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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-2286-1041-EN
Registration number:	NEPD-2286-1041-EN
ECO Platform reference number:	-
Issue date:	06.07.2020 - Rev. 10.11.2023
Valid to:	06.07.2025

Hunton Nativo® Wood Fibre Blown-in Insulation

Hunton Fiber AS

www.epd-norge.no

General information

Product:
Hunton Nativo® Wood Fibre Blown-In Insulation

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Manufacturer:
Hunton Fiber AS

Declaration number:
NEPD-2286-1041-EN

Place of production:
Gjøvik, Norway

ECO Platform reference number:

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

This declaration is based on Product Category Rules:
CEN Standard EN 15804 serves as core PCR
NPCR 012 Insulation materials, v.2 (06/2018).

Org. no.:
964 014 256

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.

Issue date:
06.07.2020 - Rev. 10.11.2023

Valid to:
06.07.2025

Declared unit:

Year of study:
2015-2020
Updated 2023

Declared unit with option:

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

Functional unit:
1 m2 wood fibre insulation installed in a thickness of 38 mm and a thermal resistance of R=1 Km2/W from cradle-to-grave with a reference lifecycle of 60 years.

The EPD has been worked out by:

Lars G. F. Tellnes	Maciej Biedacha
Østfoldforskning AS	NORSUS AS

Verification:
Independent verification of declaration and data, in accordance with ISO 14025:2010

☐ internal ☒ external

Third party verifier

Christofer Skaar, PhD
(Independent verifier approved by EPD Norway)

Approved

Håkon Hauan
(Managing Director of EPD-Norway)

Product

Product description:
Hunton Nativo® Wood Fibre Blown-In Insulation is produced by defibration of wood chips which are then mixed with additives for structure and fire resistance. Used for thermal insulation of walls, roofs and ceilings in buildings.

Product specification:
The material is homogenous and will not vary with size. The LCA calculations are done based on a density of 33 kg/m3

Technical data:
Hunton Nativo® Wood Fibre Blown-In Insulation has a thermal conductivity of (23 ÅC/ 50 % RF) 0,038 W/mK at a density of 27-40 kg /m3. Declared thermal conductivity and the product itself is in accordance with the requirements in EN 15101-1 which is confirmed in SINTEF Byggforsk product certificate nr. 3397.

Market area:
Nordics, scenarios in LCA have been calculated based on use in Norway.

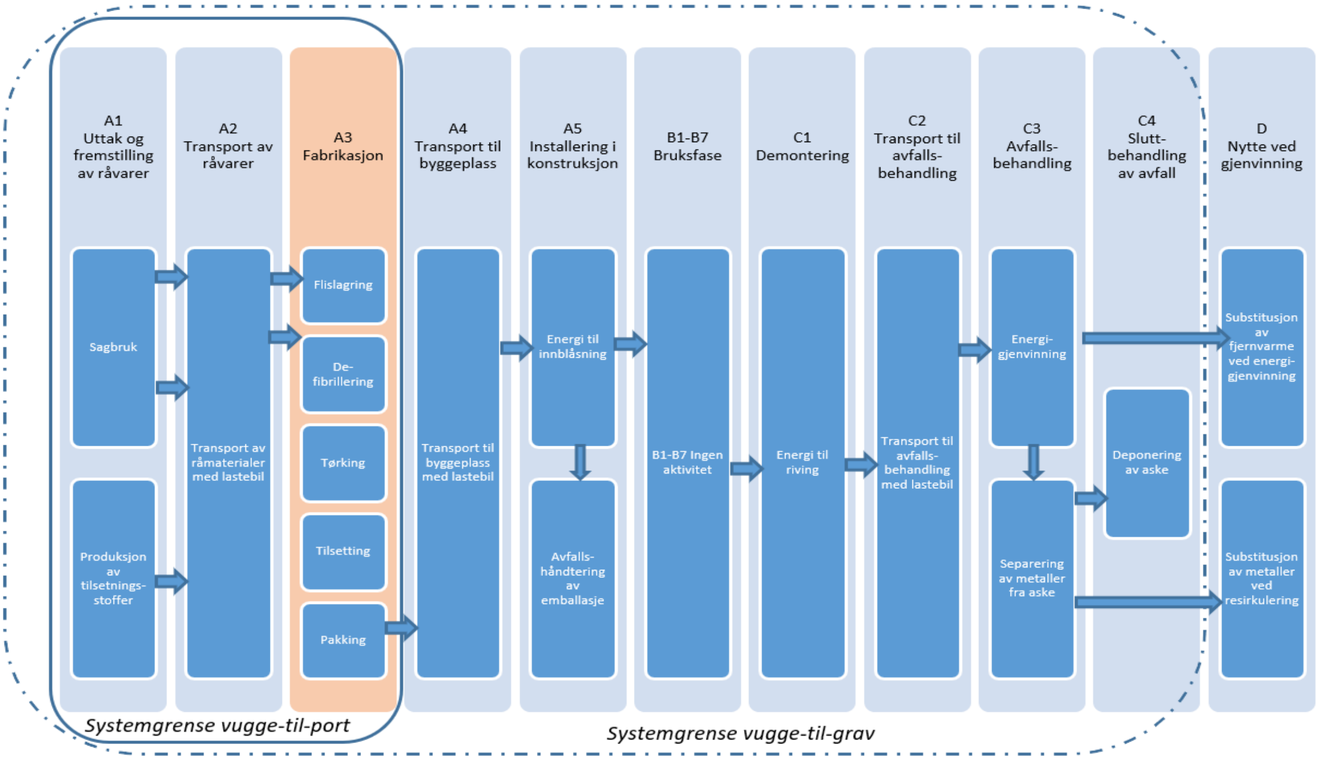
Materials	kg	%
Wood fibre, dry weight	1,09	85,8 %
Water	0,10	8,0 %
Amonium phosphate	0,06	5,1 %
Paraffin wax	0,01	1,1 %
Total for product	1,27	100,0 %
Wooden packaging	0,05	
Plastic packaging	0,01	
Total, with packaging	1,33	

