Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Oak multilayer floor boards

from

SIA Amber wood

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-09367
Publication date:	2023-05-19
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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
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): *PCR 2019:14 Construction products (EN 15804:A2) (1.2.5), UN CPC 3121 Wood, continuously shaped along any of its edge or faces*
PCR review was conducted by: *IVL Swedish Environmental Research Institute Secretariat of the International EPD® System*
Life Cycle Assessment (LCA)
LCA accountability: *Dr. Ing. Kaspars Zudrags, SIA BM Certification*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Prof. Vladimír Kočí, PhD, LCA Studio* 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.

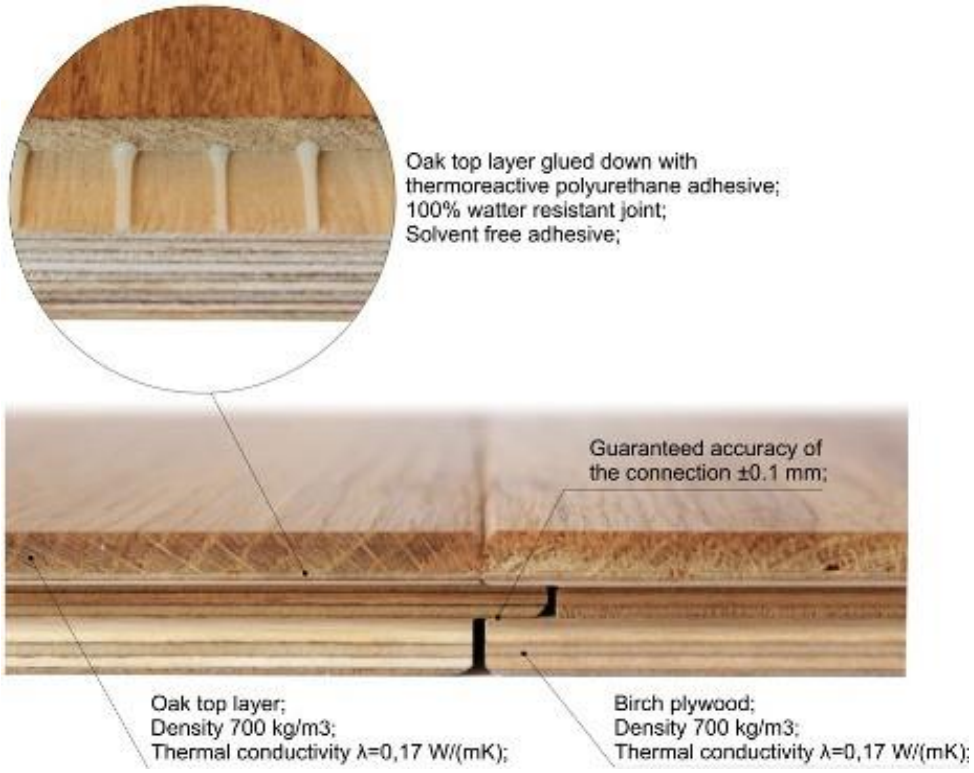
EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products 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: SIA Amber Wood
Contact: info@amberwood.lv
Description of the organisation: The company was founded in 2003. The company employs around 80 employees. Its main task is to produce parquet floor boards with high added value from the local resource and promote its trade across Europe. The company specializes in hardwood processing, especially oak.
Product-related or management system-related certifications: Characteristics, evaluation of conformity and marking according to EN 14342:2013 "Wood flooring - Characteristics, evaluation of conformity and marking".
Name and location of production site(s): Rundāles iela 11, Mežciems, Jaunsvirlaukas pagasts, Jelgavas novads, Latvia, LV3001

Product information

Product name: Oak multilayer floor boards
Product identification: EN:14342:2013 "Wood flooring - Characteristics, evaluation of conformity and marking"
Product description: The boards of 4.5mm oak top layer and 12mm water resistant birch plywood are produced in widths from 210mm to 300mm. There are 6 different grades for customer selection. The plywood under layer design gives the board extra flexibility. Structural advantages are appreciated by parquet professionals in many countries.



