

ENVIRONMENTAL PRODUCT DECLARATION

EPD of Finnish Sawn timber

Finnish Sawmills Association

This environmental product declaration (EPD) is for sawn softwood timber produced by member companies of the Finnish Sawmills Association. The declaration has been prepared in accordance with standard EN 15804:2012 + A2:2019/AC2021 and RTS PCR 2014 (version 12.11.2024) product category rules. The environmental data for building products mentioned in this RTS EPD cannot be compared to other EPDs if they do not meet the requirements set out in SFS-EN 15804:2012+A2:2019, clause 5.3.

This declaration includes the life cycle stages from cradle to gate with options (modules A1–A4, C1–C4 and D).



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Rakennustieto Oy

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<https://ymparisto.rakennustieto.fi/rakennustiedon-epd>

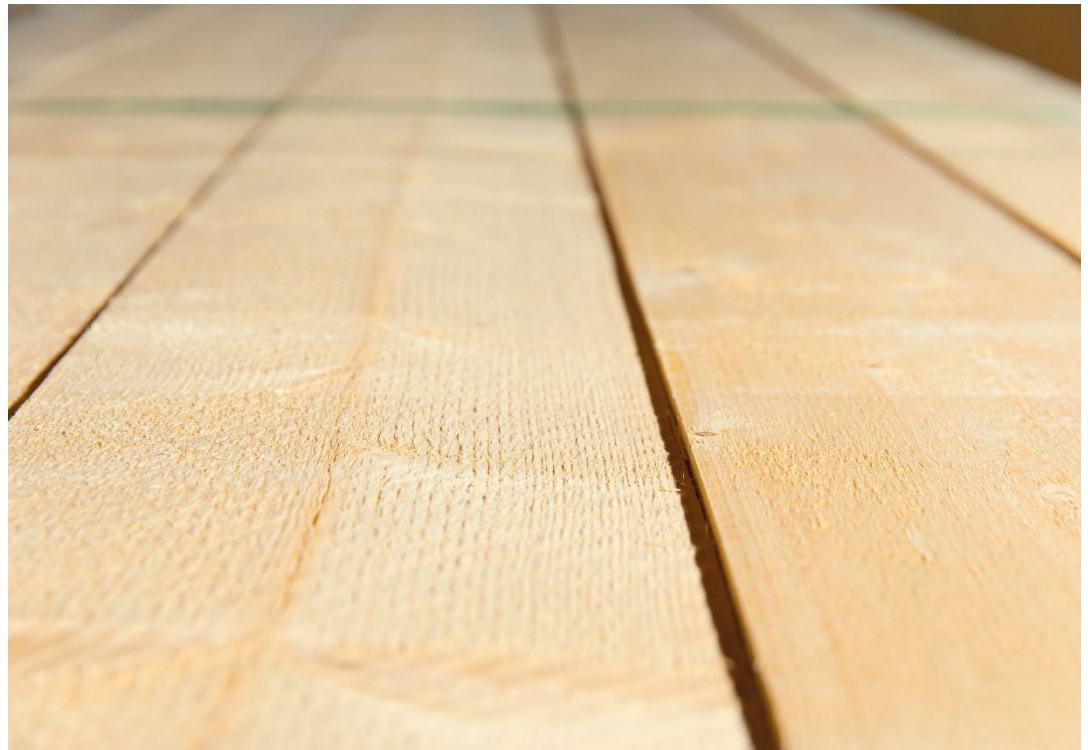


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General Information, Declaration scope and verification

1. Owner of the Declaration, Manufacturer

Finnish Sawmills Association
 Säästöpankinranta 4 C 24
 00530 Helsinki
 Tino Aalto
tino.aalto@sahateollisuus.com

2. Product Name and Number

Construction 2000 Building Product Classification: Sawn timber (241)

3. Production sites

The EPD represents average product of sawn timber produced by member of the Finnish Sawmill Association. Primary inventories are created from the following sawmills:

