Environmental Product Declaration

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

Birch Ply

Metsä Wood Birch plywood

Programme: The International EPD® System
Programme operator: EPD International AB
EPD registration number: S-P-02881

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

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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:

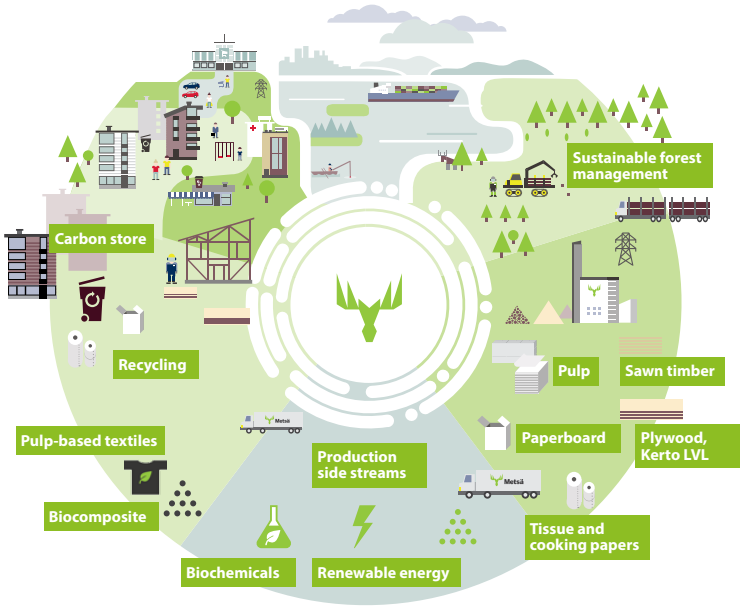
☐ Yes ☒ No

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:	Metsäliitto Cooperative, Metsä Wood P.O.Box 24 08101 Lohja Finland www.metsawood.com
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, birch plywood and spruce plywood. 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 Forest, part of Metsä Group, is the only wood supplier for Metsä Wood mills in Finland. Metsä Forest, as well as Metsä Wood's Suolahti plywood mill, has PEFC and FSC® Chain of Custody certificates. Metsä Wood mills have certified management system including ISO 9001 quality management, ISO 14001 environmental management, ISO 45001 health and safety management and EES+ energy efficiency system standards. The EES+ system will be replaced by ISO 50001 energy management system during 2021. Metsä Forest fulfils the obligations of European Union Regulation No. 995/2010 (EU Timber Regulation), UK Timber Regulation, US Lacey Act and Australian Illegal Logging Prohibition Act, which all prohibit placing on market and trading of illegally harvested timber and timber products. As all the wood raw material is covered by Chain of Custody certification, all the used wood is traceable and comes from certified or controlled forests. The PEFC logo on the product ensures that 100% of the wood raw material is legally harvested, and at least 70% is sourced from certified forests. PEFC Logo Licence Registration number: PEFC/02-31-03 FSC Licence Code: FSC-CO14476
Name and location of production sites:	Metsä Wood Suolahti birch plywood mill Vaneritehtaankatu 1 44200 Suolahti Finland *Metsä Wood Pärnu birch plywood mill Kase 17 Pärnu 80047 Pärnu maakond, Estonia Metsä Wood Punkaharju birch plywood mill Tehtaantie 18 58500 Punkaharju Finland *Metsä Wood Äänekoski veneer mill Kuhnamontie 2 44100 Äänekoski Finland * Pärnu birch plywood and Äänekoski veneer mills where in start-up phase during the year of data collection. Thus data collection for the LCA calculations has been performed only from Suolahti and Punkaharju mills.



