Environmental Product Declaration

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

Planed products
wood panel and wooden laths

from

Lundgrens hyvleri

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 information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): *2019:14, v.1.0 Construction Products*
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: *Martyna Mikusinska Sweco* *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 from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Lundgrens Hyvleri
Contact: Mikael Lundgren
Description of the organisation: Lundgrens Hyvleri is a family business which was founded in 1973. Today, the sons run and own the company.
Product-related or management system-related certifications: Products are certified according to FCS and PEFC.
Name and location of production site(s): Lundgrens planing mill is located in Brattsbacka which is about 60 km from Umeå in Sweden. The surface treatment takes place in Sävar (for outdoor use) and in Rusksele (for indoor use). Adress: Brattsbacka 11, 914 94 Nyåker, Sweden.

Product information

Product name: Untreated planed wood products and planed wood products treated for indoor and outdoor use with varnish and paint.

Product identification:

Indoor panels	Untreated or treated for indoor use	Bastupanel 4019-Pernillepanel, Chic, Pärlspont, Skeppspanel, Slätspont, Golvträ, V-fas, Krokskogspanel, Allmogepanel, Säterpanel and Stockpanel Furu
Outdoor panels	Untreated or Treated (primed) for outdoor use	Enkel-fals, Dubbel-fals, Fjällpanel, Gavelspetspanel, Lockpanel, Mesterpanel, Panoramapanel, Råspont, Rakfas, Stockpanel Gran, Rektangulär klädnad and Z-profil
Rules	Untreated	Rules in several dimensions
Lath	Untreated	Lath in several dimensions

Product description: Planed products of bare wood or planed products surface treated for indoor or outdoor use in varied design. The planed products have an average moisture content of 12-16 % and an average density of 489 kg/m^3. The thickness of the planed product varies between 9 and 45mm and the width varies between 45 and 220mm. Rules and laths are produced in several common dimensions for example 48x48mm and 45x98mm. Interior panel is used as cladding for walls and ceilings in normal indoor climate. Both indoor and outdoor panels are bare or treated only with waterborne paints.

Manufacturing process: The raw material, sawn timber, is bought from various sawmills and transported to the planing mill in Brattsbacka where the timber is planed into different products. Untreated bare wood products are transported to customers from the production site in Brattsbacka. The surface treated planed products for indoor and outdoor use is transported from Brattsbacka to Rusksele and Sävar and treated with varnish and/or paint and thereafter transported to customers.

