

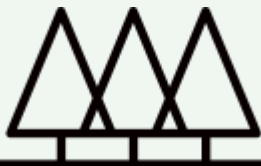
# Environmental Product Declaration



In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021 for:  
Single product

## Wood, planed and treated

From



# GEFLE WOOD

Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0014414
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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](http://www.environdec.com)*



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
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<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): <i>PCR 2019:14 Construction products (EN 15804:A2)(1.3.2)</i> <i>PCR 2019:14-c-PCR-006 Wood and wood-based products for use in construction (EN 16485) (2019-12-20)</i>
PCR review was conducted by: The <i>Technical Committee of the International EPD System</i> . See <a href="http://www.environdec.com">www.environdec.com</a> for a list of members. Review Chair: <i>Claudia A. Peña, University of Concepción, Chile</i> The review panel may be contacted via the Secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a> .
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: <i>Tyréns Sverige AB</i>
<b>Third-party verification</b>
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: <i>Marcus Wendin, Miljögiraff AB</i> , verifier of the Pre-verified and integrated EPD tool. Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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 programs, 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 characterization

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:

Gefle Wood AB, Västbyvägen 90, 818 95 Hedesunda

### Contact:

Anette Walldén,

Economics and Administration

Tel. direct +46 70 618 56 18

E-mail anette.wallden@geflewood.se

### Description of the organisation:

Gefle Wood offers high quality planed and treated wood products, produced in the planing mill in Hedesunda outside of Gävle.

The combined planing mill has an efficient planing line with a high capacity to plane, split, profile and precisely cut the incoming wood, sourced mainly from Swedish forestry. The resulting wood product is then treated and high pressure impregnated for protection on site, in the modern treatment plant capable of processing 100 000 m<sup>3</sup> of wood per year.

From the residual chips and shavings from the cutter and planer, the company manufacture fuel briquettes that become fuel for larger heating plants, as well as the operations on site.

### Product-related or management system-related certifications:

We are certified for NTR-A, NTR-B and NTR Gran in accordance with the Nordic Wood Preservation Council (NTR document nr 1:2011).

Our efforts are subject to an independent assessment and certification by DNV, in accordance with PEFC ST 2002:2020: Chain of custody of forest-based products.

### Name and location of production site(s):

Gefle Wood AB, Västbyvägen 90, 818 95 Hedesunda

## Product information

Product name: Wood, planed and treated

Product identification:

Product description: Planed and treated wooden products of varying dimensions, made from pine and spruce wood sourced mainly from Sweden. The wood is treated with high-performance protective preservatives, also known as impregnation.

UN CPC code: 311

### Geographical scope:

Module A1 and A2 Material suppliers are European

Module A3 production is located in Sweden

Module C and D scenarios are for Sweden

## LCA information

Functional unit / declared unit: 1 m<sup>3</sup> wood product, planed and treated, of pine (98%) and spruce (2%) with an average moisture factor ratio of 15%.

Conversion factor for the product is 522.9 kg per m<sup>3</sup>

Reference service life: Not declared.

