

# Environmental Product Declaration



In accordance with ISO 14025, EN 15804+A1:2013 and ISO 21930 for:

## Swedish sawn dried timber of spruce or pine

from

### Swedish Wood

Programme:	The International EPD® System <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	S-P-01325
ECO EPD reference number:	00000765
Publication date:	2018-10-08
Validity date:	2023-06-27
Geographical scope:	Sweden



Photographer: Johan Ardefors

## General information

### Information about the organization

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Swedish wood

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Place of production: Sweden

## About the organisation

This environmental product declaration presents the average performance of sawn timber from Sweden by members of Swedish Wood. Swedish wood is a department within The Swedish Forest Industries Federation and supported by the Swedish sawmill and glulam industries. Swedish Wood spreads knowledge provides inspiration and encourages development relating to wood, wood products and wood construction.

Following companies has contributed with data and enabled this branch EPD:

Bergkvist-Insjön plants, Derome, Hedins, Holmen, Ingarp, JGA, Martinsons, Moelven, NKL trä, Norrskog, Rödins trä, SCA, Setragroup, Stora Enso, Sveden trä, Södra skogsägarna plants and Vida plants.

## Product information

Product name: Swedish sawn dried timber of spruce or pine.

Product description: Sawn dried timber is produced in Sweden by members of Swedish Wood. The sawn dried timber is used as raw material in planed wood production. The raw material used in production is Swedish logs Dried sawn timber has an average density of

455kg/m<sup>3</sup> and a moisture content of 16 %. Sawn dried timber of spruce has an average density of 470 kg/m<sup>3</sup> and 440 kg/m<sup>3</sup> for pine. The moisture content for the dried wood is about 12-18%.

UN CPC code: 311

Geographical scope: Sweden

## LCA information

Declared unit:

1 m<sup>3</sup> of Swedish sawn dried timber of spruce or pine with a moisture content of 16 %.

Representativeness:

This study cover 58 % of the total sawn softwood timber in Sweden. Input are collected from 44 sawmills and cover the production of 10 190 000 m<sup>3</sup> sawn dried timber. Data to produce sawn wood is collected from a representative selection of sawmills in Sweden and weighted to an average. These data represent the year 2016 and includes raw

material, transport distances, fuels, emissions, energy consumption, delivered goods, by-products, waste and purchases (Bohlin et. al, 2018).

Data from Ecoinvent 3.4 has been used for generic data. The allocation is performed according to EN15804:2012, Physical, economic and energy allocation have been used. The economic values are collected from the Swedish energy agency and Danske bank and the physical is based on mass from an average sawmill.

included.

Database(s) and LCA software used: SimaPro 8.5.2.0 and Ecoinvent 3.4

Description of system boundaries:  
Cradle to gate.

System diagram:

<p><b>A1 Raw material supply</b></p> <p>Included:</p> <ul style="list-style-type: none"> <li>• Raw material for construction of sawmill.</li> <li>• Raw material for the construction of vehicles for transport and work machines and road maintenance.</li> <li>• Extraction of timber-forestry including harvesting, thinning, planting, forest roads, etc.</li> <li>• Extraction of all other raw materials, energy and fuels required in production or in the production of materials consumed in production.</li> </ul> <p>Excluded:</p> <ul style="list-style-type: none"> <li>• Raw materials to produce chemicals consumed in smaller quantities are excluded.</li> </ul>
<p><b>A2 Transport</b></p> <p>Included:</p> <ul style="list-style-type: none"> <li>• Transport of timber to sawmills.</li> <li>• Transport of consumables to sawmills.</li> <li>• For timber transport, transportation of consumables to sawmills, waste transportation and internal work vehicles a fair share for the manufacture and maintenance of vehicles and infrastructure are included.</li> <li>• Internal transport and handling of work machined in the sawmill area.</li> <li>• Removal of produced waste.</li> </ul> <p>Excluded:</p> <ul style="list-style-type: none"> <li>• Personnel transport outside the sawmill area is not included.</li> </ul>
<p><b>A3 Manufacturing</b></p> <p>Included:</p> <ul style="list-style-type: none"> <li>• Production of sawed products including barking, sawing, drying and sorting as well as packaging.</li> </ul> <p>Excluded:</p> <ul style="list-style-type: none"> <li>• Personnel space/office or purchase of tools or workwear are not</li> </ul>