Lifecycle:
Reference lifecycle is the same as that of the construction, usually set to 60 years. This is based on O&M (FDV) for the product and the assumptions therein.

LCA: Calculation Rules

Functional unit:
1 m2 wood fibre insulation installed in a thickness of 38 mm and a thermal resistance of R=1 Km2/W from cradle to grave with a reference life cycle of 60 years.

System Boundary:
Flowchart for the entire lifecycle (A1-C4) with system boundaries has been shown in the diagram below. Modul D has also been included outside the lifecycle with energy and material substitution from recycling, and is elaborated upon under the scenarios.



Data quality:
Data for the production of wood fibre insulation is based on half a year of production in 2019. For the raw material wood chips, it is based on ecoinvent and updated with Norwegian data. The remaining data is based on ecoinvent v3.5, but adjusted to improve representativity. ecoinvent v3.5 was launched in 2018, and no data is older than 10 years. All energy consumption in database figures are assumed not used as raw material.

Cut-off criteria:
All important raw materials and all significant energy consumption have been included. The production process for the raw materials and energy flows involved as very small amounts (<1%) have not been included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:
Allocation has been made in accordance with provisions of EN 15804. Electricity consumption in production has been allocated by specific energy consumption for the various products, while remaining energy consumption, water, waste and internal transport have been allocated by mass across products. Impact on the primary production of recycled materials has been allocated to the main product where the material was used. In the value chain for timber, economic allocation has been used.

Calculation of biogenic carbon content:
Absorbance and release of carbon dioxide from biological origin has been calculated based on NS-EN 16485:2014. This method is based on the principle of modularity in EN 15804:2012, where release must be counted in the lifecycle module where it actually happens. The amount of carbon dioxide has been calculated in accordance with NS-EN 16449:2014. The net contribution to GWP from biogenic carbon is shown for each module on page 8. Timber comes from sustainable forestry and features PEFC certified traceability.

LCA: Scenarios and other technical information

The following information describes the scenarios for the modules in the EPD.

Two transport scenarios for transport in module A4 have been assessed in this EPD. The first scenario assumes a transport distance of 250 km with a large truck to an intermediate storage. Further, it is assumed a transport distance of 50 km with a medium-sized truck. The second scenario assumes transport directly to a construction site, with a distance of 300 km.

Transport from production location to user (A4)

Type	Capacity utilisation, incl. return (%)	Vehicle type	Distance km	Fuel/Energy consumption	Unit
Car	50,3	EURO6, >32 tonn	250	0,024	l/tkm
Car	47,8	EURO6, 16-32 tonn	50	0,042	l/tkm
Car	50,3	EURO6, >32 tonn	300	0,024	l/tkm

In the construction phase, 0.00153 l diesel for blow-in and a wastage of 2 % is assumed. Waste treatment of the packaging is also included.