Company	Address	Address	CoC certificates
Westas Group Oy	Myllykyläntie 42	31500 Koski TI	PEFC, FSC
Versowood Oy	Teollisuustie 60	19110 Vierumäki	PEFC, FSC
Kuhmo Oy	Kainuuntie 78	88900 Kuhmo	PEFC, FSC
Luvian Saha Oy	Sahantie 1	29100 Luvia	PEFC, FSC
Veljekset Vaara Oy	Viiantie	93600 Kuusamo	PEFC, FSC
JPJ-Wood Oy	Tapulitie 8	35501 Korkeakoski	PEFC

Isojoen Saha Oy	Teollisuustie 8	64900 Isojoki	PEFC
Keitele Wood Oy	Teollisuustie	72600 Keitele	PEFC
Södra Wood Oy	Tanttutie 6	49460 Hamina	PEFC
Lapuan Saha Oy / Aureskosken Jalostetehdas Oy	Honkimetsäntie 9	62100 Lapua	PEFC
Sahakuutio Oy	Nikkarintie 1	58200 Kerimäki	PEFC

4. Additional Information

For additional information, please contact the owner of the declaration: info@sahateollisuus.com

5. Product Category Rules and Scope of the Declaration

The declaration has been prepared in accordance with EN 15804:201+A2:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (version 20.12.2024). Product specific category rules have not been applied. EPD of construction products may not be comparable if they do not comply with EN 15804 and seen in a building context.

6. Author of the Life-Cycle Assessment and Declaration

Tarmo Rätty and Ashraful Alam

Natural Resources Institute Finland (Luke),

Latokartanonkaari 9, 00790 Helsinki, Finland. www.luke.fi

7. Verification

This EPD has been verified according to the requirements of ISO 14025:2010, EN 15804:2012 + A2:2019 and RTS PCR protocol by a third party. The verification has been carried out by Mari Kirss from Meetripuu OÜ.

Name and organization of third party verifier	Place
Mari Kirss, Meetripuu OÜ	Tartu, Estonia
Signature: 	Date: 26.08.2026

8. Declaration Issue Date and Validity

Declaration issue date 25.09.2026. EPD is valid 5 year from publication 25.09.2026 – 25.09.2031

Product Information

9. Product Description and Use

The average product is kiln dried softwood sawn timber from sustainably managed forests produced by members of Finnish Sawmill Industry Association. Raw material and production are certified under either the PEFC or FSC CoC (Certificate of Conformity) systems or both. The products from different sawmills do not differ in terms of technical characteristics or uses. The average product is calculated as product volume weighted average of sawmills from 2024. The variation between the sawmills is less than 10 % from average GWP-total value.

Pine or spruce logs are harvested from forest and transported from the roadside to the sawmill. At sawmill, sorted logs are debarked and sawn to the boards. Cross-section dimensions are usually between 19-225 mm. the most common lengths vary between 2.7 m and 5.4 m in steps of 300 mm.

Sawn timber is typically used as a semi-finished product in downstream processing (e.g. planing, glulam, impregnated wood, modified wood) or in all construction except frame structures. The environmental statements in this EPD do not include further processing, such as planing, bonding, or impregnation.

10. Results of Environmental Information Reported per Kilogram

Table 10 Results of environmental information per kilogram

Impact	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO2 eq./kg	-1.53E+00	-1.60E+00	8.60E-03	6.00E-02	1.32E-02	0.00E+00	0.00E+00	0.00E+00	3.98E-03	7.18E-03
ADP-minerals&metals**	kg Sb eq./kg	6.21E-09	7.63E-10	2.74E-10	5.17E-09	4.19E-10	0.00E+00	0.00E+00	0.00E+00	1.02E-10	1.94E-10
ADP-fossil**	MJ. NCV/kg	1.43E+00	2.10E-01	1.10E-01	1.11E+00	1.68E-01	0.00E+00	0.00E+00	0.00E+00	4.52E-02	9.52E-02
WDP**	m3 world eq. Deprived/kg	1.22E-02	1.01E-03	6.27E-05	1.12E-02	9.60E-05	0.00E+00	0.00E+00	0.00E+00	2.33E-05	6.62E-05
Biogenic carbon	kg C/kg	4.36E-01	4.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Secondary materials*	kg /kg	2.67E-04	3.45E-05	4.13E-08	2.32E-04	6.33E-08	0.00E+00	0.00E+00	0.00E+00	1.53E-08	4.87E-08

