Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

Finnjoist®

I-beam

Programme: The International EPD® System
Programme operator: EPD International AB
EPD registration number: S-P-03026

Publication date: 2023-07-21
Valid until: 2028-07-21

Programme:	The International EPD® System, www.environdec.com
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

General information

Programme:	The International EPD® System
Address:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product category rules (PCR):	PCR 2019:14 Construction products, Version 1.3.0 (2023-06-27) C-PCR-006 (To PCR 2019:14) Version: 2019-12-20
PCR review was conducted by:	The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification ☒ EPD verification

Third party verifier:	Andrew Norton, Renuables Ltd

In case of recognised individual verifiers:

Approved by:	The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

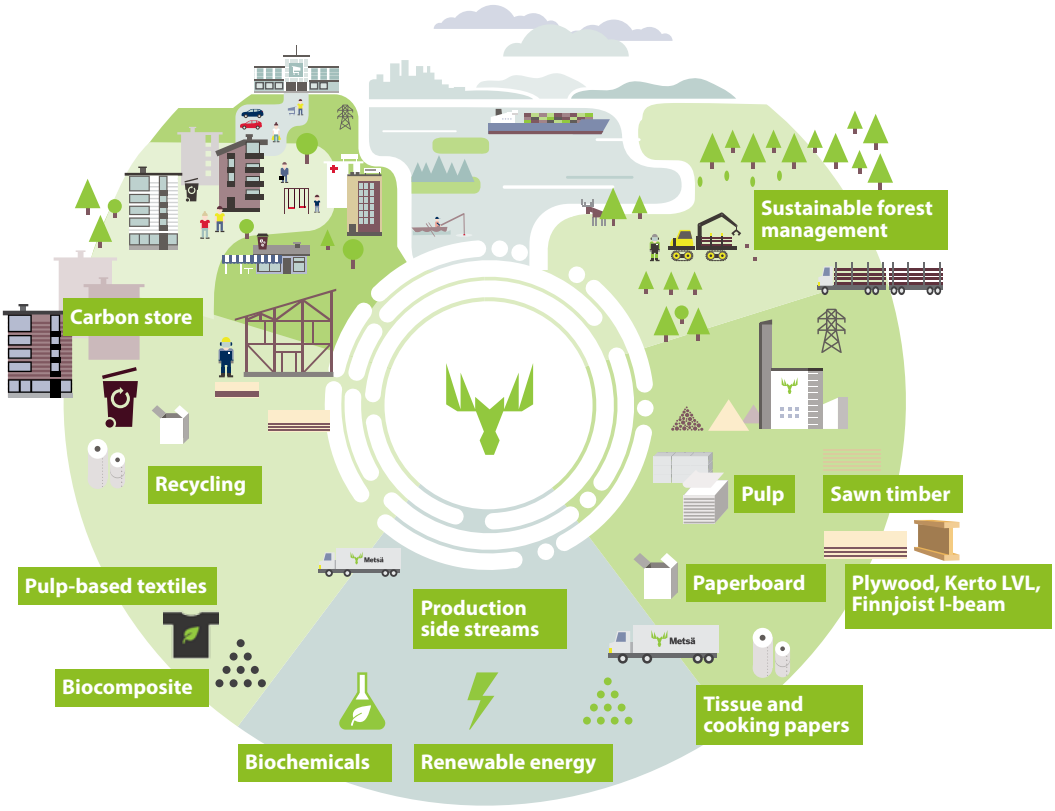
☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025

Company information

Owner of the epd:	Metsä Wood UK Ltd. Old Golf Course Fishtoft Road, Boston Lincolnshire, PE21 0BJ United Kingdom www.metsawood.co.uk
Description of the organisation:	Metsä Wood is one of Europe's leading manufacturers of engineered wood products. We process valuable log wood into environmentally friendly products for the construction and transport industries, which are both megatrend-driven businesses of the future. Our main products are Kerto® LVL, Finnjoist I-beam, birch plywood, spruce plywood and further processed sawn timber. Material-efficient wood products store carbon and play an important role in combating climate change. Metsä Group leads the way in the bioeconomy. Metsä Group invests in growth, developing bioproducts and a fossil free future. The raw material for our products is renewable wood from sustainably managed northern forests. Metsä Group focuses on the growth sectors of the forest industry: wood supply and forest services, wood products, pulp, fresh fibre paperboards, and tissue and greaseproof papers. Metsä Group consists of Metsäliitto Cooperative, its two businesses Metsä Wood and Metsä Forest, and its subsidiaries Metsä Tissue, Metsä Board and Metsä Fibre. Metsäliitto Cooperative is the parent company of Metsä Group. It is owned by around 100,000 forest owners. Metsä Group stands out from the competition because of its ownership base and business structure, which also give its operations a long-term perspective. Through Metsäliitto Cooperative's owner-members, Metsä Group has access to a considerable reserve of premium-quality raw material, which provides a stable, long-term foundation for the development of its operations and production plants.
Product-related or management system-related certifications:	Metsä Wood's King's Lynn factory has certified management system including ISO 9001 quality management, ISO 14001 environmental management and ISO 45001 health and safety management. Metsä Wood's King's Lynn factory has certified PEFC Chain of Custody certification. Metsä Wood's King's Lynn factory fulfils the obligations of United Kingdom Timber Regulation and European Union Regulation No. 995/2010 (EU Timber Regulation), which prohibit the placing and trading of illegally harvested timber and timber products on the market. Metsä Wood UK is a signatory to and supporter of the Timber Trade Federation Responsible Timber Purchasing Policy and Code of Conduct which ensures independent third party assessment of our UK/EU Timber Regulation Due Diligence System. As all wood raw material is covered by PEFC Chain of Custody certification, Metsä Wood knows the origin of all the wood it uses. Finnjoists are certified to the PEFC Chain of Custody standard. Finnjoists are CE marked according to ETA-02/0026 and have a BM-TRADA Q-Mark.
Name and location of production site:	Metsä Wood UK King's Lynn factory Cross Bank Road, King's Lynn, Norfolk PE30 2HD United Kingdom