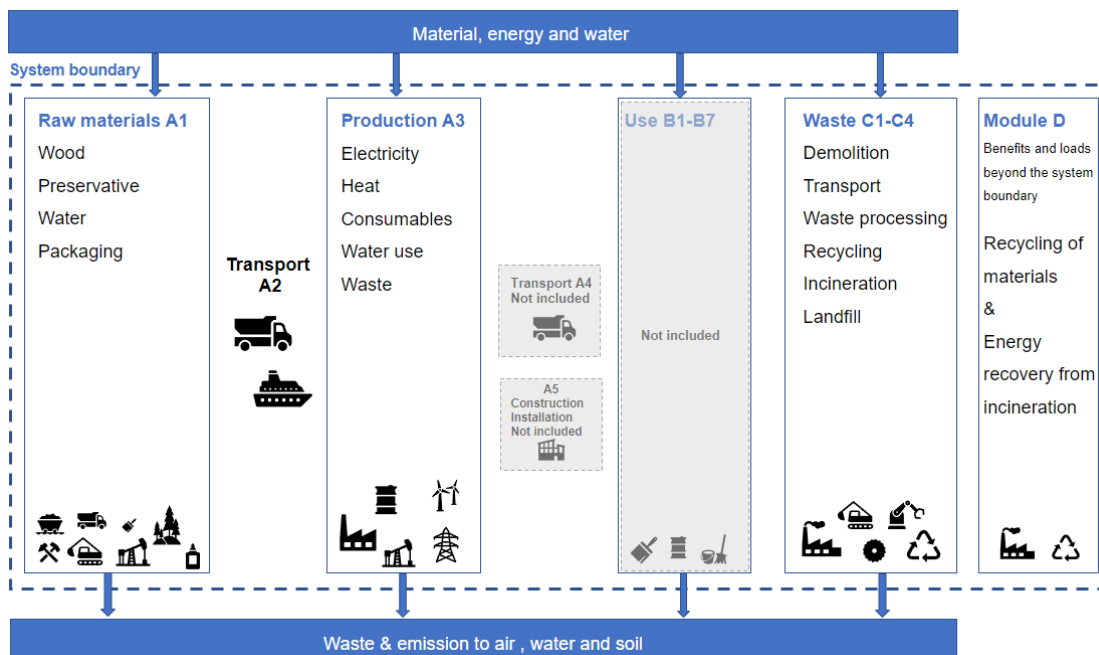
Time representativeness: The LCA is based on production data from 2023 but is deemed to be representative of an average year of production.

Database(s) and LCA software used: The LCA software is SimaPro Flow version 2.47 and the database is Ecoinvent 3.9.1. When modelling in Simapro, Ecoinvent data (updated November 2022) has been used for generic data.

### Description of system boundaries:

Cradle to gate (A1-A3), end of life (C1-C4) and benefits beyond system boundary (D).

### System diagram:



## Production

Main materials used for production:

- Wood: main raw material used is sawn wood product from four suppliers situated in Sweden.
- Preservative: for the treatment and high-pressure impregnation a liquid preservative is used, bought from a supplier in Germany.
- Water: in order to treat the wood product, the liquid preservative is diluted in water to better be absorbed by the wood.

Wood waste is utilized to make fuel briquettes, which are used both internally in the factory's own bio boilers and is exported as heat.

All raw materials are processed in the production facilities in Hedesunda, Sweden.

Production process consists of:

-Planing: Wood material is cut and planed.

-Treatment: The majority of the planed product is treated using high-pressure impregnation.

The finished wood product is bundled and transported by truck to retailers in Sweden.

More information:

LCA practitioner: Ida Adolfsson and Johan Albihn at Tyréns Sverige AB.

This EPD is generated with a pre-verified EPD tool. All processes are fixed and variable input data for each material and manufacturing process is governed by a menu. The results of the EPD are checked for plausibility. The review of the EPD-generator, its constituent processes and the fixed content of the EPD is accepted based on the verification of the tool and the verification of the first EPD produced by the tool. Identification name and version number of the EPD-generator: Tyréns EPD-generator 3.0 – Wood and wood-based products for use in construction.

The infrastructure or capital goods used in the product system for underlying processes are included for upstream and downstream processes, as infrastructure or capital goods can NOT be excluded in SimaPro FLOW. Therefore results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, noncancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes. For core module infrastructure or capital goods are excluded.

Results for the additional impact categories particulate matter, ionising radiation, ecotoxicity (freshwater), human toxicity (cancer), human toxicity (non-cancer) and land use is not declared.

EN 15804 reference package based on EF 3.1 has been used.

**Electricity data**

Gefle Wood AB (Västbyvägen 90, 818 95 Hedesunda, Sweden) purchases their electricity from Vattenfall, with an energy mix of 100% nuclear power. Infrastructure and net losses for high and medium net are included together with transformation losses when going from high voltage to medium voltage. Climate impact for the energy mix is 0.035 kg CO<sub>2</sub>eq. per kWh (GWP-GHG).

**Estimates and assumptions**

-For planed wood products, the average density of 518 kg / m<sup>3</sup> is assumed.