* The use of secondary materials in the inventory is attributable to the resources consumed in the modules.

**See disclaimers in Table 20.

Abbreviations: GWP total = Global Warming Potential, Climate Change – Total. ADP-fossil = Resource use fossil. ADP-minerals & metals = Resource use, minerals and metals. WPD = Water use (AWARE). Biogenic carbon = Biogenic carbon in product. Secondary materials = Use of secondary materials in product. NCV = Net Caloric Value.

11. Product Standard

EN 14081+A1 Timber structures.

EN 338:2016 Structural timber - Strength classes

12. Physical Properties and Raw Materials

Impacts are calculated for sawn timber at u=18% relative moisture (water relative to dry mass). The average density of sawn timber is 487 kg/m³. Basic density (dry mass in green volume) of Norway spruce was assumed to be 383 kg/m³ and for Scots pine 407 kg/m³.

Product raw materials	Sawn timber % by volume	Renewable materials	Origin
Scots pine [<i>Pinus Sylvestris</i>]	38 %	Yes	Finland
Norway spruce [<i>Picea Abies</i>]	62 %	Yes	Finland

The quality requirements are described in the product standard.

13. Substances of European Chemicals Agency's REACH concern

The product does not contain substances listed on ECHA's Candidate List of Substances of Very High Concern more than 0.1 % by weight.

Scope of the Life Cycle Assessment

In addition to PCR EN 15804:2012 + A2:2019/AC2021 and ISO 14025 standard the additional requirements stated in the RTS Guidelines (Building Information Foundation RTS sr, 2021) and RTS PCR (Building information Foundation RTS SR, 20.11.2024) are followed. This declaration includes the life cycle stages cradle to gate with options, modules C1–C4, and module D (A1–A3, C, D and A4). Scenarios for modules C and D represent current technologies in Finland only.

Product stage			Construction process stage		Use stage					End of life stage				Supplementary information beyond the life cycle		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3
X	X	X	X	ND	ND	ND	ND	ND	ND	X	X	X	X	X	X	X
Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacing	Refurbishment	De-construction	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

14. Declared Unit

The declared unit is 1 m³ of sawn softwood at u=18 % relative moisture content.

15. System Boundaries

The inventory covers forestry and wood harvesting in Module A1 (Procurement of Raw Materials), where softwood logs are felled in the forest, moved to the roadside with a forest tractor and transported to the sawmill by logging trucks. Module A2 (Transport) includes the long-distance transport of roundwood to sawmills. Module 3 (a sawmill) typically comprises a log sorter to receive and sort the logs, a saw line to saw the logs according to orders, a kiln and a planing mill, and a heat plant. Bark, sawdust, wood chips, and crushed wood generated as by-products are either used as process energy at the site or in an ancillary plant in a closed loop, or sold. Timber is dried in chamber and progressive kilns. Though, cutter chips are not products of sawmilling but planing, some of the cutter flow is used for kiln drying.