UN CPC code: 311

LCA information

Functional unit / declared unit: 1 m^3 planed product

Conversion factor: 489 kg/m^3

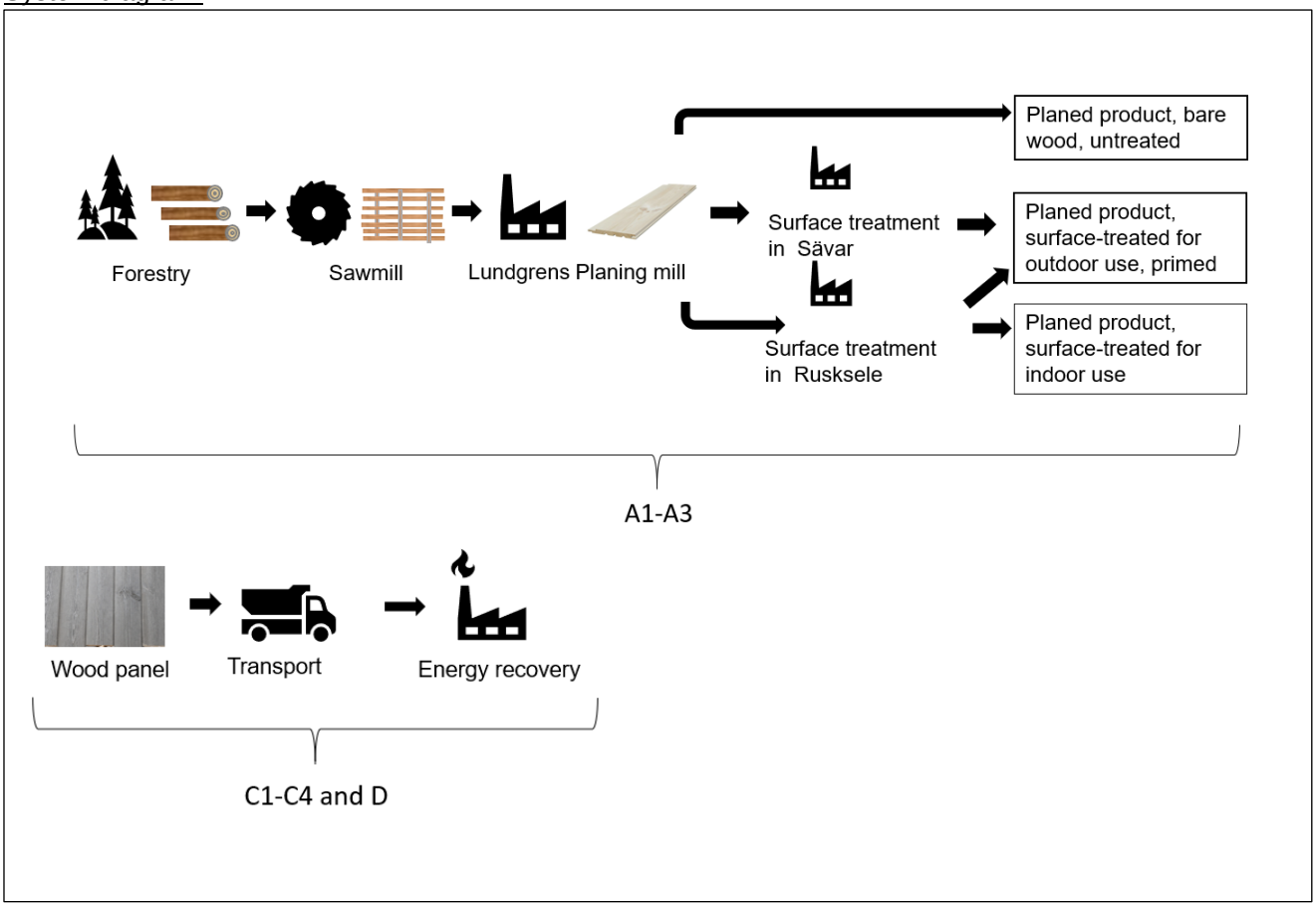
Time representativeness: The data is from year 2019

Specific and average EPD: The EPD is specific for a planed product, bare wood and planed products primed for outdoor use. The EPD is an average for planed product, surface-treated for indoor use. The surface-treated products for indoor use are considered average because of the variation in paint/varnish used. The variation for planed product, surface-treated for indoor use ranges between 5 – 10 % depending on the paint or varnish and planed product.

Database(s) and LCA software used: The LCA software is SimPro 9.1.0.7 and the database is EcoInvent 3.6. When modeling in Simapro, Ecoinvent data (updated September 2019) has been used for generic data.

Description of system boundaries: Cradle to gate with modules C1-C4 and module D. The system boundaries are described in the system diagram and in the table in the section additional LCA information. The Environmental Product Declaration (EPD) shows the environmental performance of the product through its life cycle stages from cradle to end-of -life. The life cycle stages are upstream processes (A1), transportation to national production sites (A2), core processes (A3), end-of-life processes (C1 – C4 and D). Upstream processes include forestry and sawmill processes and core processes include processing activities from planing mill and treatment with varnish or paint.

System diagram:



The environmental impact of three standard products is evaluated:

- 1 m^3 planed product, bare wood, untreated
- 1 m^3 planed product, surface-treated for indoor use
- 1 m^3 planed product, surface-treated for outdoor use, primed

More information: Lundgrens planing mill is located in an area which is one of the best for forestry of pine and spruce in Sweden. Since pine and spruce grow slowly in the northern part of Sweden, the quality of the planed product is high. The raw material, sawn timber, is transported from 15 Swedish sawmills by truck, and by truck and ferry from two sawmills in Finland and Estonia, to Brattsbacka in Sweden. Over 96 % of the sawn timber is purchased from sawmills from Sweden. The weighted average transport distance for sawn timber to Lundgrens hyvleri is 226 km by truck and 5 km by ferry. The gross weight of trucks used is > 32 tonnes. The planed products that will be treated for indoor use is transported to Rusksele by truck and the planed products that will be treated for outdoor use is transported to Sävar by truck.

All wood is assumed to be harvested sustainably and the wood in the studied system thus fulfills the criterium of biogenic carbon neutrality over its life cycle. Forestry takes approximately 100 years in Sweden from seed to harvest. The products biogenic carbon storage is 773kg CO2/m3 during the life cycle.