Product information

Product name:	Metsä Wood Birch
Product identification:	Uncoated birch plywood
Product description:	Metsa Wood Birch is a multipurpose panel for different uses where a strong and rigid panel is needed. The panels can act simultaneously as a load-bearing construction and stiffening element. The wood raw material for Metsä Wood Birch originates from sustainable northern forests. Birch plywood structures in construction act as long-term carbon storage. The service life of birch plywood 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. Metsä Wood Birch plywood is made of 1.4 mm thick rotary peeled birch veneers. The veneers are cross-bonded with weather- and boil-resistant phenol formaldehyde adhesive. Metsä Wood Birch plywood is CE marked and UK CA marked according to the EN 13986 standard. Metsä Wood Birch plywood panels have high a strength-to-weight ratio, and are easy to work with and easy to install, using conventional wood-working tools and fasteners. UN CPC Code: 31600 - Plywood consisting solely of sheets of wood, except of bamboo
Use:	In building applications, Metsä Wood Birch can be used in floor, wall and roof structures, and as door blanks, for example. Metsä Wood Birch can be also used in a wide range of applications in the transport, packing and furniture industries.
Technical information:	• Mean density of Metsä Wood Birch: 680 kg/m³ (RH 65%, 20°C) • Moisture content (delivered from the mill): 7–9% • Resistance to vapour diffusion: - Wet cup, μ=88 - Dry cup, μ=218 • Thermal conductivity: λ = 0.17 W/(mK) (EN ISO 10456) • Specific thermal capacity: c_p= 1,600 J/(kgK) (EN ISO 10456) • Service classes: 1 and 2 (EN 1995-1-1)
Formaldehyde emissions:	Determined according to EN 717-1, the formaldehyde emitted by Metsä Wood Birch falls far below the Class E1 requirement of ≤ 0.100 ppm and fulfils the most stringent requirements in the world (≤ 0.030 ppm). The formaldehyde emission of Metsä Wood Birch is approximately 0.013 ppm.
Other information:	Metsä Wood plywood products do not contain more than 0.1% of any the Substances of Very High Concern (SVHC) listed on the Candidate List of the ECHA, as these substances have not been intentionally added to the products.

Product composition

	%	kg*	
Birch (Betula spp)	93	632	veneers
Phenol formaldehyde adhesive **	7	48	veneer bonding

* The weight has been calculated for 1 m³ of Metsä Wood Birch plywood using the average product density during the year of data collection.
** During hot pressing, the adhesive cures. Cured adhesive is inert, and non-hazardous to humans and animals.