Product information

Product name:	Metsä Wood Finnjoist
Product identification:	Finnjoist I-beam (FJI)
Product description:	Metsä Wood Finnjoists (FJI) are "I" shaped engineered wood products used as joists and columns. The composite structure consists of LVL (laminated veneer lumber) top and bottom flanges and OSB (oriented strand board) web. The LVL flanges resist bending and the OSB web provides outstanding shear resistance. The combination of high quality raw materials ensure robust, versatile, economical framing member that is easy to install in a wide range of construction projects. The service life of Finnjoist is considered to be as long as the lifetime of the building, providing the product is installed according to instructions. For a numerical service life value, 100 years can be used. Finnjoists are CE marked according to ETA 02/0026 and have a BM-TRADA Q-Mark. UN CPC Code: 31600 - Builders' joinery and carpentry of wood
Use:	Finnjoists are used as floor and roof beams in residential, office, educational and light-industrial buildings. Finnjoists can also be used in high thermally performing walls as studs and roofs as rafters to allow insulation levels for a passive house type construction. The composite structure of Finnjoists ensure straight and light-weight product with excellent strength properties enabling long spans in construction and easy installation and service supply.
Technical information:	• Moisture content (delivered from the mill): 10-15% • Thermal conductivity λ= 0.13 W/(mK) (EN 12524) • Service classes: 1 and 2 (EN 1995-1-1)
Formaldehyde emissions:	The formaldehyde potential of the LVL flange is classified to be E1 in accordance with EN 14374 and the formaldehyde potential class of the web board is classified to be E1 in accordance with EN 13986. Determined according to EN 717-1, the formaldehyde emitted by Finnjoist falls below the Class E1 requirement of ≤ 0.100 ppm. The formaldehyde emission of Finnjoist is approximately 0.060 ppm.
Other information:	Metsä Wood Finnjoist does not contain more than 0.1% any of the Substances of Very High Concern (SVHC) listed on the Candidate List of ECHA as these substances have not been intentionally added to products.

Product composition

	min	max	
LVL *	41.5%	79.9%	flanges
OSB **	19.5%	57.8%	web
Adhesive ***	0.5%	1.1%	bonding

* Laminated veneer lumber
** Oriented strand board
*** Melamine urea formaldehyde adhesive, during the manufacturing process the adhesive cures. Cured adhesive is inert and non-hazardous to humans and animals.

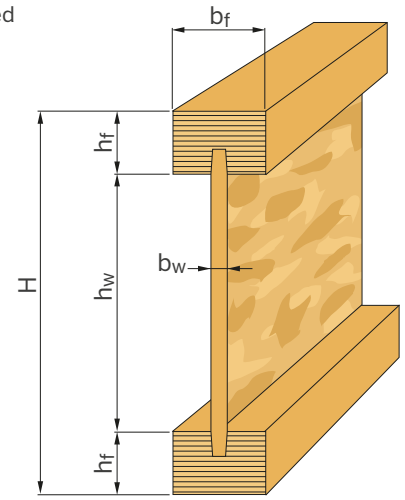
Converting LCA values according to product dimensions

Conversion factors

Flange size b_f x h_f	45x36 mm²	45x39 mm²	53x36 mm²	58x39 mm²	63x36 mm²	69x36 mm²	89x39 mm²	96x39 mm²
Joist Depth H	Joist weight [kg/m]							
195 mm	2.471	2.588	2.765	3.105	3.132	3.352	4.338	4.617
200 mm	2.501	2.619	2.795	3.136	3.162	3.383	4.369	4.647
220 mm	2.624	2.741	2.918	3.258	3.285	3.505	4.491	4.770
240 mm	2.747	2.864	3.040	3.381	3.408	3.628	4.614	4.892
300 mm	3.114	3.231	3.408	3.748	3.775	3.996	4.982	5.260
360 mm	3.482	3.599	3.776	4.116	4.143	4.363	5.349	5.628
400 mm	3.727	3.844	4.021	4.361	4.388	4.608	5.594	5.873

To convert the table values for each Finnjoist section size, any value listed must be multiplied with the factor in the conversion table.