Additional LCA information

LCA practitioners: Anna Pantze, Ida Bohlin, Emanuel Lindbäck and Ida Adolfsson at Tyréns AB

Primary data for raw material
For sawn timber the environmental data from an EPD has been used. Swedish sawn dried timber of spruce or pine (S-P-02537, EPD International AB).

Table presenting the life cycle analysis system boundaries

Included in production	Excluded
Production (A1-A3) • Production of all consumed raw materials and goods, like sawn timber, chemicals, oil, paint and varnish etc. • Energy and fuels • All transports of consumed goods to planning mill and treatment facilities • Production processes • Production and transport of all packaging and packaging materials for the planed goods as well as production of metal cans for the paint • Management of the waste, by-products and waste produced during production.	Construction (A4-A5) and use (B1-B7)
End-of-life (C1-C4) • Dismantling and transport to incineration plant, CHP plant	
Benefits and loads beyond the system boundary (D) • Energy recovery	

Allocations
According to EN 15804, all by-products must take their environmental responsibility upstream and inherent properties cannot be allocated away. At the planing mills economic allocation are used. The economic allocation based on the relative revenues from the shavings and the planed goods is applied for all activities in the planning mill. The environmental impact thus allocated to the planed goods is 91,3% and the rest, 8,7%, is disregarded. Mass allocation is used for surface treatment facility in Sävar as only 8,1% of treated products is on behalf of Lundgrens Hyvleri.

Assumptions
- At end of life (C1 – C4) the assumption is that no machinery is used but panels are removed by hand.
- At end of life (C1 – C4) the panels are assumed to be transported directly to the CHP plant without pre-treatment.
- Assumed average transport distance for planed goods to the CHP plant for energy recovery is 100 km.
- Trucks for all transports have been assumed to EURO6
- For the transport of sawn timber to Lundgren's, for the transport of planed goods to the surface treatment plants and for the transport of waste, it is assumed that the trucks have been refueled in Sweden and consideration of the reduction obligation with 21% renewable fuel in the form of HVO has been adopted.

- In module D, it is assumed that 1m^3 of planed goods for combustion in CHP plants produces district heating and electricity and thus replaces Swedish medium district heating (mixed combustion of wood products and waste) and Swedish electricity mix.
- When calculating module D, it is assumed that 95 % of the wood is treated in a CHP plant with an efficiency of 80%. It is also assumed that 14% of the inherent energy provides electricity and 86% of the energy provides district heating.

Limitations

A life cycle analysis (LCA) is a simplified snapshot of reality. This LCA focuses on some important environmental aspects but not all and does not consider economic or social aspects. LCA contains assumptions and delimitations. Infrastructure (buildings, roads, car parks) for the planning mill and surface treatment facilities have been excluded from the study. The mill and the treatment facilities are assessed to have a significantly smaller environmental impact less than 1%.

Lack of data

No environmental data for paste of different colors is available for modeling, otherwise has no known data gaps been identified.

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	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	SE/ FI/ EE	SE/ FI/EE	SE	ND	ND	ND	ND	ND	ND	ND	ND	ND	SE	SE	SE	SE	SE
Specific data	75% or more			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Variation – products	10% or less			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Variation – sites	not relevant			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not declared

Content information

Product components, planed product, bare wood, untreated	Weight, kg	Post-consumer material, weight-%	Renewable material, weight-%
Wood (Picea abies & Pinus sylvestris)	489	100 %	100 %
TOTAL	489	100 %	100 %
Product components, planed product, surface-treated for indoor use	**Weight, kg**	**Post-consumer material, weight-%**	**Renewable material, weight-%**
Wood (Picea abies & Pinus sylvestris)	489	98 %	100 %
Varnish and paint	9,5	2 %	0 %
TOTAL	499	100 %	98
Product components, planed product, surface-treated for outdoor use, primed	**Weight, kg**	**Post-consumer material, weight-%**	**Renewable material, weight-%**
Wood (Picea abies & Pinus sylvestris)	489	99 %	100 %
Varnish and paint	5,0	1 %	0 %
TOTAL	494	100 %	99 %
Packaging materials	**Weight, kg**	**Weight-% (versus all three products)**	
Plastic covers and plastic strips	1,5–3,5	0,3–0,7%	
Steel strips	0,05	0,01%	
TOTAL	1,5–3,5	0,3–0,7%	