Construction Phase (A5)

	Unit	Value
Auxiliary materials	m^3	0
Auxiliary materials	kg	0
Auxiliary materials	kg	0
Water consumption	m^3	0
Electricity consumption	MJ	0
Other energy sources - diesel for blow-in	MJ	0,061
Material loss	kg	0,025
Materials from waste treatment	kg	0,060
Dust in the air	kg	0

There are no LCA-related environmental impacts during use

Installed products in use (B1)

	Unit	Value
Relevant emissions during use	kg	0

The product normally requires no maintenance or repair.

Maintenance (B2)/Repair (B3)

	Unit	Value
Maintenance frequency*	p	0
Maintenance frequency*	kg	0
Other resources	kg	0
Water consumption	kg	0
Electricity consumption	MJ	0
Other energy sources	MJ	0
Material loss	kg	0

In a normal situation, the product requires no replacement during the construction's lifecycle

Replacement (B4)/Renovation (B5)

	Unit	Value
Replacement frequency*	year	60
Electricity	kWh	0
Replacement of worn parts	0	0

* Value or RSL (Reference Service Life)

The product has no energy or water consumption in operation.

Energy (B6) and water consumption in operation (B7)

	Unit	Value
Water consumption	m^3	0
Electricity consumption	kWh	0
energy sources	MJ	0
Heating effect of the equipment	kW	0

The product can be sorted as mixed wood waste at the construction site and managed with energy recovery.

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste	kg	0
Mixed waste Other	kg	1,27
Recycling	kg	0
Recirculation	kg	0
Energy recovery	kg	1,27
For waste deposit	kg	0

Transport of wood waste is based on the average distance for 2007 in Norway and makes up 85 km (Raadal et al. (2009).

Transport to waste management (C2)

Type	Capacity utilisation, incl. return (%)	Vehicle tyoe	Distance, km	Fuel/Energy consumption		Value (l/t)
Car		Unspecified	85	0,027	l/tkm	2,3

The gains from exported energy from energy recovery in municipal waste facilities have been calculated with replacement of Norwegian electricity mix and Norwegian district heating mix. Data for electricity mix is the same as that used in A1-A3, and district heating mix is based on the 2017 production.

Benefits and loads beyond the system boundaries (D)

	Unit	Value
Substitution of electrical energy	MJ	1,6
Substitution of thermal energy	MJ	13,3
Substitution of raw materials	kg	0

LCA: Results

The results for global warming in the various modules return a large contribution from absorbance and release of biogenic carbon. The net contribution from biogenic carbon in each module is shown on page 8.

Hunton produces wood fibre insulation at their new factory at Skjerven, by Gjøvik. The factory has no direct emissions to the environment other than from internal transport. Starting from 2023, Hunton has acquired a certificate of origin, ensuring that electricity consumed at the factory stems from renewable energy sources. The results presented in this document is calculated based on electricity produced 100% from water power. Hunton is continually optimizing their production processes at the factory. Consequently, it is expected that another revision of the results is required in 2025.

System boundaries (X = included, MND = Module Not Declared, MNR = Module Not Relevant)

Product stage			Construction installation stage		Use stage							End of life stage				Benefits and loads beyond the system boundary
Raw materials	Transport	Manufacture	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Renovation	Operational energy consumption	Operational water consumption	Dissassembly	Transport	Waste management	Waste for final processing	Potential for recycling-recovery-recirculation
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*	A4**	A5	B1-B7
GWP	kg CO_2 -equiv.	-1,84E+00	4,76E-02	4,30E-02	8,51E-02	0,00E+00
ODP	kg CFC11-equiv.	4,24E-09	8,89E-10	8,10E-10	2,19E-09	0,00E+00
POCP	kg C_2H_4 -equiv.	1,72E-04	7,26E-06	6,62E-06	4,63E-06	0,00E+00
AP	kg SO_2 -equiv.	3,62E-03	9,27E-05	8,60E-05	1,32E-04	0,00E+00
EP	kg PO_4^{3-}-equiv.	2,46E-04	1,30E-05	1,22E-05	1,85E-05	0,00E+00
ADPM	kg Sb-equiv.	2,06E-06	1,41E-07	1,22E-07	8,38E-08	0,00E+00
ADPE	MJ	3,70E+00	7,07E-01	6,49E-01	2,09E-01	0,00E+00

