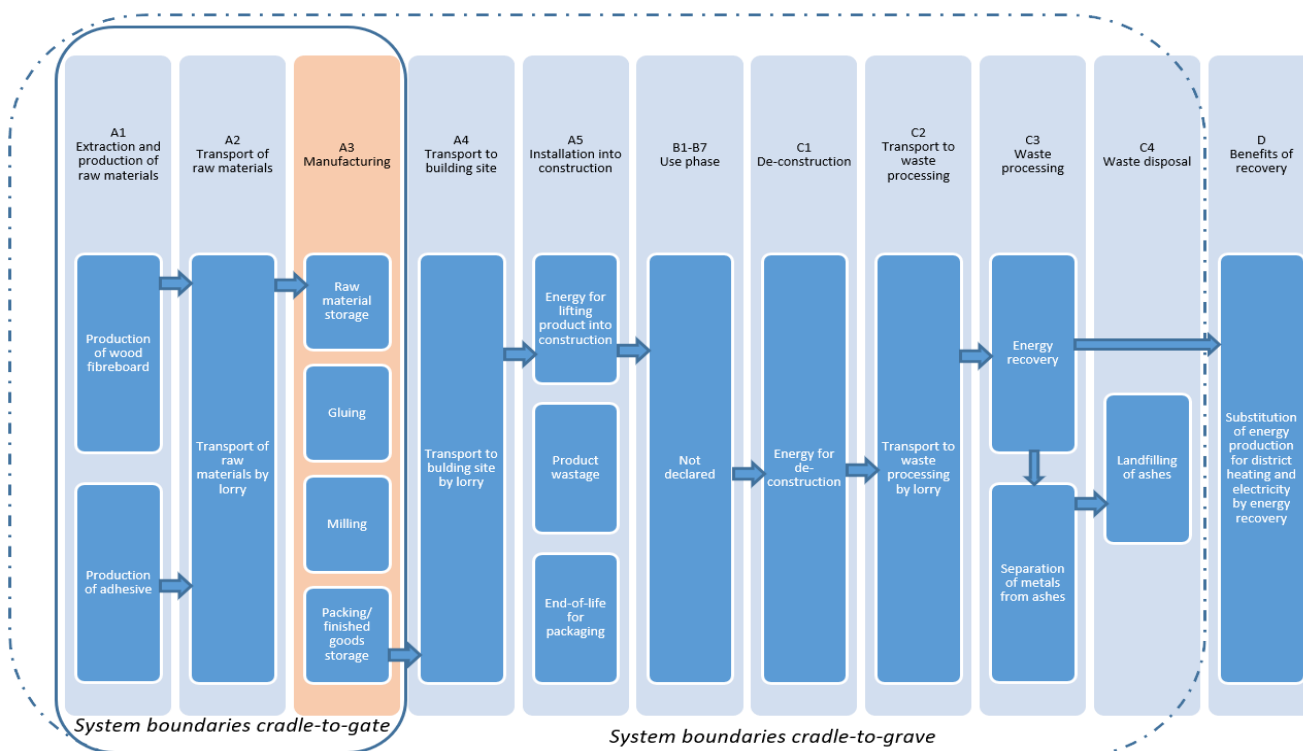
LCA: Calculation rules

Declared unit with option:

1 m² of wood fibreboard installed with a 36 mm thickness, from cradle-to-grave.

System boundary:

Flow chart for the complete life cycle (A1-C4) with system boundaries are shown in the figure below. Module D is also declared outside the life cycle with energy substitution from recovery and is further explained in the scenarios.



Data quality:

Manufacturing data was collected in 2020 and with 2019 as reference year. For wood raw material the production is with data from an EPD from the manufacturer (EPD-STE-20200174). Other data are from ecoinvent v3.6, released in 2019, but with some changes to improve representativeness.