-For treated products, the average density of 522 kg / m<sup>3</sup> is assumed.

-Transport distances that are not specified have been assumed to be 50 km.

-Transport modes that are not specified have been assumed to be >35 ton, EURO 6.

-Unspecified modes of transport have been assumed to be trucks.

-Truck transports within Europe are assumed to have class EURO 5 and within Sweden EURO 6.

In the C module the end-of-life scenario considered is that the product is demounted during the deconstruction process which assumed a diesel use of 1.55 kWh/ton. The product is transported to a municipal waste facility and the transport distance is assumed to be 50km, C2. In C3, 95 % of the product is chipped and combust in a district heating facility. The remaining 5 %, in C4, is assumed to be deposited.

Module D contains benefits from exported energy from wood incineration declared in module C. Exported energy assumed to be 77 % heat and 23 % electricity from production of district heating. District heating production mix of Sweden assumed to 40% biofuels, 20% waste, 25 % recovered heat, 10% electricity(includes heat production from heat pumps) and 5% fossil fuels (Energiföretagen Sverige, 2017) .

### **Background data**

The data quality of the background data is considered good. The assessment considers all available data from the production process, including all raw materials and auxiliary materials used as well as the energy consumption in relation to available Ecoinvent 3.9.1 datasets and EPD's.

The data quality of the background data is considered to be good. The assessment considers all available data from the production process, including all raw materials and auxiliary materials used, as well as the energy consumption in relation to available Ecoinvent 3.9.1 datasets and EPD's.

### **Data quality**

When modeling in Simapro, Ecoinvent data (updated November 2022) has been used for generic data. The database is considered to be of high quality. For the majority of material supplier's product specific and third party verified EPD's has been used. The EPD's used is of high quality.

Approximately >90% specific data in this EPD for module A1-A3. Specific data are related to amount of energy, transportation and direct emission used throughout module A1-A3.

Other Indata gathered from the actual manufacturing plant with product-specific processes, specific amounts, specific waste, and spillage %, specific energy mix, specific transportation distances and transportation type and EPD's from some of the suppliers are primary data.

Primary data are collected directly from supplier and production site.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	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	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	EU	EU	SE	ND	ND	ND	ND	ND	ND	ND	ND	ND	SE	SE	SE	SE	SE
Specific data used	92% *			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* The percentage of specific data is assumed to be larger than 60% in EPDs that lack information regarding specific data. In all other EPDs the percentage of specific data used is according to what's stated in each EPD.

## Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight % and kg C/declared unit
Wood preservative	4.94	0.00 %	0.00 %
Wood	518.00	0.00 %	100.00 % and 259.00
TOTAL	523	0.00 %	99.06 % and 259.00

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C/declared unit
Wood	2.24	0.43 %	1.12
Plastic	0.22	0.04 %	0.00
TOTAL	2.46	0.47 %	1.12

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
0	-	-	-



## Environmental Information

### Potential environmental impact – mandatory indicators according to EN 15804

Results per 1 m<sup>3</sup> wood product, planed and treated, of pine (98%) and spruce (2%) with an average moisture factor ratio of 15%.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	5.68E+01	2.87E-01	2.97E-02	3.73E+00	1.06E-01	-9.45E+01
GWP-biogenic	kg CO <sub>2</sub> eq.	-8.53E+02	6.58E-05	2.37E-05	8.10E+02	4.26E+01	0.00E+00
GWP-luluc	kg CO <sub>2</sub> eq.	4.84E-01	3.23E-05	1.45E-05	8.36E-04	1.43E-05	-2.27E+00
GWP-total	kg CO <sub>2</sub> eq.	-7.96E+02	2.87E-01	2.98E-02	8.14E+02	4.27E+01	-9.68E+01
ODP	kg CFC 11 eq.	1.02E-05	4.56E-09	6.75E-10	2.11E-07	1.95E-09	-2.00E-06
AP	mol H <sup>+</sup> eq.	2.44E+00	2.66E-03	7.36E-05	1.56E-01	2.05E-03	-1.21E+00
EP-freshwater	kg P eq.	1.00E-02	8.80E-06	2.20E-06	2.47E-03	1.17E-05	-2.61E-02
EP-marine	kg N eq.	1.66E-01	1.23E-03	2.01E-05	7.94E-02	9.34E-04	-4.76E-01
EP-terrestrial	mol N eq.	1.49E+00	1.34E-02	2.06E-04	8.59E-01	1.06E-02	-5.23E+00
POCP	kg NMVOC eq.	5.08E-01	3.97E-03	1.20E-04	2.25E-01	2.98E-03	-1.48E+00
ADP-minerals&metal s*	kg Sb eq.	2.15E-03	1.00E-07	8.32E-08	6.21E-06	6.69E-08	-4.97E-04
ADP-fossil*	MJ	1.15E+03	3.76E+00	4.51E-01	4.04E+01	1.36E+00	-3.91E+03
WDP*	m <sup>3</sup>	2.23E+01	1.22E-02	2.90E-03	9.48E+00	8.93E-02	-9.21E+01
Acronyms		GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption					