Example calculation:
GWP total (A1-A3) = (-1.04) $kgCO_2eq$ (see table page 9)
For FJI 45x240-36 the conversion factor is 2.747 (see above table)
GWP total (A1-A3) for FJI 45x240-36 = 2.747 x (-1.04) = -2.86 $kgCO_2eq/m$
This means that 1m of FJI 45x240-36 has a total global warming potential of -2.86 $kgCO_2eq$ per linear meter.



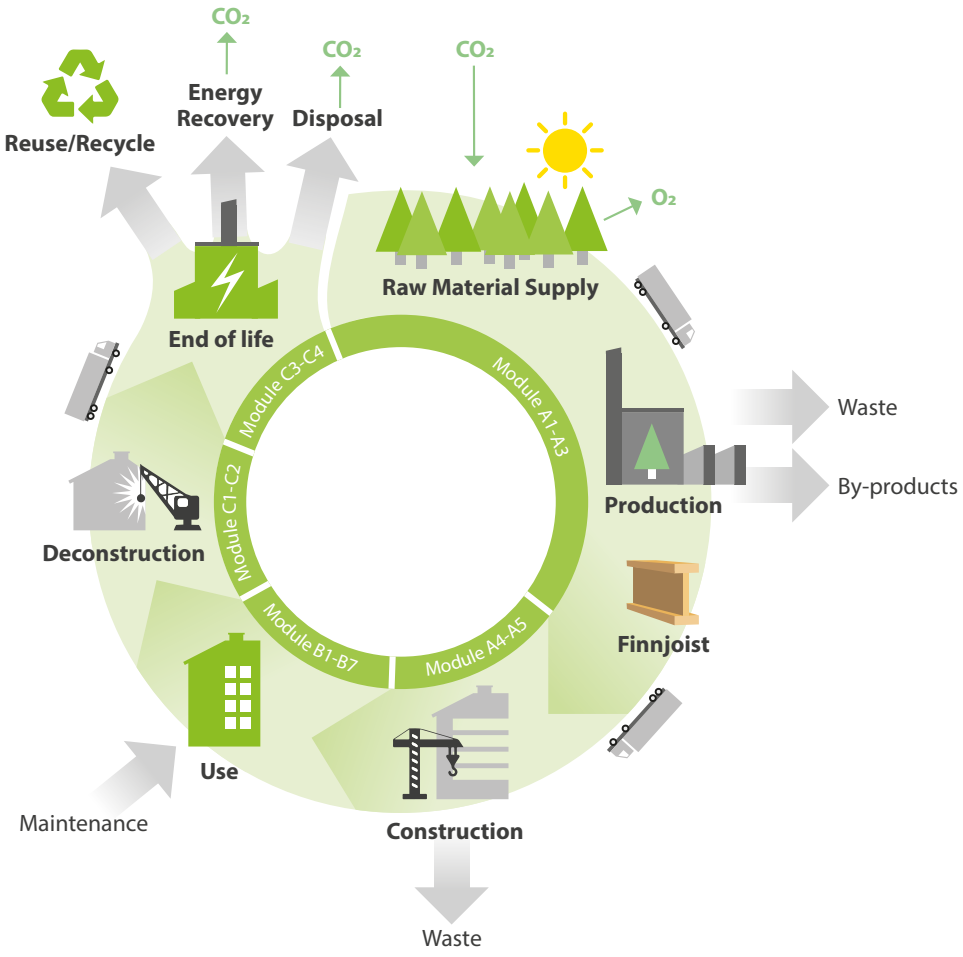
Packaging

	kg*
Wood	0.012
Plastic	0.002

* average amount of packing material used to pack 1 kg of Finnjoist during the year of data collection

LCA information

Declared unit:	1 kg of Finnjoist
Time representativeness:	The data for this EPD is collected from the year 2019 from Finnjoist factory in King's Lynn, UK. The data includes raw materials, energy consumption, packaging, Finnjoist products, by-products, wastes and all the related transportation. Generic data has been modelled using GaBi Databases 2021. The applied allocation (physical, economic and energy) follow EN 15804 requirements.
Database and LCA software used:	The LCA model is created using the Sphera LCA FE Software (fka GaBi) and the Sphera Managed LCA Content (fka GaBi LCI database) 2020.2 Version (Year 2020) developed by Sphera.
Other information:	All relevant raw materials and energy carriers used in manufacturing have been covered in the LCA calculations. Only some label adhesives representing less than 1% in mass and environmental results shares haven't been considered (cut-off approach).
Description of system boundaries:	Cradle to gate with options, modules C1-C4, module D and modules A4 and A5 as optional have been covered.
LCA Author:	Sphera Solutions GmbH, Hauptstraße 111-113 70771 Leinfelden-Echterdingen Germany Phone +49 711 341817-0 Fax +49 711 341817-25