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. Incoming energy and water and waste production in-house is first sub-divided and then allocated equally among all products through mass allocation. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Calculation of biogenic carbon:

Uptake and emissions of biogenic carbon are calculated according to EN 16485:2014. This is based on the modularity principle in EN 15804:2012, where the emissions shall be accounted in the module where it occurs. The amount of biogenic carbon is calculated according to EN 16449:2014. Net contribution of biogenic carbon is calculated for each module on page 8. The wood is from sustainable sources and has PEFC Chain-of-Custody certification.

LCA: Scenarios and additional technical information

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

All produce is either first transported to a building merchant or directly to a building site. A scenario is included with 250 km on a large lorry and 50 km on a medium lorry.

Transport from production place to user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit
Truck	53	EURO5, >32 tonn	250	0,023	l/tkm
Truck	26	EURO5, 16-32 tonn	50	0,048	l/tkm

It is assumed 2 % wastage of the product, in addition to waste management of the packaging. The installation is assumed to be manual and therefore no energy is needed.

Module B1 is included with no LCA related emissions.

Assembly (A5)

	Unit	Value
Auxiliary	kg	0
Water consumption	m ³	0
Electricity consumption	MJ	0
Other energy carriers	MJ	0
Material loss	kg	0,18
Output materials from waste treatment	kg	0,4
Dust in the air	kg	0

Use (B1)

	Unit	Value
Relevant emissions during use	kg	0

It is assumed that there is no need for maintenance and repair during use. Module B2 and B3 are therefore declared with zero values.

Maintenance (B2)/Repair (B3)

	Unit	Value
Maintenance cycle*		0
Auxiliary	kg	0
Other resources	kg	0
Water consumption	m ³	0
Electricity consumption	kWh	0
Other energy carriers	MJ	0
Material loss	kg	0

There is no need for operational energy and water consumption. Modules B6 and B7 are therefore declared with zero values.

Operational energy (B6) and water consumption (B7)

	Unit	Value
Water consumption	m ³	0
Electricity consumption	kWh	0
Other energy carriers	MJ	0
Power output of equipment	kW	0

It is assumed that there is no need for replacement and refurbishment during use. Module B4 and B5 are therefore declared with zero values.

Replacement (B4)/Refurbishment (B5)

	Unit	Value
Replacement cycle*	yr	0
Electricity consumption	kWh	0
Replacement of worn parts	0	0

* Number or RSL (Reference Service Life)

The boards can be disposed as mixed wood or residual waste. The most common treatment is energy recovery and the scenario is for a municipal incinerator.

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	8,9
Reuse	kg	0
Recycling	kg	0
Energy recovery	kg	8,9
To landfill	kg	0

The transport of wood waste is based on average distance for Norway in 2007 and was 85 km (Raadahl et al, 2009).

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Unit
Truck		Unspecified	85	0,027	l/tkm
Railway					kWh/tkm
Boat					l/tkm
<Other Transportation>					

The benefits from exported energy from municipal incineration was calculated from amounts in 2019 and that substitutes Norwegian electricity mix and district heating mix.

Benefits and loads beyond the system boundaries (D)

	Unit	Value
Substitution of electric energy	MJ	15
Substitution of thermal energy	MJ	105
Substitution of raw materials	kg	0
Substitution of fuels	kg	0
Substitution of products	kg	0

LCA: Results

The results for global warming of the different modules have a large contribution from uptake and emission of biogenic carbon. The net contribution of biogenic carbon to each modules is shown on page 8.

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

Product stage			Assembly stage		Use stage							End of life stage			Beyond the system boundaries	
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

Environmental impact

Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
GWP	kg CO ₂ -eqv	-2,11E+00	2,87E-01	8,86E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ODP	kg CFC11-eqv	2,18E-07	5,39E-08	6,61E-09	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
POCP	kg C ₂ H ₄ -eqv	3,80E-03	3,82E-05	7,99E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
AP	kg SO ₂ -eqv	3,57E-02	9,38E-04	8,14E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EP	kg PO ₄ ³⁻ -eqv	4,27E-03	1,53E-04	1,12E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADPM	kg Sb-eqv	3,49E-05	5,73E-06	9,05E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ADPE	MJ	1,49E+02	4,39E+00	3,20E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Environmental impact