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Decamethylcyclopentasiloxane*	-	541-02-6	<0,00005 %
Octamethylcyclotetrasiloxane*	-	556-67-2	<0,00005 %
Dodecamethylcyclohexa siloxane*	-	540-97-6	<0,00005 %
TOTAL*	-	-	<0,00015%

*Only in surface-treated planed products

Environmental Information

Potential environmental impact – 1 m3 planed product, bare wood, untreated

Results per functional or declared unit										
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	4,63E+01	ND	ND	ND	2,50E-01	6,79E+00	9,97E-01	0,00E+00	-1,07E+02
GWP-biogenic*	kg CO_2 eq.	-7,73E+02	ND	ND	ND	0,00E+00	0,00E+00	7,73E+02	0,00E+00	0,00E+00
GWP-luluc*	kg CO_2 eq.	2,84E-01	ND	ND	ND	1,97E-01	2,79E-03	7,62E-05	0,00E+00	-1,01E+00
GWP-total*	kg CO_2 eq.	-7,26E+02	ND	ND	ND	2,50E-01	6,79E+00	7,74E+02	0,00E+00	-1,08E+02
ODP	kg CFC 11 eq.	9,52E-06	ND	ND	ND	5,40E-08	1,51E-06	2,09E-07	0,00E+00	-6,93E-06
AP	mol H^+ eq.	3,47E-01	ND	ND	ND	2,61E-03	2,06E-02	1,01E-02	0,00E+00	-3,60E-01
EP-freshwater	kg PO_4^{3-} eq.	8,21E-03	ND	ND	ND	8,97E-06	5,79E-04	3,47E-05	0,00E+00	-1,75E-02
EP-marine	kg N eq.	1,26E-01	ND	ND	ND	1,16E-03	4,36E-03	4,47E-03	0,00E+00	-1,90E-01
EP-terrestrial	mol N eq.	1,38E+00	ND	ND	ND	1,27E-02	4,76E-02	4,90E-02	0,00E+00	-1,14E+00
POCP	kg NMVOC eq.	3,98E-01	ND	ND	ND	3,48E-03	1,82E-02	1,35E-02	0,00E+00	-5,95E-01
ADP-minerals&metals*	kg Sb eq.	1,11E-03	ND	ND	ND	3,83E-07	2,19E-04	1,48E-06	0,00E+00	-2,47E-04
ADP-fossil*	MJ	1,09E+03	ND	ND	ND	3,44E+00	1,02E+02	1,33E+01	0,00E+00	-2,15E+03
WDP	m^3	1,37E+01	ND	ND	ND	4,61E-03	3,39E-01	1,78E-02	0,00E+00	-2,45E+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 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 indicator – 1 m3 planed product, bare wood, untreated

Results per functional or declared unit										
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	4,55E+01	ND	ND	ND	2,47E-01	6,72E+00	9,56E-01	0,00E+00	-1,07E+02

Potential environmental impact – 1 m3 planed product, surface-treated for indoor use

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	8,35E+01	ND	ND	ND	2,50E-01	6,79E+00	9,97E-01	0,00E+00	-1,07E+02
GWP-biogenic*	kg CO_2 eq.	-7,73E+02	ND	ND	ND	0,00E+00	0,00E+00	7,73E+02	0,00E+00	0,00E+00
GWP-luluc*	kg CO_2 eq.	4,31E+00	ND	ND	ND	1,97E-01	2,79E-03	7,62E-05	0,00E+00	-1,01E+00
GWP-total*	kg CO_2 eq.	-6,85E+02	ND	ND	ND	2,50E-01	6,79E+00	7,74E+02	0,00E+00	-1,08E+02
ODP	kg CFC 11 eq.	1,54E-05	ND	ND	ND	5,40E-08	1,51E-06	2,09E-07	0,00E+00	-6,93E-06
AP	mol H^+ eq.	6,90E-01	ND	ND	ND	2,61E-03	2,06E-02	1,01E-02	0,00E+00	-3,60E-01
EP-freshwater	kg PO_4^{3-} eq.	2,13E-02	ND	ND	ND	8,97E-06	5,79E-04	3,47E-05	0,00E+00	-1,75E-02
EP-marine	kg N eq.	1,81E-01	ND	ND	ND	1,16E-03	4,36E-03	4,47E-03	0,00E+00	-1,90E-01
EP-terrestrial	mol N eq.	1,84E+00	ND	ND	ND	1,27E-02	4,76E-02	4,90E-02	0,00E+00	-1,14E+00
POCP	kg NMVOC eq.	5,60E-01	ND	ND	ND	3,48E-03	1,82E-02	1,35E-02	0,00E+00	-5,95E-01
ADP-minerals&metals*	kg Sb eq.	1,79E-03	ND	ND	ND	3,83E-07	2,19E-04	1,48E-06	0,00E+00	-2,47E-04
ADP-fossil*	MJ	2,06E+03	ND	ND	ND	3,44E+00	1,02E+02	1,33E+01	0,00E+00	-2,15E+03
WDP	m^3	4,12E+01	ND	ND	ND	4,61E-03	3,39E-01	1,78E-02	0,00E+00	-2,45E+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									