Environmental impact

Parameter	Unit	C1	C2	C3	C4		D
GWP	kg CO_2 -equiv.	2,59E-04	1,37E-02	2,06E+00	3,37E-04		-1,38E-01
ODP	kg CFC11-equiv.	8,89E-12	2,57E-09	9,46E-10	1,15E-10		-1,59E-08
POCP	kg C_2H_4 -equiv.	7,30E-08	1,79E-06	4,00E-06	9,56E-08		-1,86E-04
AP	kg SO_2 -equiv.	1,63E-06	5,28E-05	1,20E-04	2,29E-06		-8,67E-04
EP	kg PO_4^{3-}-equiv.	1,53E-07	9,30E-06	3,19E-05	4,17E-07		-2,69E-04
ADPM	kg Sb-ekv	3,06E-08	4,57E-08	3,69E-08	4,53E-10		-9,87E-07
ADPE	MJ	1,80E-03	2,08E-01	1,30E-01	1,08E-02		-1,63E+00

*Transport scenario with intermediate storage.

**Transport scenario directly to construction site.

GWP Global Warming Potential; ODP Stratospheric ozone depletion potential; POCP Photochemical ozone creation potential; 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*	A4**	A5	B1-B7
RPEE	MJ	1,46E+01	1,06E-02	9,56E-03	1,47E+00	0,00E+00
RPEM	MJ	2,17E+01	0,00E+00	0,00E+00	-7,52E-01	0,00E+00
TPE	MJ	3,63E+01	1,06E-02	9,56E-03	7,16E-01	0,00E+00
NRPE	MJ	3,00E+00	7,22E-01	6,62E-01	2,22E-01	0,00E+00
NRPM	MJ	1,11E+00	0,00E+00	0,00E+00	1,04E-02	0,00E+00
TRPE	MJ	4,11E+00	7,22E-01	6,62E-01	2,32E-01	0,00E+00
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	6,16E-03	1,38E-04	1,32E-04	1,56E-04	0,00E+00

Resource use

Parameter	Unit	C1	C2	C3	C4		D
RPEE	MJ	4,19E-02	3,00E-03	2,08E+01	1,93E-04		-1,32E+01
RPEM	MJ	0,00E+00	0,00E+00	-2,07E+01	0,00E+00		0,00E+00
TPE	MJ	4,19E-02	3,00E-03	3,94E-02	1,93E-04		-1,32E+01
NRPE	MJ	4,35E-03	2,13E-01	7,29E-01	1,12E-02		-2,09E+00
NRPM	MJ	0,00E+00	0,00E+00	-5,95E-01	0,00E+00		0,00E+00
TRPE	MJ	4,35E-03	2,13E-01	1,34E-01	1,12E-02		-2,09E+00
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		-8,08E-04
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00		0,00E+00
W	m^3	2,31E-06	3,92E-05	3,09E-04	1,28E-05		-1,24E-03

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*	A4**	A5	B1-B7
HW	kg	1,15E-05	4,51E-06	4,12E-06	3,14E-07	0,00E+00
NHW	kg	6,45E-01	6,31E-02	6,38E-02	2,08E-02	0,00E+00
RW	kg	3,94E-06	2,24E-07	2,02E-07	1,43E-06	0,00E+00

End of life - Waste

Parameter	Unit	C1	C2	C3	C4		D
HW	kg	4,12E-09	5,42E-07	3,41E-07	4,49E-09		-2,02E-06
NHW	kg	7,28E-04	1,59E-02	1,61E-02	6,29E-02		-8,28E-02
RW	kg	4,37E-08	1,44E-06	2,77E-07	6,59E-08		-1,22E-05

HW Disposed hazardous waste; NHW Disposed non-hazardous waste; RW Disposed radioactive waste

End of life - Output

Parameter	Unit	A1-A3	A4*	A4**	A5	B1-B7
CR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MR	kg	1,32E-02	0,00E+00	0,00E+00	1,21E-02	0,00E+00
MER	kg	3,58E-04	0,00E+00	0,00E+00	1,40E-03	0,00E+00
EEE	MJ	2,00E-02	0,00E+00	0,00E+00	3,30E-02	0,00E+00
ETE	MJ	2,13E-01	0,00E+00	0,00E+00	2,71E-01	0,00E+00