Parameter	Unit	B6	B7	C1	C2	C3	C4	D
GWP	kg CO ₂ -eqv	0,00E+00	0,00E+00	2,32E-04	9,54E-02	1,52E+01	1,90E-03	-1,06E+00
ODP	kg CFC11-eqv	0,00E+00	0,00E+00	2,05E-11	1,76E-08	8,02E-09	5,75E-10	-1,22E-07
POCP	kg C ₂ H ₄ -eqv	0,00E+00	0,00E+00	6,98E-08	1,29E-05	3,34E-05	5,35E-07	-1,61E-03
AP	kg SO ₂ -eqv	0,00E+00	0,00E+00	1,55E-06	3,09E-04	9,36E-04	1,29E-05	-6,95E-03
EP	kg PO ₄ ³⁻ -eqv	0,00E+00	0,00E+00	1,55E-07	5,00E-05	2,29E-04	2,23E-06	-2,25E-03
ADPM	kg Sb-eqv	0,00E+00	0,00E+00	1,76E-08	2,41E-06	1,42E-06	2,06E-08	-6,91E-06
ADPE	MJ	0,00E+00	0,00E+00	1,58E-03	1,44E+00	1,02E+00	5,51E-02	-1,25E+01

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer; POCP Formation potential of tropospheric photochemical oxidants; AP Acidification potential of land and water; EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

Resource use

Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
RPEE	MJ	1,21E+01	5,82E-02	1,03E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RPEM	MJ	3,27E+02	0,00E+00	-2,90E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	3,40E+02	5,82E-02	7,39E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRPE	MJ	1,50E+02	4,47E+00	3,24E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRPM	MJ	1,46E+01	0,00E+00	2,91E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	1,65E+02	4,47E+00	3,53E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
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	m ³	7,61E-02	5,00E-04	1,53E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Resource use

Parameter	Unit	B6	B7	C1	C2	C3	C4		D
RPEE	MJ	0,00E+00	0,00E+00	4,17E-02	2,09E-02	1,64E+02	7,61E-04		-1,10E+02
RPEM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,52E+02	0,00E+00		0,00E+00
TPE	MJ	0,00E+00	0,00E+00	4,17E-02	2,09E-02	1,17E+01	7,61E-04		-1,10E+02
NRPE	MJ	0,00E+00	0,00E+00	3,22E-03	1,47E+00	1,05E+00	5,61E-02		-1,56E+01
NRPM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00		0,00E+00
TRPE	MJ	0,00E+00	0,00E+00	3,22E-03	1,47E+00	1,05E+00	5,61E-02		-1,56E+01
SM	kg	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		-4,96E-03
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00		0,00E+00
W	m ³	0,00E+00	0,00E+00	3,11E-04	1,67E-04	3,10E-03	6,60E-05		-3,53E-01

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 Non renewable primary energy resources used as energy carrier; NRPM Non renewable 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	A4	A5	B1	B2	B3	B4	B5
HW	kg	7,50E-05	1,11E-05	2,00E-06	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NHW	kg	1,58E+00	3,66E-01	5,94E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RW	kg	8,97E-04	3,05E-05	1,90E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

End of life - Waste

Parameter	Unit	B6	B7	C1	C2	C3	C4		D
HW	kg	0,00E+00	0,00E+00	4,03E-09	3,75E-06	2,74E-06	7,24E-08		-1,55E-05
NHW	kg	0,00E+00	0,00E+00	4,09E-04	1,02E-01	1,09E-01	3,04E-01		-5,93E-01
RW	kg	0,00E+00	0,00E+00	2,88E-08	1,00E-05	2,43E-06	3,25E-07		-8,50E-05