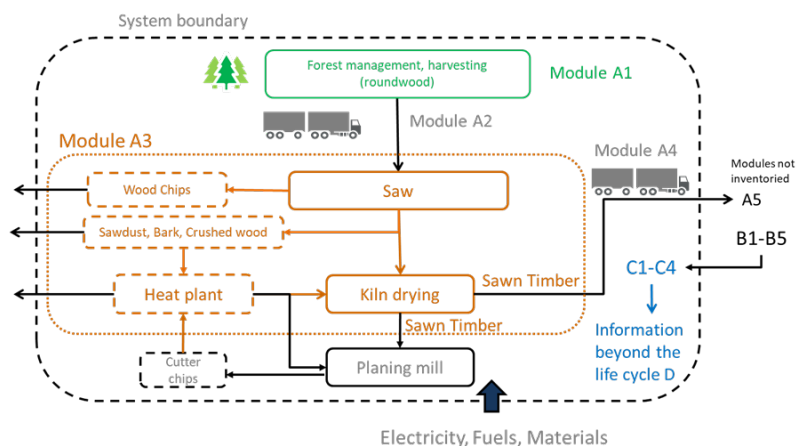


Figure 1 System boundary of sawn timber EPD. The key inventoried flows.

Sawmills are connected to high voltage electricity grid. Residual electricity mix is used as a default, except for the sawmills that have presented cancelled Guarantees of Origin of their electricity procurement. Environmental impacts based on market electricity mix (grid electricity) are presented in section 26, Additional information.

Sawn timber is usually not transported directly to construction sites but exported (80% of the volume) or transported to domestic wood engineering companies or wholesalers. Module A4 (transportation for construction) is presented as a weighted average of exports to the Port of Helsinki and domestic clients.

Information on the required raw materials, other materials and energy inputs, transport distances, and product and waste quantities has been collected from the sawmills in 2024. The secondary inventory is based on ecoinvent system model allocation, cut-off, EN 15804 v3.12.

Modules C covers the demolition, transportation and chipping of demolition wood. Biogenic carbon in wood is emitted in C3. The geography for Module D is Finland. Demolition wood is utilized in CHP plants for heat, where overall energy efficiency typically exceeds 80%. Demolition wood chips are assumed to replace forest wood chips.

16. Cut-Off Criteria

The inventory accounts the life cycle impacts of all raw materials reported by the sawmills as well as the final treatment of waste and wastewater. In the case of waste, the limit is set where the waste is converted into a raw material for a new product or a fuel for energy production or disposed.

Environmental impacts and Raw Material Use

17. Environmental Impacts

Table 17 Core Environmental Impacts

Impact category	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D2*
GWP-total	kg CO2 eq.	-7.45E+02	-7.79E+02	4.19E+00	2.92E+01	6.43E+00	1.94E+00	3.50E+00	7.88E+02	0.00E+00	-1.09E+02
GWP-fossil	kg CO2 eq.	4.07E+01	7.59E+00	3.85E+00	2.93E+01	6.32E+00	1.78E+00	3.50E+00	1.03E+00	0.00E+00	-9.36E+01
GWP-biogenic	kg CO2 eq.	-7.86E+02	-7.86E+02	3.38E-01	-4.40E-02	1.12E-01	1.57E-01	7.46E-04	7.87E+02	0.00E+00	-1.56E+01
GWP-luluc	kg CO2 eq.	8.72E-03	1.15E-03	7.61E-05	7.49E-03	1.17E-04	2.83E-05	5.44E-05	1.92E-02	0.00E+00	1.63E-02
ODP	kg CFC 11 eq.	7.11E-07	1.68E-07	1.09E-07	4.34E-07	1.68E-07	4.06E-08	8.02E-08	5.69E-09	0.00E+00	-1.78E-06
AP	Mol H+ eq.	1.81E-01	1.60E-02	4.89E-03	1.60E-01	7.62E-03	6.98E-03	4.13E-03	4.24E-03	0.00E+00	-5.70E-01
EP-freshwater	kg P eq.	1.17E-02	1.59E-04	2.59E-05	1.15E-02	3.97E-05	9.62E-06	1.88E-05	3.87E-04	0.00E+00	7.39E-03
EP-marine	kg N eq.	6.63E-02	5.49E-03	1.01E-03	5.98E-02	1.61E-03	3.09E-03	1.03E-03	1.02E-03	0.00E+00	2.21E-02
EP-terrestrial	mol N eq.	7.28E-01	5.94E-02	1.06E-02	6.58E-01	1.71E-02	3.37E-02	1.11E-02	1.08E-02	0.00E+00	6.07E-01
POCP	kg NMVOC eq.	2.11E-01	3.03E-02	1.08E-02	1.69E-01	1.67E-02	1.17E-02	8.93E-03	2.68E-03	0.00E+00	-1.60E-01
ADP-minerals & metals	kg Sb eq.	3.02E-06	3.72E-07	1.33E-07	2.52E-06	2.04E-07	4.95E-08	9.44E-08	1.47E-07	0.00E+00	-7.05E-06
ADP-fossil	MJ. LHV	6.96E+02	1.02E+02	5.35E+01	5.41E+02	8.19E+01	2.20E+01	4.64E+01	5.19E+01	0.00E+00	-9.78E+02
WDP	m3. world eq. deprived	5.96E+00	4.93E-01	3.05E-02	5.44E+00	4.68E-02	1.13E-02	3.22E-02	8.62E-01	0.00E+00	-3.54E+02