MODULES DECLARED, GEOGRAPHICAL SCOPE, SHARE OF SPECIFIC DATA (IN GWP-GHG INDICATOR) AND DATA VARIATION:

	Product stage		Construction process stage			Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	☑	☑	☑	☑	☑	ND	ND	ND	ND	ND	ND	ND	☑	☑	☑	☑	☑
Geography	EU-28	EU-28	UK	EU-28	EU-28	ND	ND	ND	ND	ND	ND	ND	EU-28	EU-28	EU-28	EU-28	EU-28
Specific data used	>90% for A1-A3					-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

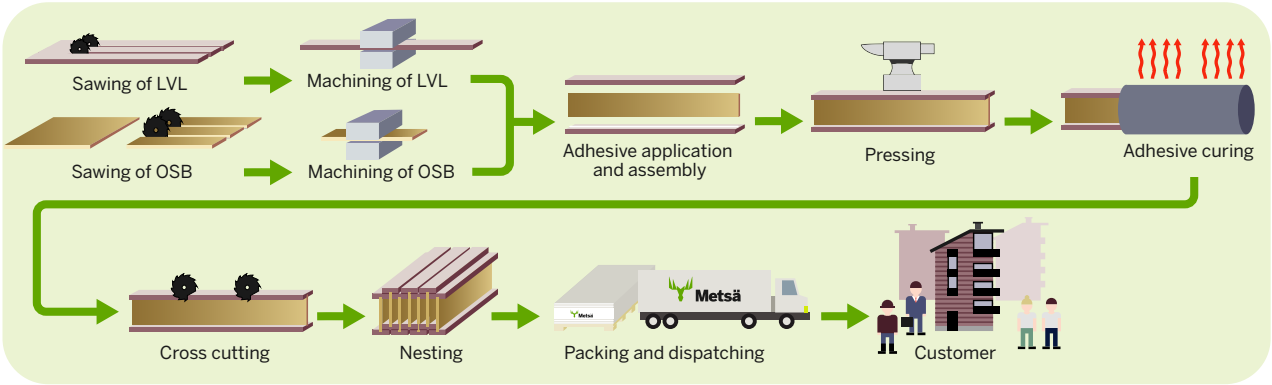
☑: declared module
ND: modules not declared

Product stage

A1: The raw material and supply stage covers production and processing of raw materials to LVL and OSB, glue production, generation of electricity, steam and heat from primary resources. All the used wood comes from certified or controlled forests. Sustainable forest use is ensured by third-party certification. Metsa Wood UK King's Lynn mill has certified PEFC Chain of Custody. Sustainably managed forests as such have no carbon emissions associated with land use change. Loss of carbon from the soil may be assumed to be negligible with no erosion.

A2: The transport includes the transportation of the raw material to the Finnjoist factory in King's Lynn, UK.

A3: The manufacturing stage covers the production of Finnjoist, by-products, packaging materials and wastes of the production process.



Construction process stage

A4: The transport stage of the construction process includes the average transportation of Finnjoist to European customers. The distance used in this EPD has been determined as a weighted average according to delivered volumes for certain market areas on the year of data collection.

A5: The construction installation phase includes the manufacturing, packaging and transportation of the installation losses, as well as the used energy and auxiliary materials (metallic screws and connectors) to install the product. The end-of-life treatment of the losses, the product packaging and the installation auxiliary materials related to installation are also accounted for under this module.

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Use stage

B1-B7: Finnjoist structures are designed to last for the whole life time of the building. There are no environmental impacts caused during this time.

End of life stages

C1-C4: Finnjoist products can have several end of life scenarios options. The alternatives for end of life options may vary according to available technologies, market specific waste legislation, local waste handling systems and consumer behaviour.

In this EPD, two scenarios are covered: Scenario 1 where the product is considered a secondary fuel for a next system and Scenario 2 where the product is recycled in a next system substituting a construction product. For both declared end-of-life scenarios, energy consumed for removing auxiliary installation materials (e.g. screws) in module C1, as well as the transportation of the product to the end-of-life processing sites (50 km) in module C2 have been considered.

The emission of biogenic CO_2 bound in the product is accounted for Module C3 for both scenarios, where the end-of-waste status is reached. At this stage also energy consumption to prepare the products for their processing by the next system is included.