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Potential environmental impact – additional mandatory indicator – 1 m3 planed product, surface-treated for indoor use

Results per functional or declared unit										
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	8,03E+01	ND	ND	ND	2,47E-01	6,72E+00	9,56E-01	0,00E+00	-1,07E+02

[1] 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 equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Potential environmental impact – 1 m3 planed product, surface-treated for outdoor use, primed

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	6,85E+01	ND	ND	ND	2,50E-01	6,79E+00	9,97E-01	0,00E+00	-1,07E+02
GWP-biogenic*	kg CO_2 eq.	-7,73E+02	ND	ND	ND	0,00E+00	0,00E+00	7,73E+02	0,00E+00	0,00E+00
GWP-luluc*	kg CO_2 eq.	4,63E+00	ND	ND	ND	1,97E-01	2,79E-03	7,62E-05	0,00E+00	-1,01E+00
GWP-total*	kg CO_2 eq.	-7,00E+02	ND	ND	ND	2,50E-01	6,79E+00	7,74E+02	0,00E+00	-1,08E+02
ODP	kg CFC 11 eq.	1,28E-05	ND	ND	ND	5,40E-08	1,51E-06	2,09E-07	0,00E+00	-6,93E-06
AP	mol H^+ eq.	6,14E-01	ND	ND	ND	2,61E-03	2,06E-02	1,01E-02	0,00E+00	-3,60E-01
EP-freshwater	kg PO_4^{3-} eq.	1,52E-02	ND	ND	ND	8,97E-06	5,79E-04	3,47E-05	0,00E+00	-1,75E-02
EP-marine	kg N eq.	1,66E-01	ND	ND	ND	1,16E-03	4,36E-03	4,47E-03	0,00E+00	-1,90E-01
EP-terrestrial	mol N eq.	1,68E+00	ND	ND	ND	1,27E-02	4,76E-02	4,90E-02	0,00E+00	-1,14E+00
POCP	kg NMVOC eq.	5,02E-01	ND	ND	ND	3,48E-03	1,82E-02	1,35E-02	0,00E+00	-5,95E-01
ADP-minerals&metals*	kg Sb eq.	1,48E-03	ND	ND	ND	3,83E-07	2,19E-04	1,48E-06	0,00E+00	-2,47E-04
ADP-fossil*	MJ	1,47E+03	ND	ND	ND	3,44E+00	1,02E+02	1,33E+01	0,00E+00	-2,15E+03
WDP	m^3	2,90E+01	ND	ND	ND	4,61E-03	3,39E-01	1,78E-02	0,00E+00	-2,45E+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									

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Potential environmental impact – additional mandatory indicator – 1 m3 planed product, surface-treated for outdoor use, primed

Results per functional or declared unit										
Indicator	**Unit**	**Tot.A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	6,79E+01	ND	ND	ND	2,47E-01	6,72E+00	9,56E-01	0,00E+00	-1,07E+02

Use of resources – 1 m3 planed product, bare wood, untreated

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,04E+02	ND	ND	ND	1,86E-02	1,68E+00	7,20E-02	0,00E+00	1,26E+03
PERM	MJ	8,10E+03	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,41E+03	ND	ND	ND	1,86E-02	1,68E+00	7,20E-02	0,00E+00	1,26E+03
PENRE	MJ	1,13E+03	ND	ND	ND	3,65E+00	1,08E+02	1,41E+01	0,00E+00	-2,18E+03
PENRM	MJ.	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,13E+03	ND	ND	ND	3,65E+00	1,08E+02	1,41E+01	0,00E+00	-2,18E+03
SM	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	5,11E+01	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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									