*D1 and D3 core environmental impacts equals to 0.00E+00

Disclaimers:

ADP-minerals & metals, ADP-fossil and WDP: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Abbreviations: GWP total = Global Warming Potential. Climate Change – Total. GWP Fossil = Global Warming Potential. Climate change – Fossil. GWP biogenic = Global Warming Potential. Climate change – biogenic. GWP luluc = Global Warming Potential. Climate Change – Land use and LU change. ODP = Ozone depletion. AP = Acidification Potential. EP-freshwater = Eutrophication-freshwater. EP-marine = Eutrophication – marine. EP-terrestrial = Eutrophication – terrestrial. POCP =Photochemical ozone formation. ADP-minerals & metals = Resource use, minerals and metals. ADP-fossil = Resource use fossil. WPD = Water use (AWARE).

18. Additional Environmental Impacts

Not declared (ND)

19. Use of Natural Resources

Table 19 Use of natural resources

Parameter	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D2*
PERE	MJ	2.83E+03	1.57E+03	1.60E+00	1.26E+03	2.45E+00	2.58E-01	1.14E-01	1.85E+01	0.00E+00	-9.55E+02
PERM	MJ	6.94E+03	6.93E+03	7.90E+00	1.55E+00	1.21E+01	1.10E+00	0.00E+00	-6.94E+03	0.00E+00	0.00E+00
RE Total	MJ	9.77E+03	8.50E+03	9.50E+00	1.26E+03	1.46E+01	1.36E+00	1.14E-01	1.85E+01	0.00E+00	-9.55E+02
PENRE	MJ	6.33E+02	1.02E+02	1.20E+01	5.19E+02	1.84E+01	4.78E+00	4.64E+01	5.19E+01	0.00E+00	-1.07E+03
PENRM	MJ	7.41E+01	0.00E+00	4.15E+01	3.26E+01	6.36E+01	1.72E+01	0.00E+00	-7.41E+01	0.00E+00	9.63E+01
NRE Total	MJ	7.07E+02	1.02E+02	5.35E+01	5.51E+02	8.19E+01	2.20E+01	4.64E+01	5.19E+01	0.00E+00	-9.71E+02
RSF	MJ	1.11E-02	1.57E-03	2.93E-06	9.49E-03	4.49E-06	1.09E-06	2.07E-06	3.39E-06	0.00E+00	6.94E+03
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	0.00E+00	7.41E+01
Net water	m ³	1.42E-01	1.18E-02	7.57E-04	1.30E-01	1.16E-03	2.81E-04	7.88E-04	2.89E-02	0.00E+00	-8.24E+00
SM	kg	1.30E-01	1.68E-02	2.01E-05	1.13E-01	3.08E-05	7.48E-06	2.37E-05	6.83E-04	0.00E+00	-3.82E-02

*D1 and D3 use of natural resources equals to 0.00E+00.