Product dimensions

	mm
Thickness range	6.5 - 50
Maximum width	4,110
Maximum length	2,020

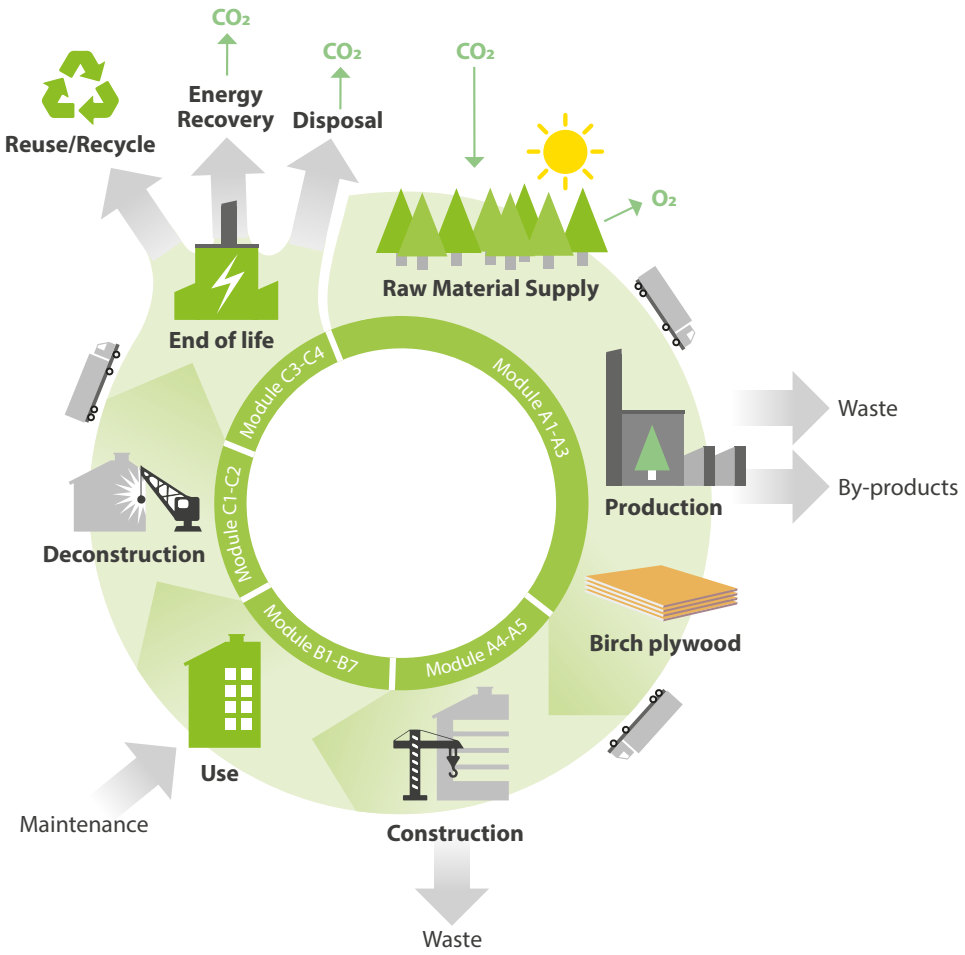
Packaging

	kg*
Wood	8.23
Plastic	1.15
Cardboard	0.08

* average amount of packing material used to pack 1 m³ of birch plywood during the year of data collection

LCA information

Declared unit:	1 m³ of Metsä Wood Birch plywood
Time representativeness:	The data for this EPD is collected from the year 2018 and covers Suolahti and Punkaharju birch plywood mills (Finland). An average product according to the production volumes of both mills has been declared. The data includes raw materials, energy consumption, water consumption, packaging, uncoated birch plywood, 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	FI	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	<10% for A1-A3					-	-	-	-	-	-	-	-	-	-	-	-

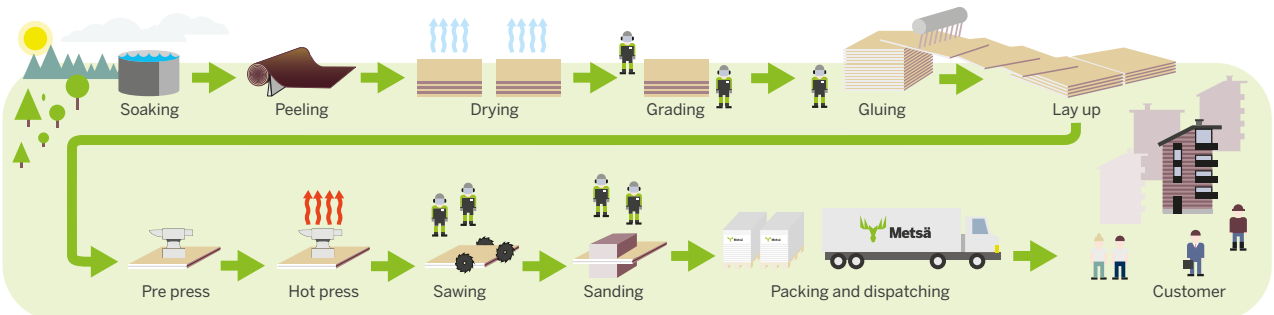
☑: declared module
ND: modules not declared

Product stage

A1: The raw material and supply stage covers the forestry operations, processing of raw materials, glue production, generation of electricity, steam and heat from primary resources. Metsä Wood has only one roundwood supplier, Metsä Forest, also a part of Metsä Group.
All the used wood comes from certified or controlled forests. Sustainable forest use is ensured by third-party certification. Suolahti and Punkaharju birch plywood mills has certified PEFC and FSC 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 birch plywood mills in Suolahti and Punkaharju.

A3: The manufacturing stage covers the production of uncoated birch plywood, 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 uncoated birch plywood 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) 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: Birch plywood structures are designed to last for the whole lifetime of the building. There are no environmental impacts caused during this time.

End of life stages

C1-C4: Birch plywood 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.