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

End of life - Output flow

Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
CR	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
MR	kg	2,51E-02	0,00E+00	9,63E-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	4,15E-01	0,00E+00	3,06E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
ETE	MJ	2,89E+00	0,00E+00	2,11E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Parameter	Unit	B6	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		0,00E+00
MR	kg	0,00E+00	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		0,00E+00
EEE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,49E+01	0,00E+00		-1,52E+01
ETE	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,03E+02	0,00E+00		-1,05E+02

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

Reading example: $9,0 \text{ E-03} = 9,0 \cdot 10^{-3} = 0,009$

Additional Norwegian requirements

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

National consumption mix with import on low voltage (production of transmission lines, in addition to direct emissions and losses in grid) has been applied for electricity in the manufacturing process (A3).

Data source	Amount	Unit
Ecoinvent v3.6 (2019)	22,3	g CO ₂ -eqv/kWh

Dangerous substances

- 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 contain dangerous substances, more then 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 (Avfallsforkiften, Annex III), see table.

Indoor environment

The product is in SINTEF Technical approval nr. 2330 not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health.

Carbon footprint

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.

Climate impacts





Parameter	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
GWP-IOBC	kg CO ₂ -eqv	1,32E+01	2,87E-01	2,91E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP-BC	kg CO ₂ -eqv	-1,53E+01	0,00E+00	5,96E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP	kg CO ₂ -eqv	-2,11E+00	2,87E-01	8,86E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Climate impacts

Parameter	Unit	B6	B7	C1	C2	C3	C4	D
GWP-IOBC	kg CO ₂ -eqv	0,00E+00	0,00E+00	2,32E-04	9,54E-02	4,83E-01	1,90E-03	-1,06E+00
GWP-BC	kg CO ₂ -eqv	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,47E+01	0,00E+00	0,00E+00
GWP	kg CO ₂ -eqv	0,00E+00	0,00E+00	2,32E-04	9,54E-02	1,52E+01	1,90E-03	-1,06E+00

Bibliography

ISO 14025:2010	<i>Environmental labels and declarations - Type III environmental declarations - Principles and procedures</i>
ISO 14044:2006	<i>Environmental management - Life cycle assessment - Requirements and guidelines</i>
EN 15804:2012+A1:2013	<i>Sustainability of construction works - Environmental product declaration - Core rules for the product category of construction products</i>
ISO 21930:2007	<i>Sustainability in building construction - Environmental declaration of building products</i>
EN 16485:2014	<i>Round and sawn timber - Environmental Product Declaration - Product category rules for wood and wood-based products for use in construction</i>
EN 16449:2014	<i>Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide</i>
NPCR010 V3.0	<i>Product category rules for building boards</i>
Ecoinvent v3.6	<i>Swiss Centre of Life Cycle Inventories. www.ecoinvent.ch</i>
Statistics Norway	<i>Table 09469: Net production of district heating by type of heat central, 2019</i>
Statistics Norway	<i>Table 04727: District heating balance, 2019</i>
Statistics Norway	<i>Table 04730: Consumption of fuel used fro gross production of district heating, 2019</i>
Raadal et al. (2009)	<i>Raadal, H. L., Modahl, I. S. & Lyng, K-A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. Oppdragsrapport nr 18.09 fra Østfoldforskning, Norge</i>
Tellnes (2021)	<i>LCA-report for Hunton AS. Report OR.03.21 from NORSUS, Kråkerøy, Norway.</i>
SINTEF TG. 2330	<i>SINTEF Technical Approval No. 2330 for separating floors with Hunton Silencio 36 / Hunton Silencio Thermo.</i>
STEICO SE 2020	<i>STEICO EPD Holzfaserdämmplatten aus dem Nassverfahren. Declaration EPD-STE-20200174-IBA1-DE. Published by Institute Bauen und Umwelt e.V. (IBU)</i>
NS-EN 9001:2015	<i>Quality management systems - Requirements</i>
ISO 50001:2011	<i>Energy management systems - Requirements with guidance for use</i>
PEFC ST 2002:2013	<i>Chain of Custody of Forest Based Products - Requirements</i>

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