Abbreviations: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials. PERM = Use of renewable primary energy resources used as raw materials. RE Total= Total use of renewable primary energy resources. PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials. PENRM = Use of non-renewable primary energy resources used as raw materials. NRE Total = Total use of non-renewable primary energy resources. RSF = Use of renewable secondary fuels. NRSF= Use of non-renewable secondary fuels. Net Water = Net use of fresh water. SM = Use of secondary materials.

20. Biogenic Carbon Content

Table 20 Biogenic carbon content

Biogenic carbon content	Unit*	A3
Biogenic carbon content in product	kg C	2.13E+02
Biogenic carbon content in accompanying packaging	kg C	5.80E-01
*1 kg biogenic carbon is equivalent to 44/12 kg of biogenic CO ₂ .		

21. End of Life – Waste

Table 21 End of life - Waste											
Parameter*	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D2**
Hazardous waste disposed	kg	2.30E+00	1.04E-01	8.09E-03	2.18E+00	1.24E-02	3.01E-03	5.79E-03	7.40E-02	0.00E+00	1.10E+00
Non-hazardous waste disposed	kg	7.48E+01	9.44E-01	2.11E-01	7.37E+01	3.23E-01	7.84E-02	1.55E-01	2.04E+00	0.00E+00	4.51E+01
Radioactive waste disposed	kg	3.91E-03	1.62E-05	3.48E-06	3.89E-03	5.33E-06	1.29E-06	2.59E-06	6.67E-04	0.00E+00	3.02E-03
* Waste flows are mainly originated from the secondary inventory. The primary inventory of waste flows is included module A3.											
** D1 and D3 EoL - Waste equals to 0.00E+00											

22. Output Flows

Table 22 Output flows											
Indicator*	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D2**
Components for re-use	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	0.00E+00	0.00E+00
Materials for recycling	kg	3.05E-01	1.85E-02	1.48E-06	2.87E-01	2.27E-06	5.50E-07	1.18E-06	3.19E-06	0.00E+00	2.08E-01
Materials for energy recovery	kg	1.06E-01	1.62E-07	1.55E-08	1.06E-01	2.38E-08	5.76E-09	1.15E-08	4.87E+02	0.00E+00	7.41E-02
Exported energy - electricity	MJ	6.70E-02	9.37E-03	2.44E-03	5.52E-02	3.73E-03	9.05E-04	1.80E-03	1.11E-03	0.00E+00	1.67E-01
Exported energy - heat	MJ	7.43E+01	3.41E-03	8.92E-05	7.43E+01	1.37E-04	3.31E-05	4.41E-03	3.94E-04	0.00E+00	5.19E+01
*The primary inventory of output flows is only carried out for module A3. The output flows are additionally originated from secondary inventory											
** D1 and D3 use of output flows equals to 0.00E+00											

Scenarios and Additional Technical Information

23. Energy in the Manufacturing Phase

Table 23 Energy in the manufacturing phase. electricity inventories			
	Quantity	Data Quality	Type
Inventoried residual and wind electricity mix. kg CO ₂ eq. per kWh	4.81E-01	Ecoinvent v3.12	EPD IA
Cancelled GoO mix. kg CO ₂ eq. per kWh	1.75E-6	Ecoinvent v3.12	Wind (7.25%)
Inventoried market mix. kg CO ₂ eq. per kWh	0.128	Ecoinvent v3.12	Additional information

24. Additional Technical Information. Transportation of Products

Table 27 Additional technical information. transport to the building site and installation of the product			
Module	Variable	Value	Data quality
A4	Full or Semitrailers (GVW 40-76ton). EURO6 RER. Diesel l/km/m ³	8.99E-03	Lipasto database
A4	Transport. freight. sea. container ship GLO. heavy fuel oil l/km/m ³	1.36E-03	Ecoinvent v3.12
A4	Distance. km	2.15+02	Average distance
A4	Capacity utilisation (including empty returns)	52 %	Road
A4	Capacity utilisation	70%	Ship
A4	Bulk density of transported products. kg/m ³	4.87E+02	u=18 %
A4	Volume capacity utilisation factor	90%	Truck