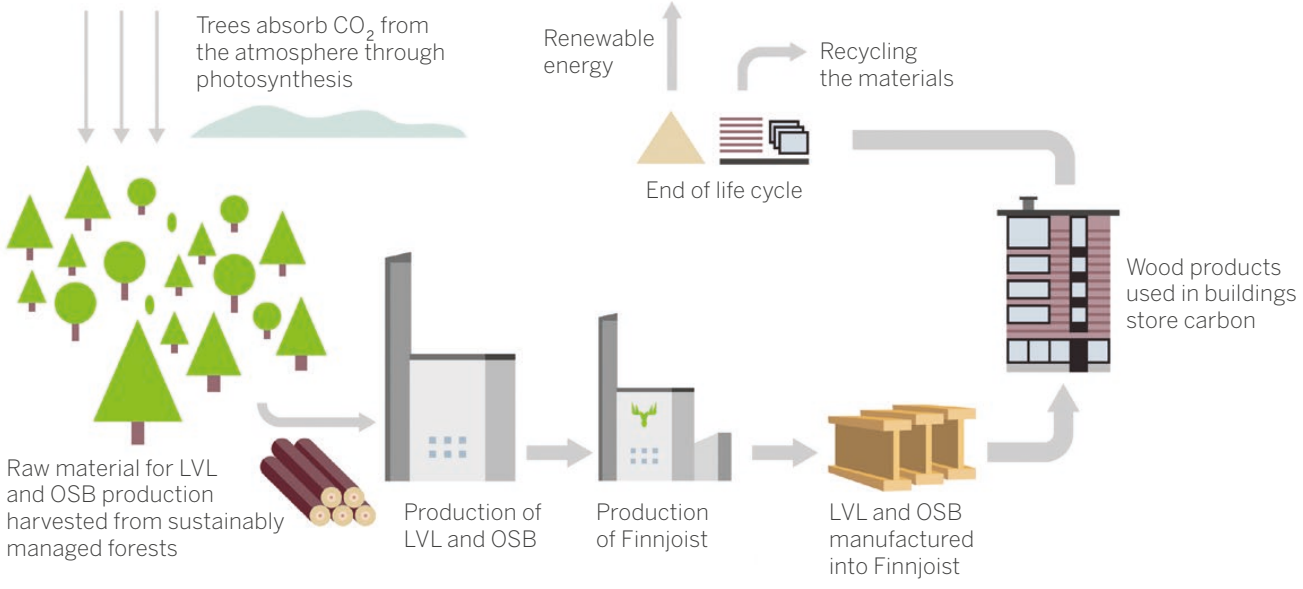
D: This module covers any credits and/or loads beyond the system boundaries. Credits from the burning of packaging materials during their waste treatment in module A5 are accounted for this module. For end-of-life Scenario 1, both emissions of the incineration process where the product is used as a secondary fuel as well as the potential credits (energy substitution) are declared in module D. For Scenario 2, the virgin material substitution of reusing the product in a next system is accounted for this module as well.

Finnjoist as carbon storage

One of the most important ways to mitigate climate change is to reduce dependence on fossil resources. Wood is a renewable, recyclable and reusable building material. Above all, wood stores carbon. As the building sector contributes up to 30% of global annual greenhouse gas emissions, it plays a vital role in combatting climate change. Wood construction is a part of the solution. The long service life of Finnjoist products ensures long carbon storage times.

The key to sustainable wood products is to use only wood from sustainable sources. Only PEFC certified wood raw materials are used in Finnjoist production. All the used wood is 100% traceable and comes from certified or controlled forests. Metsä Group's wood tracing systems are certified and verified according to PEFC Chain of Custody requirements. Using certified wood ensures forest regeneration.

Carbon stored in Finnjoist is 1.63 kg CO_2 eq/kg. As long as the Finnjoists are in use, carbon stays stored. Reuse and recycling ensure prolonged carbon storage. Once the material is disposed of, biogenic carbon is released back to the atmosphere. The released carbon dioxide is absorbed by trees from the atmosphere through the photosynthesis process. Growing trees utilise the energy of sunlight and convert absorbed carbon dioxide and water into carbohydrates. This way trees function as a carbon sink. When energy recovery is used as the final disposal method for Finnjoist, renewable wood material is substituting fossil fuels in energy production.