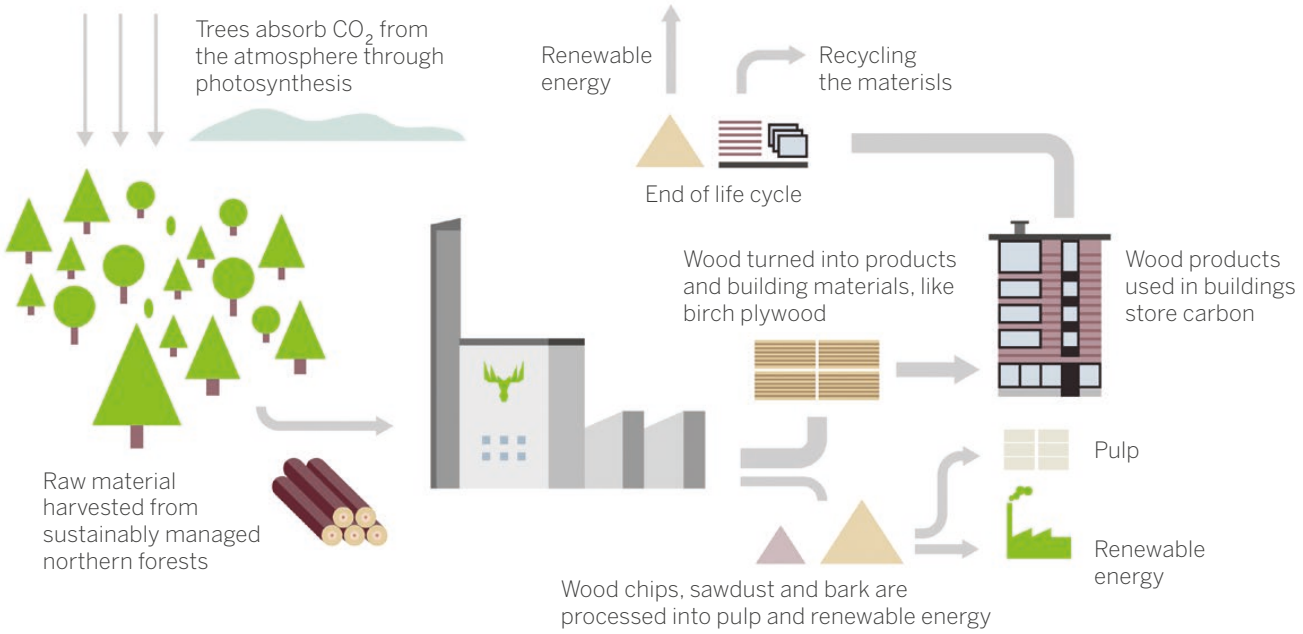
D: This module covers any credits and/or loads beyond the system boundaries. Credits from the burning of packaging materials during their waste treatment in module A5 are accounted for this module. For end-of-life Scenario 1, both emissions of the incineration process where the product is used as a secondary 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.

Birch plywood 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 dioxide. 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 Metsä Wood Birch plywood ensures long carbon storage times. Every tree used in construction stores carbon and makes room for a new seedlings – a new carbon sink.

The key to sustainable wood products is to use only wood from sustainable sources. Most of the wood Metsä Group uses comes from family-owned forests. All the used wood is traceable and comes from certified or controlled forests. Metsä Group's wood tracing systems are certified and verified according to PEFC and FSC Chain of Custody requirements. Efficient carbon sink forests are achieved by sustainable forest and nature management. Good forest management ensures the health and good growth of forests. In addition thinnings make room for the highest quality trees to grow stouter. These best quality trees are raw material for engineered wood products. Sustainable forestry always includes forest regeneration – each felled tree is replaced with four seedlings. In Finland, forests grow more than they are used and the amount of wood in forests increases every year.

Carbon stored in Metsä Wood Birch plywood is 1060 kg CO_2 eq/m³. As long as the birch plywood product is used, carbon stays stored. Reuse and recycling ensure prolonged carbon storage. Once the material is disposed, 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 birch plywood material, renewable wood material is substituting fossil fuels in energy production.