More information:  
Average transport distance from felling site to sawmill is 100km and the raw logs have an average density of 882kg/m<sup>3</sup>. If the sawn dried timber has a longer lifetime than 100 years it is possible to include the carbon biogenic storage for the global warming potential. Forestry takes approximately 100 years in Sweden from seed to harvest. Biogenic carbon storage is 715kg CO<sub>2</sub>/m<sup>3</sup>.

Table 1. Life cycle stages that are included in this EPD are marked with X and modules that are not declared is marked with ND.

A 1-3 Product Stage			A 4-5 Construction process Stage		B1-7 Use stage							C1-C4 End-of-life Stage				D Benefits and loads beyond the system boundary
A1 - Raw material supply	A2 – Transport of raw materials	A3 - Manufacturing	A4 – Transport to customer	A5- Installation	B1 - Use	B2 - Maintenance	B3 – Repair	B4- Replacement	B5 – Refurbishment	B6- Operational energy use	B7 – Operational water use	C1-Deconstruction/Demolition	C2- Transport to waste processing	C3 – Waste processing	C4 – Disposal	D – Reuse- Recovery- Recycling Potential
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

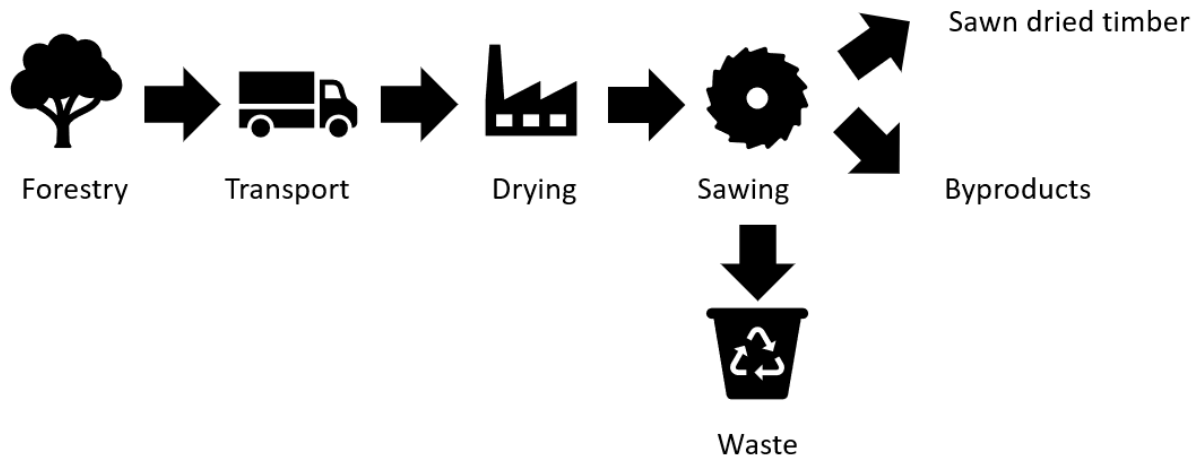


Figure 1. Schematic picture illustrates the process flow for each of the 44 contributing sawmills in Sweden.

## Content declaration

### Product

The product does not contain any substances or products that are listed in the “Candidate List of Substances of Very High Concern for Authorisation”.

### Packaging

For the sawmills that do not have further processing in the area, plastic bands, plastic caps or metal tapes are used for distribution.

### Recycled material

No recycled materials are used in the product.