Environmental Information

1 CORE ENVIRONMENTAL IMPACT INDICATORS - 1 KG OF FINNJOIST

Indicator	Unit	A1-A3	A4	A5
Global Warming Potential - total (GWP-total)*	kg CO_2 eq.	-1.04	$1.72 \cdot 10^{-2}$	0.264
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	0.581	$1.70 \cdot 10^{-2}$	0.254
Global Warming Potential - biogenic (GWP-biogenic)*	kg CO_2 eq.	-1.63	$5.31 \cdot 10^{-5}$	$9.94 \cdot 10^{-3}$
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	$9.37 \cdot 10^{-4}$	$1.37 \cdot 10^{-4}$	$2.03 \cdot 10^{-4}$
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$1.27 \cdot 10^{-14}$	$2.04 \cdot 10^{-18}$	$1.83 \cdot 10^{-15}$
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	$3.50 \cdot 10^{-3}$	$2.45 \cdot 10^{-5}$	$8.05 \cdot 10^{-4}$
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$2.96 \cdot 10^{-6}$	$5.13 \cdot 10^{-8}$	$5.38 \cdot 10^{-7}$
Eutrophication potential - marine (EP-marine)	kg N eq.	$1.08 \cdot 10^{-3}$	$6.96 \cdot 10^{-6}$	$1.98 \cdot 10^{-4}$
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	$1.24 \cdot 10^{-2}$	$8.17 \cdot 10^{-5}$	$2.18 \cdot 10^{-3}$
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	$3.27 \cdot 10^{-3}$	$1.92 \cdot 10^{-5}$	$6.30 \cdot 10^{-4}$
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$7.55 \cdot 10^{-8}$	$1.21 \cdot 10^{-9}$	$1.17 \cdot 10^{-5}$
Abiotic depletion potential - fossil resources (ADPF)	MJ	28.9	0.227	3.59
Water (user) deprivation potential (WDP)	m^3 world equiv.	$6.53 \cdot 10^{-3}$	$1.51 \cdot 10^{-4}$	$9.20 \cdot 10^{-3}$

* A1: biogenic carbon storage in wood: -1.63 kg CO_2 eq

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Global Warming Potential - total (GWP-total)	kg CO_2 eq.	$1.10 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$	1.61	0	-0.790
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	$1.09 \cdot 10^{-3}$	$3.36 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	0	-0.974
Global Warming Potential - biogenic (GWP-biogenic)	kg CO_2 eq.	$1.27 \cdot 10^{-5}$	$-8.30 \cdot 10^{-5}$	1.61	0	0.185
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	$3.51 \cdot 10^{-7}$	$1.96 \cdot 10^{-7}$	$2.39 \cdot 10^{-6}$	0	$-7.13 \cdot 10^{-4}$
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$3.03 \cdot 10^{-17}$	$4.95 \cdot 10^{-19}$	$3.63 \cdot 10^{-17}$	0	$-1.07 \cdot 10^{-14}$
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	$2.17 \cdot 10^{-6}$	$2.84 \cdot 10^{-6}$	$3.64 \cdot 10^{-6}$	0	$1.74 \cdot 10^{-4}$
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$5.29 \cdot 10^{-10}$	$6.45 \cdot 10^{-10}$	$4.41 \cdot 10^{-9}$	0	$-1.32 \cdot 10^{-6}$
Eutrophication potential - marine (EP-marine)	kg N eq.	$6.17 \cdot 10^{-7}$	$8.90 \cdot 10^{-7}$	$8.09 \cdot 10^{-7}$	0	$6.04 \cdot 10^{-5}$
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	$6.68 \cdot 10^{-6}$	$9.92 \cdot 10^{-6}$	$8.50 \cdot 10^{-6}$	0	$8.14 \cdot 10^{-4}$
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	$1.75 \cdot 10^{-6}$	$2.50 \cdot 10^{-6}$	$2.22 \cdot 10^{-6}$	0	$3.33 \cdot 10^{-4}$
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$3.22 \cdot 10^{-10}$	$4.02 \cdot 10^{-11}$	$4.78 \cdot 10^{-10}$	0	$-1.64 \cdot 10^{-7}$
Abiotic depletion potential - fossil resources (ADPF)	MJ	$2.26 \cdot 10^{-2}$	$4.63 \cdot 10^{-2}$	$2.90 \cdot 10^{-2}$	0	-16.8
Water (user) deprivation potential (WDP)	m^3 world equiv.	$5.09 \cdot 10^{-5}$	$3.27 \cdot 10^{-6}$	$3.60 \cdot 10^{-4}$	0	$-4.00 \cdot 10^{-2}$