Environmental Information

1 CORE ENVIRONMENTAL IMPACT INDICATORS - 1 m³ OF METSÄ WOOD BIRCH PLYWOOD

Indicator	Unit	A1-A3	A4	A5
Global Warming Potential - total (GWP-total)*	kg CO_2 eq.	-155	41.9	85.6
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	463	41.5	37.4
Global Warming Potential - biogenic (GWP-biogenic)*	kg CO_2 eq.	-618	0.121	48.2
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	0.490	0.296	$1.83 \cdot 10^{-2}$
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$2.77 \cdot 10^{-12}$	$4.87 \cdot 10^{-15}$	$8.95 \cdot 10^{-14}$
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	1.72	0.234	0.193
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$2.64 \cdot 10^{-3}$	$1.12 \cdot 10^{-4}$	$1.55 \cdot 10^{-4}$
Eutrophication potential - marine (EP-marine)	kg N eq.	0.593	$6.09 \cdot 10^{-2}$	$5.13 \cdot 10^{-2}$
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	6.46	0.679	0.564
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	4.68	0.170	0.193
Abiotic depletion potential - fossil resources (ADPF)	MJ	$2.65 \cdot 10^{4}$	548	$1.37 \cdot 10^{3}$
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$3.81 \cdot 10^{-5}$	$2.75 \cdot 10^{-6}$	$1.83 \cdot 10^{-4}$
Water (user) deprivation potential (WDP)	m³ world equiv.	-48.1	0.335	4.82

* A1: biogenic carbon storage in wood: -1060 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.	$2.00 \cdot 10^{-2}$	2.30	$1.06 \cdot 10^{3}$	0	-449
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	$1.99 \cdot 10^{-2}$	2.27	1.13	0	-575
Global Warming Potential - biogenic (GWP-biogenic)	kg CO_2 eq.	$6.63 \cdot 10^{-5}$	$1.70 \cdot 10^{-2}$	$1.06 \cdot 10^{3}$	0	126
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	$2.88 \cdot 10^{-5}$	$1.84 \cdot 10^{-2}$	$1.64 \cdot 10^{-3}$	0	-0.512
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$4.38 \cdot 10^{-16}$	$4.16 \cdot 10^{-16}$	$2.48 \cdot 10^{-14}$	0	$-7.68 \cdot 10^{-12}$
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	$4.39 \cdot 10^{-5}$	$2.63 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$	0	0.337
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$5.32 \cdot 10^{-8}$	$6.91 \cdot 10^{-6}$	$3.02 \cdot 10^{-6}$	0	$-9.39 \cdot 10^{-4}$
Eutrophication potential - marine (EP-marine)	kg N eq.	$9.76 \cdot 10^{-6}$	$8.11 \cdot 10^{-4}$	$5.54 \cdot 10^{-4}$	0	$9.01 \cdot 10^{-2}$
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	$1.03 \cdot 10^{-4}$	$9.62 \cdot 10^{-3}$	$5.82 \cdot 10^{-3}$	0	1,09
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	$2.67 \cdot 10^{-5}$	$2.18 \cdot 10^{-3}$	$1.52 \cdot 10^{-3}$	0	0.389
Abiotic depletion potential - fossil resources (ADPF)	MJ	0.350	30.3	19.8	0	$-1.09 \cdot 10^{4}$
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$5.76 \cdot 10^{-9}$	$1.83 \cdot 10^{-7}$	$3.27 \cdot 10^{-7}$	0	$-1.16 \cdot 10^{-4}$
Water (user) deprivation potential (WDP)	m³ world equiv.	$4.34 \cdot 10^{-3}$	$2.21 \cdot 10^{-2}$	0.246	0	-30.9