## Environmental performance

### Potential environmental impact

PARAMETER		UNIT	TOTAL A1-A3	Range* A1-A3
Global warming potential (GWP)-	Fossil	kg CO <sub>2</sub> eq.	3.16E+01 **	2.38E+01 - 3.69E+01
	Biogenic	kg CO <sub>2</sub> eq.	1.06E+02	7.61E+01 - 8.97E+01
	Land use and land transformation	kg CO <sub>2</sub> eq.	4.72E-01 E-01	4.10E-01 - 4.40E-01
Acidification potential (AP)		kg SO <sub>2</sub> eq.	2.09E-01	2.00E-01 - 2.30E-01
Eutrophication potential (EP)		kg PO <sub>4</sub> <sup>3-</sup> eq.	5.02E-02	5.00E-02 - 5.00E-02
Formation potential of tropospheric ozone (POCP)		kg C <sub>2</sub> H <sub>4</sub> eq.	1.80E-02	1.00E-02 - 2.00E-02
Abiotic depletion potential – Elements		kg Sb eq.	1.16E-04	1.43E-04 - 1.05E-04
Abiotic depletion potential – Fossil resources		MJ, net calorific value	451.46	3.03E+02 - 4.98E+02
Water scarcity potential		m <sup>3</sup> eq.	INA	INA

\* The range is between the sawmills that has the lowest and the highest impact on the GWP.

\*\* When the sawn dried timber assumed to have a lifetime longer than 100 years the total GWP can be -577 kgCO<sub>2</sub>/m<sup>3</sup> which includes a biogenic carbon storage at 715 kg CO<sub>2</sub> /m<sup>3</sup>.

### Use of resources

PARAMETER		UNIT	TOTAL A1-A3	Range* A1-A3
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3.17E+03	2.75E+03 - 2.86E+03
	Used as raw materials	MJ, net calorific value	6.75E+03	6.75E+03 - 6.75E+03
	TOTAL	MJ, net calorific value	9.91E+03	9.49E+03 - 9.61E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	7.48E+02	5.69E+02 - 8.26E+02
	Used as raw materials	MJ, net calorific value	0.00E+00	-

	TOTAL	MJ, net calorific value	7.48E+02	5.69E+02 - 8.26E+02
Secondary material		Kg	0,00E+00	-
Renewable secondary fuels		MJ, net calorific value	0,00E+00	-
Non-renewable secondary fuels		MJ, net calorific value	0,00E+00	-
Net use of fresh water		m <sup>3</sup>	2,13E-01	2.13E-01 - 2.13E-01

\* The range is between the sawmills that has the lowest and the highest impact on the GWP.

## Waste production and output flows

### Waste production

PARAMETER	UNIT	TOTAL A1-A3
Hazardous waste disposed	kg	8.18E-02
Non-hazardous waste disposed	kg	2.60E-01
Radioactive waste disposed	kg	0.00E+00

### Output flows

PARAMETER	UNIT	TOTAL A1-A3
Components for reuse	kg	0.00E+00
Material for recycling	kg	2.97E+00
Materials for energy recovery	kg	1.98E+00
Exported energy. electricity	MJ	0.00E+00
Exported energy. thermal	MJ	2.55E+01

## Programme-related information and verification

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of coallnstruction products may not be comparable if they do not comply with EN 15804.

<b>Programme:</b>	The International EPD <sup>®</sup> System  EPD International AB Box 210 60 SE-100 31 Stockholm Sweden  <a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a>
<b>EPD registration number:</b>	S-P-01325
<b>Published:</b>	2018-10-08
<b>Valid until:</b>	2023-06-27
<b>Product Category Rules:</b>	PCR 2012:01,v.2.2 Construction Products and Construction Services. PCR 2012:01-Sub-PCR-E Wood and wood-based products for use in construction (EN 16485)
<b>Product group classification:</b>	UN CPC 311
<b>Reference year for data:</b>	2016
<b>Geographical scope:</b>	Sweden


CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2012:01,v.2.2 Construction Products and Construction Services. PCR 2012:01-Sub-PCR-E Wood and wood-based products for use in construction (EN 16485). UN CPC code 311.
Independent third-party verification of the declaration and data, according to ISO 14025:2006:  <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: Marcus Wendin, Miljögiraff
Approved by: The International EPD <sup>®</sup> System
Procedure for follow-up of data during EPD validity involves third party-verifier:  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

## References

General Programme Instructions of the International EPD® System. Version 3.0.

Bohlin, I., Pantze, A., Adolfsson, I., LCA rapport Svensk sågad trävara, Tyréns, project 275325

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