25. End-of-life Process Description in Module C

Table 25 End-of-life process description. all products		
Process flow	Unit	Share of declared unit
Collection process specified by type	Collected separately	100 %
	Collected with mixed construction waste	0
Recovery system specified by type	Components for reuse	0
	Material for recycling	0
	Energy recovery	100 %
Disposal specified by type	Loss (mixed waste)	0 %
Assumptions for scenario development	Transportation distance to energy uses 50 km	

26. Additional Information

a) Environmental impacts based on average electricity supply

Following RTS PCR, the core environmental impacts in Table 17 are calculated based on electricity procurement using the guarantees of origins (GoO) reported by the sawmills, or, where no GoO was available, using the residual electricity mix. In Table 26, the impacts are calculated using the average electricity supply mix of the Finnish electricity market.

Table 26. Environmental impacts based on market for electricity, high voltage					
Impact category	Unit	A1-A3	A1	A2	A3
GWP-total	kg CO2 eq.	-7.62E+02	-7.79E+02	4.19E+00	1.22E+01
GWP-fossil	kg CO2 eq.	2.36E+01	7.59E+00	3.85E+00	1.21E+01
GWP-biogenic	kg CO2 eq.	-7.86E+02	-7.86E+02	3.38E-01	-5.08E-02
GWP-luluc	kg CO2 eq.	1.19E-01	1.15E-03	7.61E-05	1.18E-01
ODP	kg CFC 11 eq.	4.25E-07	1.68E-07	1.09E-07	1.48E-07
AP	Mol H+ eq.	1.45E-01	1.60E-02	4.89E-03	1.24E-01
EP-freshwater	kg P eq.	3.10E-03	1.59E-04	2.59E-05	2.91E-03
EP-marine	kg N eq.	5.63E-02	5.49E-03	1.01E-03	4.98E-02
EP-terrestrial	mol N eq.	6.37E-01	5.94E-02	1.06E-02	5.67E-01
POCP	kg NMVOC eq.	1.84E-01	3.03E-02	1.08E-02	1.43E-01
ADP-minerals & metals	kg Sb eq.	3.03E-06	3.72E-07	1.33E-07	2.53E-06
ADP-fossil	MJ. LHV	5.42E+02	1.02E+02	5.35E+01	3.87E+02
WDP	m3. world eq. deprived	7.07E+00	4.93E-01	3.05E-02	6.55E+00

b) Conversion of sawn timber to linear meters

The cross-section of sawn timber is always a rectangle. The reported effects per cubic metre can be converted per linear metre by dividing the value over the cross-section area of the product.

c) Notes:

- Air, soil, and water impacts during the use phase have not been studied.
- The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.
- The chosen end-of-line scenario is currently in use and is the most probable option.
- SimaPro 10.3.0.1 software was used for LCA with ecoinvent 3.12 EN15804 system model as a generic data source.
- SimaPro EN 15804 impact assessment method is based on the EF 3.1 method.

27. References**Standards:**

- ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations. Principles and procedures
- ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.
- ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.
- EN15804:2012+A2:2019 Sustainability of construction works. Environmental Product Declarations. Core rules for the product category of construction products.
- EN 15941:2024. *Sustainability of construction works — Data quality for environmental assessment of products and construction work — Selection and use of data.*
- EN 338:2016 Structural timber - Strength classes
- RTS PCR 12.11.2024 RTS PCR protocol. Building Information Foundation sr. PT 42 RTS EPD Committee.
- RTS EPD Guideline. The Finnish RTS EPD programme. 18.2.2021. The Building Information Foundation RTS sr.

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