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.*

*\*Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

## Potential environmental impact – additional mandatory and voluntary indicators

Results per 1 m<sup>3</sup> wood product, planed and treated, of pine (98%) and spruce (2%) with an average moisture factor ratio of 15%.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	5.73E+01	2.87E-01	2.98E-02	3.73E+00	1.06E-01	-9.68E+01

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.*

## Use of resources

Results per 1 m<sup>3</sup> wood product, planed and treated, of pine (98%) and spruce (2%) with an average moisture factor ratio of 15%.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	8.44E+03	2.14E-02	6.60E-03	1.09E+00	1.47E-02	-6.73E+03
PERM*	MJ	7.79E+03	0.00E+00	0.00E+00	-7.38E+03	-3.89E+02	0.00E+00
PERT	MJ	1.62E+04	2.14E-02	6.60E-03	-7.38E+03	-3.89E+02	-6.73E+03
PENRE	MJ	1.19E+03	3.99E+00	4.80E-01	4.38E+01	1.46E+00	-3.96E+03
PENRM*	MJ.	2.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.22E+03	3.99E+00	4.80E-01	4.38E+01	1.46E+00	-3.96E+03
SM	kg	2.38E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m <sup>3</sup>	1.57E+00	5.59E-04	1.09E-04	3.01E-01	3.08E-03	-3.51E+00

Acronyms  
 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; PERT = 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; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C.*

<sup>1</sup> The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

\*For the PERM and PENRM the new "GUIDANCE TO CALCULATING THE PRIMARY ENERGY USE INDICATORS" in Annex 3 of the PCR is followed and calculated according to option A.

## Waste production and output flows

### Waste production

Results per 1 m<sup>3</sup> wood product, planed and treated, of pine (98%) and spruce (2%) with an average moisture factor ratio of 15%.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.11E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Non-hazardous waste disposed	kg	1.48E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Radioactive waste disposed	kg	5.44E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C*

### Output flows

Results per 1 m<sup>3</sup> wood product, planed and treated, of pine (98%) and spruce (2%) with an average moisture factor ratio of 15%.

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.52E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	1.61E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	1.21E+00	0.00E+00	0.00E+00	1.90E+03	0.00E+00	0.00E+00
Exported energy, thermal	MJ	4.04E+00	0.00E+00	0.00E+00	6.36E+03	0.00E+00	0.00E+00

*Disclaimer: The results of modules A1-A3 should not be used without considering the results of module C*

## Additional information

ID: EPD Calculation Gefle Wood 19-09-2024 12:27

## References

Ecoinvent, < <https://ecoinvent.org/the-ecoinvent-database/> >

Energiföretagen Sverige, 2017

<https://www.energiforetagen.se/energifakta/fjarrvarme/fjarrvarmens-miljopaverkan/fjarrvarmens-lokala-miljovarden/>

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SIS (2021). EN 15804:2012+A2:2019, "Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products". Svenska Institutet för Standarder

LCA-report "Tyréns EPD-generator 3.0 – Wood and wood-based products for use in construction – Produkter från Gefle Wood AB". Tyréns Sverige AB

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