Use of resources – 1 m3 planed product, surface-treated for indoor use

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	5,61E+02	ND	ND	ND	1,86E-02	1,68E+00	7,20E-02	0,00E+00	1,26E+03
PERM	MJ	8,10E+03	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,66E+03	ND	ND	ND	1,86E-02	1,68E+00	7,20E-02	0,00E+00	1,26E+03
PENRE	MJ	2,15E+03	ND	ND	ND	3,65E+00	1,08E+02	1,41E+01	0,00E+00	-2,18E+03
PENRM	MJ.	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,15E+03	ND	ND	ND	3,65E+00	1,08E+02	1,41E+01	0,00E+00	-2,18E+03
SM	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

RSF	MJ	5,11E+01	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,50E-01	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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									

Use of resources – 1 m3 planed product, surface-treated for outdoor use, primed

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,97E+02	ND	ND	ND	1,86E-02	1,68E+00	7,20E-02	0,00E+00	1,26E+03
PERM	MJ	8,10E+03	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,50E+03	ND	ND	ND	1,86E-02	1,68E+00	7,20E-02	0,00E+00	1,26E+03
PENRE	MJ	1,54E+03	ND	ND	ND	3,65E+00	1,08E+02	1,41E+01	0,00E+00	-2,18E+03
PENRM	MJ.	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,54E+03	ND	ND	ND	3,65E+00	1,08E+02	1,41E+01	0,00E+00	-2,18E+03
SM	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	5,11E+01	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	8,51E-03	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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									

Waste production and output flows for planed product, bare wood, untreated

Waste production – 1 m3 planed product, bare wood, untreated

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8,36E-02	ND	ND	ND	9,37E-06	2,65E-04	3,63E-05	0,00E+00	-3,82E-04
Non-hazardous waste disposed	kg	3,47E+01	ND	ND	ND	4,16E-03	5,87E+00	1,61E-02	0,00E+00	-7,72E+00
Radioactive waste disposed	kg	9,75E-03	ND	ND	ND	2,39E-05	6,86E-04	9,24E-05	0,00E+00	-2,85E-02

Output flows – 1 m3 planed product, bare wood, untreated

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,09E+02	ND	ND	ND	0,00E+00	0,00E+00	4,89E+02	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Waste production and output flows for planed product, surface-treated for indoor use

Waste production – 1 m3 planed product, surface-treated for indoor use

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8,44E-02	ND	ND	ND	9,37E-06	2,65E-04	3,63E-05	0,00E+00	-3,82E-04
Non-hazardous waste disposed	kg	5,59E+01	ND	ND	ND	4,16E-03	5,87E+00	1,61E-02	0,00E+00	-7,72E+00
Radioactive waste disposed	kg	1,75E-02	ND	ND	ND	2,39E-05	6,86E-04	9,24E-05	0,00E+00	-2,85E-02

Output flows – 1 m3 planed product, surface-treated for indoor use

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,09E+02	ND	ND	ND	0,00E+00	0,00E+00	4,89E+02	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Waste production and output flows for planed product, surface-treated for outdoor use, primed

Waste production – 1 m3 planed product, surface-treated for outdoor use

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	8,41E-02	ND	ND	ND	9,37E-06	2,65E-04	3,63E-05	0,00E+00	-3,82E-04
Non-hazardous waste disposed	kg	4,97E+01	ND	ND	ND	4,16E-03	5,87E+00	1,61E-02	0,00E+00	-7,72E+00
Radioactive waste disposed	kg	1,19E-02	ND	ND	ND	2,39E-05	6,86E-04	9,24E-05	0,00E+00	-2,85E-02

Output flows – 1 m3 planed product, surface-treated for outdoor use, primed

Results per functional or declared unit										
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,09E+02	ND	ND	ND	0,00E+00	0,00E+00	4,89E+02	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