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Global Warming Potential - total (GWP-total)	kg CO_2 eq.	$2.00 \cdot 10^{-2}$	2.30	$1.06 \cdot 10^{3}$	0	$1.11 \cdot 10^{3}$
Global Warming Potential - fossil fuels (GWP-fossil)	kg CO_2 eq.	$1.99 \cdot 10^{-2}$	2.27	1.13	0	-58.6
Global Warming Potential - biogenic (GWP-biogenic)	kg CO_2 eq.	$6.63 \cdot 10^{-5}$	$1.70 \cdot 10^{-2}$	$1.06 \cdot 10^{3}$	0	$1.17 \cdot 10^{3}$
Global Warming Potential - land use and land use change (GWP-luluc)	kg CO_2 eq.	$2.88 \cdot 10^{-5}$	$1.84 \cdot 10^{-2}$	$1.64 \cdot 10^{-3}$	0	$-7.71 \cdot 10^{-2}$
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	$4.38 \cdot 10^{-16}$	$4.16 \cdot 10^{-16}$	$2.48 \cdot 10^{-14}$	0	$-4.91 \cdot 10^{-13}$
Acidification potential, Accumulated Exceedance (AP)	mol H^+ eq.	$4.39 \cdot 10^{-5}$	$2.63 \cdot 10^{-3}$	$2.49 \cdot 10^{-3}$	0	-0.179
Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	$5.32 \cdot 10^{-8}$	$6.91 \cdot 10^{-6}$	$3.02 \cdot 10^{-6}$	0	$-1.40 \cdot 10^{-4}$
Eutrophication potential - marine (EP-marine)	kg N eq.	$9.76 \cdot 10^{-6}$	$8.11 \cdot 10^{-4}$	$5.54 \cdot 10^{-4}$	0	$-6.95 \cdot 10^{-2}$
Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	$1.03 \cdot 10^{-4}$	$9.62 \cdot 10^{-3}$	$5.82 \cdot 10^{-3}$	0	-0.755
Photochemical Ozone Creation Potential (POCP)	kg NMVOC eq.	$2.67 \cdot 10^{-5}$	$2.18 \cdot 10^{-3}$	$1.52 \cdot 10^{-3}$	0	-1,44
Abiotic depletion potential - fossil resources (ADPF)	MJ	0.350	30.3	19.8	0	-945
Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	$5.76 \cdot 10^{-9}$	$1.83 \cdot 10^{-7}$	$3.27 \cdot 10^{-7}$	0	$-8.43 \cdot 10^{-6}$
Water (user) deprivation potential (WDP)	m³ world equiv.	$4.34 \cdot 10^{-3}$	$2.21 \cdot 10^{-2}$	0.246	0	-3.57

Environmental Information

2 INDICATORS DESCRIBING RESOURCE USE - 1 m³ OF METSÄ WOOD BIRCH PLYWOOD

Indicator	Unit	A1-A3	A4	A5
Use of renewable primary energy as energy carrier (PERE)	MJ	$4.74 \cdot 10^{3}$	27.5	$1.17 \cdot 10^{3}$
Use of renewable primary energy resources used as raw materials (PERM)	MJ	$1.39 \cdot 10^{4}$	0	-240
Total use of renewable primary energy (PERT)	MJ	$1.86 \cdot 10^{4}$	27.5	927
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	$2.58 \cdot 10^{4}$	548	$1.42 \cdot 10^{3}$
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	768	0	-49.5
Total use of non-renewable primary energy resource (PENRT)	MJ	$2.65 \cdot 10^{4}$	548	$1.37 \cdot 10^{3}$
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)	m³	2.52	$3.20 \cdot 10^{-2}$	0.280

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Use of renewable primary energy as energy carrier (PERE)	MJ	0.155	1.75	$2.15 \cdot 10^{3}$	0	$-2.73 \cdot 10^{3}$
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0	0	$-1.36 \cdot 10^{4}$	0	0
Total use of renewable primary energy (PERT)	MJ	0.155	1.75	$-1.15 \cdot 10^{4}$	0	$-2.73 \cdot 10^{3}$
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	0.350	30.4	738	0	$-1.09 \cdot 10^{4}$
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0	0	-718	0	0
Total use of non-renewable primary energy resource (PENRT)	MJ	0.350	30.4	19.8	0	$-1.09 \cdot 10^{4}$
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)	m³	$1.79 \cdot 10^{-4}$	$2.04 \cdot 10^{-3}$	$1.02 \cdot 10^{-2}$	0	-2.10