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Global Warming Potential - total (GWP-total)	kg CO_2 eq.	$1.10 \cdot 10^{-3}$	$3.28 \cdot 10^{-3}$	1.61	0	1.46
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	$1.09 \cdot 10^{-3}$	$3.36 \cdot 10^{-3}$	$1.65 \cdot 10^{-3}$	0	-0.208
Global Warming Potential - biogenic (GWP-biogenic)	kg CO_2 eq.	$1.27 \cdot 10^{-5}$	$-8.30 \cdot 10^{-5}$	1.61	0	1.67
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	$3.51 \cdot 10^{-7}$	$1.96 \cdot 10^{-7}$	$2.39 \cdot 10^{-6}$	0	$-1.48 \cdot 10^{-4}$
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$3.03 \cdot 10^{-17}$	$4.95 \cdot 10^{-19}$	$3.63 \cdot 10^{-17}$	0	$-2.28 \cdot 10^{-16}$
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	$2.17 \cdot 10^{-6}$	$2.84 \cdot 10^{-6}$	$3.64 \cdot 10^{-6}$	0	$-7.00 \cdot 10^{-4}$
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$5.29 \cdot 10^{-10}$	$6.45 \cdot 10^{-10}$	$4.41 \cdot 10^{-9}$	0	$-1.40 \cdot 10^{-7}$
Eutrophication potential - marine (EP-marine)	kg N eq.	$6.17 \cdot 10^{-7}$	$8.90 \cdot 10^{-7}$	$8.09 \cdot 10^{-7}$	0	$-2.32 \cdot 10^{-4}$
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	$6.68 \cdot 10^{-6}$	$9.92 \cdot 10^{-6}$	$8.50 \cdot 10^{-6}$	0	$-2.55 \cdot 10^{-3}$
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	$1.75 \cdot 10^{-6}$	$2.50 \cdot 10^{-6}$	$2.22 \cdot 10^{-6}$	0	$-7.04 \cdot 10^{-4}$
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$3.22 \cdot 10^{-10}$	$4.02 \cdot 10^{-11}$	$4.78 \cdot 10^{-10}$	0	$-8.75 \cdot 10^{-9}$
Abiotic depletion potential - fossil resources (ADPF)	MJ	$2.26 \cdot 10^{-2}$	$4.63 \cdot 10^{-2}$	$2.90 \cdot 10^{-2}$	0	-2.26
Water (user) deprivation potential (WDP)	m^3 world equiv.	$5.09 \cdot 10^{-5}$	$3.27 \cdot 10^{-6}$	$3.60 \cdot 10^{-4}$	0	$1.04 \cdot 10^{-3}$

Environmental Information

2 INDICATORS DESCRIBING RESOURCE USE - 1 KG OF FINNJOIST

Indicator	Unit	A1-A3	A4	A5
Use of renewable primary energy as energy carrier (PERE)	MJ	9.12	$1.26 \cdot 10^{-2}$	1.13
Use of renewable primary energy resources used as raw materials (PERM)	MJ	17.7	0	-0.213
Total use of renewable primary energy (PERT)	MJ	26.8	$1.26 \cdot 10^{-2}$	0.918
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	27.9	0.227	3.66
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0.988	0	$-6.78 \cdot 10^{-2}$
Total use of non-renewable primary energy resource (PENRT)	MJ	28.9	0.227	3.60
Use of secondary material (SM)	kg	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0
Use of non-renewable secondary fuels (NRSF)	MJ	0	0	0
Net use of fresh water (FW)	m^3	$3.48 \cdot 10^{-3}$	$1.46 \cdot 10^{-5}$	$7.28 \cdot 10^{-4}$

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Use of renewable primary energy as energy carrier (PERE)	MJ	$1.03 \cdot 10^{-2}$	$1.12 \cdot 10^{-3}$	2.16	0	-3.88
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0	0	-17.5	0	0
Total use of renewable primary energy (PERT)	MJ	$1.03 \cdot 10^{-2}$	$1.12 \cdot 10^{-3}$	-15.3	0	-3.88
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	$2.26 \cdot 10^{-2}$	$4.64 \cdot 10^{-2}$	0.949	0	-16.8
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0	0	-0.920	0	0
Total use of non-renewable primary energy resource (PENRT)	MJ	$2.26 \cdot 10^{-2}$	$4.64 \cdot 10^{-2}$	$2.90 \cdot 10^{-2}$	0	-16.8
Use of secondary material (SM)	kg	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF)	MJ	0	0	0	0	0
Net use of fresh water (FW)	m^3	$7.01 \cdot 10^{-6}$	$2.04 \cdot 10^{-7}$	$1.49 \cdot 10^{-5}$	0	$-3.10 \cdot 10^{-3}$

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Use of renewable primary energy as energy carrier (PERE)	MJ	$1.03 \cdot 10^{-2}$	$1.12 \cdot 10^{-3}$	2.16	0	-17.7
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0	0	-17.5	0	0
Total use of renewable primary energy (PERT)	MJ	$1.03 \cdot 10^{-2}$	$1.12 \cdot 10^{-3}$	-15.3	0	-17.7
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	$2.26 \cdot 10^{-2}$	$4.64 \cdot 10^{-2}$	0.949	0	-2.27
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0	0	-0.920	0	0
Total use of non-renewable primary energy resource (PENRT)	MJ	$2.26 \cdot 10^{-2}$	$4.64 \cdot 10^{-2}$	$2.90 \cdot 10^{-2}$	0	-2.27
Use of secondary material (SM)	kg	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0
Use of non-renewable secondary fuels (NRSF)	MJ	0	0	0	0	0
Net use of fresh water (FW)	m^3	$7.01 \cdot 10^{-6}$	$2.04 \cdot 10^{-7}$	$1.49 \cdot 10^{-5}$	0	$-2.76 \cdot 10^{-4}$

Environmental Information

3 ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES AND OUTPUT FLOWS - 1 KG OF FINNJOIST