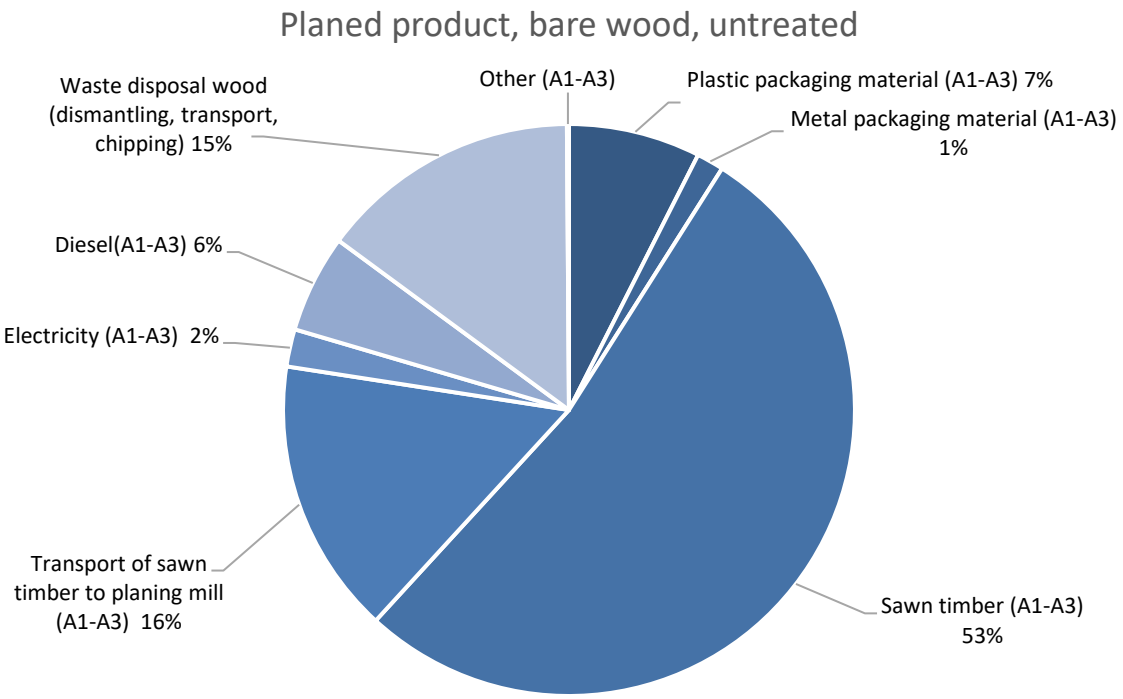
Information on biogenic carbon content in 1 m3 planed product, bare wood or in planed treated products for indoor or outdoor use

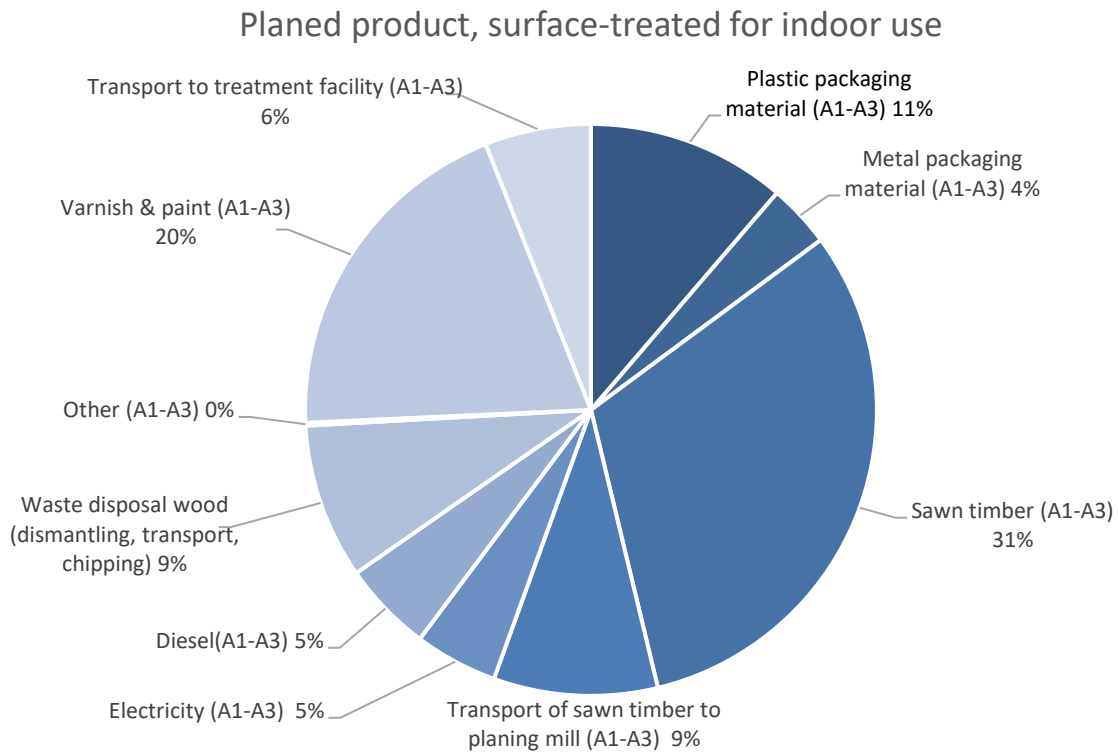
Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	211
Biogenic carbon content in packaging	kg C	0