SCENARIO 2: RECYCLING

Indicator	Unit	C1	C2	C3	C4	D
Use of renewable primary energy as energy carrier (PERE)	MJ	0.155	1.75	$2.15 \cdot 10^{3}$	0	$-1.16 \cdot 10^{4}$
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0	0	$-1.36 \cdot 10^{4}$	0	0
Total use of renewable primary energy (PERT)	MJ	0.155	1.75	$-1.15 \cdot 10^{4}$	0	$-1.16 \cdot 10^{4}$
Use of non-renewable primary energy as energy carrier (PENRE)	MJ	0.350	30.4	738	0	-946
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0	0	-718	0	0
Total use of non-renewable primary energy resource (PENRT)	MJ	0.350	30.4	19.8	0	-946
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)	m³	$1.79 \cdot 10^{-4}$	$2.04 \cdot 10^{-3}$	$1.02 \cdot 10^{-2}$	0	-0.215

Environmental Information

3 ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES AND OUTPUT FLOWS - 1 m³ OF METSÄ WOOD BIRCH PLYWOOD

Indicator	Unit	A1-A3	A4	A5
Hazardous waste disposed (HWD)	kg	$7.84 \cdot 10^{-4}$	$2.26 \cdot 10^{-5}$	$1.01 \cdot 10^{-5}$
Non-hazardous waste disposed (NHWD)	kg	4.50	$8.08 \cdot 10^{-2}$	1.66
Radioactive waste disposed (RWD)	kg	0.828	$6.71 \cdot 10^{-4}$	$3.60 \cdot 10^{-2}$
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	180
Exported thermal energy (EET)	MJ	0	0	261

SCENARIO 1: INCINERATION AS SECONDARY FUEL

Indicator	Unit	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	$1.45 \cdot 10^{-10}$	$1.40 \cdot 10^{-6}$	$8.22 \cdot 10^{-9}$	0	$-3.66 \cdot 10^{-6}$
Non-hazardous waste disposed (NHWD)	kg	$2.48 \cdot 10^{-4}$	$4.81 \cdot 10^{-3}$	$1.41 \cdot 10^{-2}$	0	8.56
Radioactive waste disposed (RWD)	kg	$5.31 \cdot 10^{-5}$	$5.60 \cdot 10^{-5}$	$3.01 \cdot 10^{-3}$	0	-0.934
Components for re-use (CRU)	kg	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	1.00	0	0
Materials for energy recovery (MER)	kg	0	0	684	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	$1.45 \cdot 10^{-10}$	$1.40 \cdot 10^{-6}$	$8.22 \cdot 10^{-9}$	0	$-3.18 \cdot 10^{-4}$
Non-hazardous waste disposed (NHWD)	kg	$2.48 \cdot 10^{-4}$	$4.81 \cdot 10^{-3}$	$1.41 \cdot 10^{-2}$	0	-0.429
Radioactive waste disposed (RWD)	kg	$5.31 \cdot 10^{-5}$	$5.60 \cdot 10^{-5}$	$3.01 \cdot 10^{-3}$	0	$-5.58 \cdot 10^{-2}$
Components for re-use (CRU)	kg	0	0	0	0	0
Materials for recycling (MFR)	kg	0	0	685	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 m³ OF METSÄ WOOD BIRCH PLYWOOD

Indicator	Unit	A1-A3	A4	A5
Biogenic carbon content in accompanying packaging	kg	2.94	0	0
Biogenic carbon content in product	kg	288	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 m³ OF METSÄ WOOD BIRCH PLYWOOD

Indicator	Unit	A1-A3	A4	A5
Global Warming Potential (GWP-GHG) IPCC AR5 GWP100, excl biogenic carbon	kg CO_2 eq.	444	41.1	36.6

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.	$1.98 \cdot 10^{-2}$	2.25	1.12	0	-573

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.	$1.98 \cdot 10^{-2}$	2.25	1.12	0	-52.2

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.
EPD® SYSTEM 2019	The International EPD System. (2019a, December 20). Product Category Rules According to ISO 14025:2006 for Construction Products.
EPD® SYSTEM 2019	The International EPD System. (2019b, December 20). Complementary Product Category Rules According to ISO 14025:2006 for Wood and wood-based products.