Indicator	Unit	A1-A3	A4	A5
Hazardous waste disposed (HWD)	kg	$5.82 \cdot 10^{-8}$	$1.05 \cdot 10^{-8}$	$5.27 \cdot 10^{-9}$
Non-hazardous waste disposed (NHWD)	kg	$6.04 \cdot 10^{-3}$	$3.46 \cdot 10^{-5}$	$4.06 \cdot 10^{-3}$
Radioactive waste disposed (RWD)	kg	$7.51 \cdot 10^{-4}$	$2.81 \cdot 10^{-7}$	$9.59 \cdot 10^{-5}$
Components for re-use (CRU)	kg	0	0	0
Materials for recycling (MFR)	kg	0	0	0
Materials for energy recovery (MER)	kg	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0.252
Exported thermal energy (EET)	MJ	0	0	0.356

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	$7.71 \cdot 10^{-12}$	$2.99 \cdot 10^{-12}$	$1.20 \cdot 10^{-11}$	0	$-6.02 \cdot 10^{-9}$
Non-hazardous waste disposed (NHWD)	kg	$2.14 \cdot 10^{-5}$	$9.41 \cdot 10^{-7}$	$2.06 \cdot 10^{-5}$	0	$7.57 \cdot 10^{-3}$
Radioactive waste disposed (RWD)	kg	$3.17 \cdot 10^{-6}$	$5.27 \cdot 10^{-8}$	$4.40 \cdot 10^{-6}$	0	$-1.34 \cdot 10^{-3}$
Components for re-use (CRU)	kg	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	$6.43 \cdot 10^{-2}$	0	0
Materials for energy recovery (MER)	kg	0	0	1.00	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	$7.71 \cdot 10^{-12}$	$2.99 \cdot 10^{-12}$	$1.20 \cdot 10^{-11}$	0	$-1.65 \cdot 10^{-8}$
Non-hazardous waste disposed (NHWD)	kg	$2.14 \cdot 10^{-5}$	$9.41 \cdot 10^{-7}$	$2.06 \cdot 10^{-5}$	0	$-2.43 \cdot 10^{-3}$
Radioactive waste disposed (RWD)	kg	$3.17 \cdot 10^{-6}$	$5.27 \cdot 10^{-8}$	$4.40 \cdot 10^{-6}$	0	$-5.76 \cdot 10^{-5}$
Components for re-use (CRU)	kg	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	1.06	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	0
Exported thermal energy (EET)	MJ	0	0	0	0	0

Environmental Information

4 BIOGENIC CARBON CONTENT OF PRODUCT AND PACKAGING - 1 KG OF FINNJOIST

Indicator	Unit	A1-A3	A4	A5
Biogenic carbon content in accompanying packaging	kg	$4.74 \cdot 10^{-3}$	0	0
Biogenic carbon content in product	kg	0.439	0	0

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Biogenic carbon content in accompanying packaging	kg	0	0	0	0	0
Biogenic carbon content in product	kg	0	0	0	0	0

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Biogenic carbon content in accompanying packaging	kg	0	0	0	0	0
Biogenic carbon content in product	kg	0	0	0	0	0

5 SUPPLEMENTARY INDICATOR FOR CLIMATE IMPACT - 1 KG OF FINNJOIST

Indicator	Unit	A1-A3	A4	A5
Global Warming Potential (GWP-GHG) IPCC AR5 GWP100, excl biogenic carbon	kg CO_2 eq.	0.572	$1.68 \cdot 10^{-2}$	0.250

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Global Warming Potential (GWP-GHG) IPCC AR5 GWP100, excl biogenic carbon	kg CO_2 eq.	$1.09 \cdot 10^{-3}$	$3.34 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	0	-0.970

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Global Warming Potential (GWP-GHG) IPCC AR5 GWP100, excl biogenic carbon	kg CO_2 eq.	$1.09 \cdot 10^{-3}$	$3.34 \cdot 10^{-3}$	$1.64 \cdot 10^{-3}$	0	-0.206

References

EN ISO 14025	EN ISO 14025:2011 Environmental labels and declarations - Type III environmental declarations - Principles and procedures (ISO 14025:2006)
EN ISO 14040+A1	EN ISO 14040:2006 + A1:2020 Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006 + Amd 1:2020)
EN ISO 14044+A1+A2	EN ISO 14044:2006 + A1:2018 + A2:2020 Environmental management - Life cycle assessment - Requirements and guidelines (ISO 14044:2006 + Amd 1:2017 + Amd 2:2020)
EN 15804+A2	EN 15804:2012 + A2:2019 Sustainability of construction works –Sustainability of construction works –Core rules for the product category of construction products.
EN 15942	EN 15942:2012 Sustainability of construction works - Environmental product declarations - Communication format business-to-business
EN 16485	EN 16485:2014 Round and sawn timber. Environmental product declarations. Product category rules for wood and wood-based products for use in construction.
EPD® SYSTEM 2019	The International EPD System. Product Category Rules (PCR): Construction Products (PCR 2019:14, Version 1.1). The International EPD System.
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