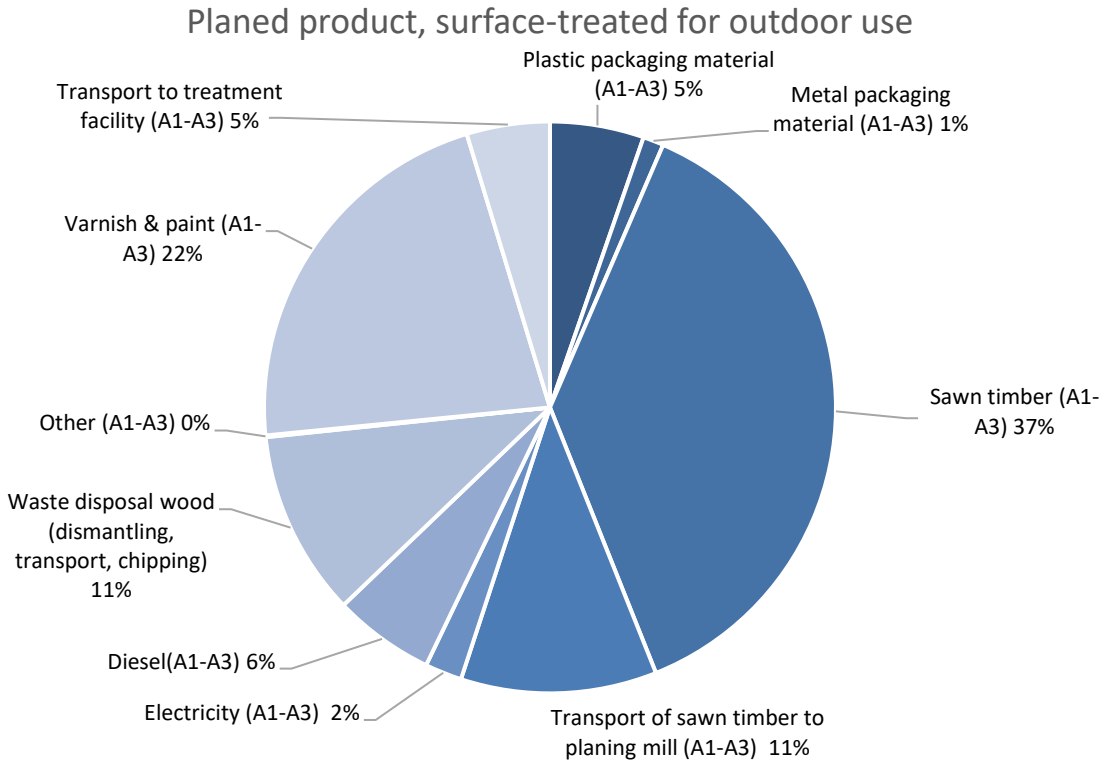
Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

Additional information

Climate impact is one of the biggest environmental issues of our time, therefore the distribution on the resulting climate impact from GWP-fossil is shown in the figures below.







Differences versus previous versions

This EPD consists of an updated version of a previous EPD from Lundgrens hyvleri. The following changes has been made from the previous versions:

- The density of wood has been updated to 489 kg/m^3.
- Allocation rules for the production and transport of sawn timber has been updated.
- The Lower heating value for wood has been updated to 19,2 MJ/kg.
- Trucks used for transportation of sawn timber and planed wood product to the planing mill or surface-treating facilities has a gross weight > 32 tonnes.
- The calculations for use of renewable and non-renewable resources has been updated.
- Waste disposal scenario (C1-C4) has been updated with dismantling and chipping.
- Modul D has been updated. The CHP plant's efficiency has been changed to 80 %. 95 % of the planed wood product is assumed to go to energy recovery. 14% of the wood product that is incinerated is assumed to produce electricity and 86 % is assumed to produce district heating.

References

General Programme Instructions of the International EPD® System. Version 3.01.
PCR 2019:14,v.1.0 Construction Products
SS-EN 15804:2012+A2:2019
SS-EN 16485:2014

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