End of life- Output

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	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
EEE	MJ	0,00E+00	0,00E+00	1,63E+00	0,00E+00		-1,63E+00
ETE	MJ	0,00E+00	0,00E+00	1,33E+01	0,00E+00		-1,33E+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 = $9{,}0 \cdot 10^{-3}$ = 0,009

Additional Norwegian requirements

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

National consumption mix with import on medium 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 v3.5 (2018)	28,4	gram CO_2-equiv./kWh
Electricity 100% water power GOO	8,8	gram CO_2-equiv./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 contains 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 (Avfallsforskiften, Annex III), see table.

According to available documentation, the product does not contain any hazardous substance.

Transport

Central storage is as the same location as the factory 0 km

Indoor environment

The product is not tested for emissions to the indoor environment

Carbon footprint

In order to increase the transparancy 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 instantanious oxidation.

GWP-BC Climate impacts from the net uptake and emission of biogenic carbon from each module.

Climate impacts

Parameter	Unit	A1-A3	A4*	A4**	A5	B1-B7
GWP-IOBC	kg CO_2-equiv.	2,30E-01	4,76E-02	4,30E-02	1,33E-02	0,00E+00
GWP-BC	kg CO_2-equiv.	-2,07E+00	0,00E+00	0,00E+00	7,18E-02	0,00E+00
GWP	kg CO_2-equiv.	-1,84E+00	4,76E-02	4,30E-02	8,51E-02	0,00E+00

Climate impacts

Parameter	Unit	C1	C2	C3	C4		D
GWP-IOBC	kg CO_2-equiv.	2,59E-04	1,37E-02	5,66E-02	3,37E-04		-1,38E-01
GWP-BC	kg CO_2-equiv.	0,00E+00	0,00E+00	2,00E+00	0,00E+00		0,00E+00
GWP	kg CO_2-equiv.	2,59E-04	1,37E-02	2,06E+00	3,37E-04		-1,38E-01

Climate declaration physical electricity mix

To increase transparency in the contribution to climate impact, the results for module A1-A3 and the GWP indicator are presented in the table. The Norwegian market mix with imports at medium voltage has been applied in this assessment.

Parameter	Unit	A1-A3
GWP-IOBC	kg CO_2-equiv.	2,46E-01
GWP-BC	kg CO_2-equiv.	-2,07E+00
GWP	kg CO_2-equiv.	-1,83E+00

Bibliography

NS-EN ISO 14025:2010	*Environmental labels and declarations - Type III environmental declarations - Principles and procedures*
NS-EN ISO 14044:2006	*Environmental management - Life cycle assessment - Requirements and guidelines*
NS-EN 15804:2012+A1:2013	*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*
NS-EN 16449:2014	*Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide*
NS-EN 16485:2014	*Round and sawn timber - Environmental Product Declaration - Product category rules for wood and wood-based products for use in construction*
NPCR012 v.2	*Product category rules for insulation products*
Ecoinvent v3.5	*Swiss Centre of Life Cycle Inventories. www.ecoinvent.ch*
Statistics Norway	*Table 04730: Consumption of fuel used for gross production of district heating, 2018*
Statistics Norway	*Table 04727: District heating balance, 2018*
Statistics Norway	*Table 09469: Net production of district heating by type of heat central, 2018*
Tellnes et al. (2023)	*Tellnes, L. G. F., Biedacha M. (2023). LCA-report for Hunton Fiber AS. Report nr. OR.28.23 from NORSUS, Kråkerøy, Norway.*
Raadal et al. (2009).	*Raadal, H. L., Modahl, I. S. & Lyng, K-A. (2009). Klimaregnskap for avfallshåndtering, Fase I og II. Oppdragsrapport nr 18.09 fra Østfoldforskning, Norge*
SINTEF Byggforsk (2019)	*Product Certificate nr. 3397 for Hunton Native trefiberisolasjon. Published by SINTEF Byggforsk in 2018, and revised in 2019 with validity to 1.12.2023.*
EN 15101-1	*Thermal insulation products for building - In-situ formed loose fill cellulose (LFCI) products - Part 1: Specification for the products before installation.*
Hunton Fiber (2019)	*MOM documentation. Hunton Nativo Wood Fiber Insulation Blown-in.*

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