16/4,5 mm multilayer floor boards		
Construction	solid one strip oak toplayer glued on birch plywood using thermoreactive polyurethane glue	
Top layer	oak (average density 700 kg/m^3, thermal conductivity 0,17 W/(mK))	
Bottom layer	birch plywood (emission of formaldehyde - ULEF; density 700 kg/m^3; thermal conductivity 0,17 W/(mK))	
Moisture content	8±2%	
Thickness	total	16±0,2 mm
	wear layer	4,5±0,2 mm
	bottom layer	11,6±0,2 mm
Width	240 mm; 300 mm	
Length	600-1400 mm ±50 mm; 1400-2200 mm ±50 mm ; 2200-3000 mm ±50 mm;	
T&G	4 sides	
Bevels	4 sides; projection on surface 0,7 mm	
Filler	light brown	
Surface	light structured	
Handling	keep in middle with face up only	
Packaging	4 boards wrapped in polythene	
Application	indoor use only; suitable for heated and unheated subfloors	
Installation method	glued down; according to CEN/TS 15717:2008	
Reaction to fire	D_{fl}-s1	
Grades		
Premium – uniform in appearance and colour flooring. If there are any filled knots or knot holes, they'll likely be very small and quite faint in colour. Free from sapwood.		
Select – contains a few more variations, knots and filled knot holes than premium grade. This flooring is still largely uniform in appearance with moderate colour variation and knots which give it a more natural appearance. Free from sapwood.		
Living – contains a few more variations, knots and filled knot holes than premium grade. This flooring is still largely uniform in appearance with moderate colour variation and knots which give it a more natural appearance. Narrow sapwood allowed.		
Classic – contains plenty of knots and colour variation. Classic grade flooring sometimes has natural colour filled holes and wood inserts to give smooth appearance. Free from sapwood.		
Rustic – most natural looking of all the flooring types. It has the largest range of colour variation and will have plenty of knots, knot holes, wooden inserts and natural grooves - filled in with natural wood filler for a smooth yet rustic appearance. Sapwood allowed.		
Optional		
Surface mechanical treatment	medium brushed; deep brushed; fortified; sawmarks	
Surface coating	natural oil; hardwax oil, hardwax oil+lacquer	
Color of the filler	black on request	

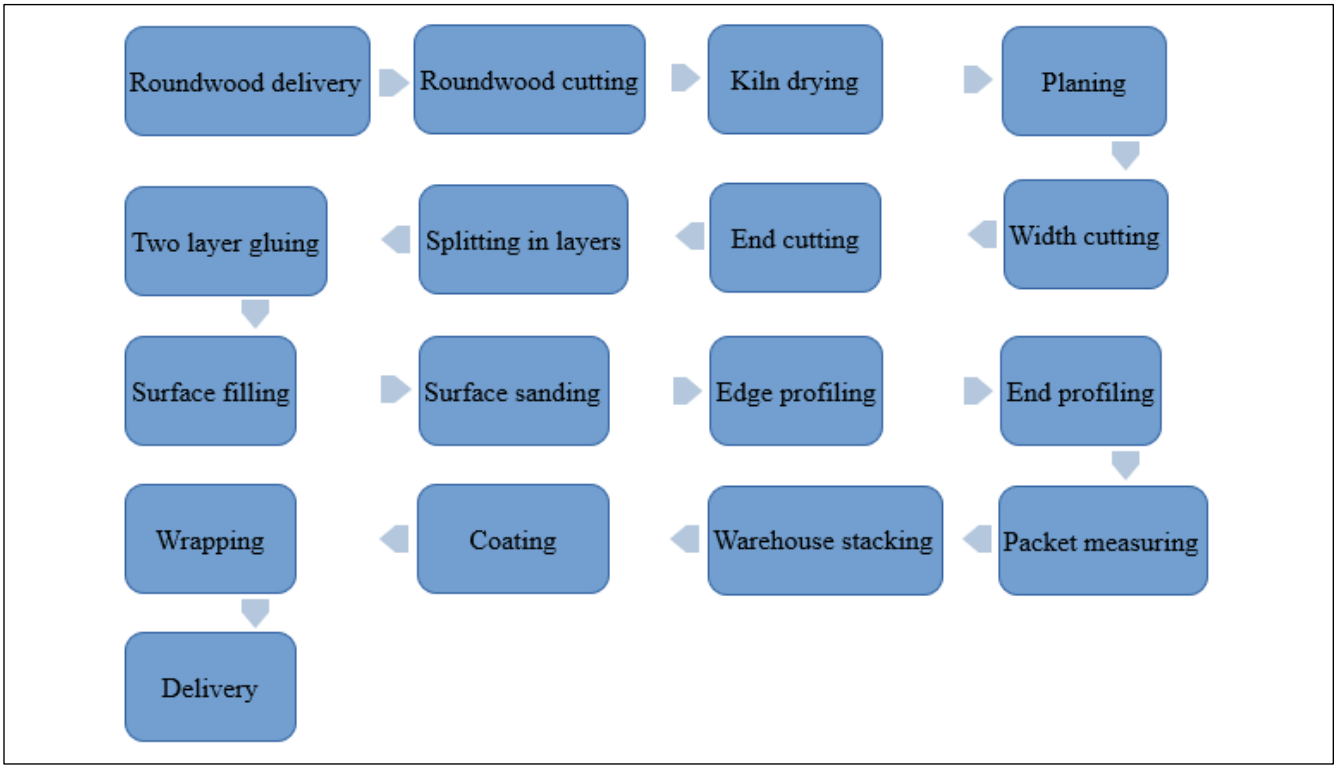
UN CPC code: 3121 Wood, continuously shaped along any of its edges or faces.
Geographical scope: Europe

LCA information

Functional unit / declared unit: one cubic meter 1m^3 engineered oak floor boards.
Reference service life: < 30 years
Time representativeness: Data for calculation were collected by Amber Wood SIA and cover a period of 12 months in 2022.
Database(s) and LCA software used: One Click LCA, Ecoinvent 3.6.
Description of system boundaries:

Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D);

System diagram:



Manufacturing and packaging:

Production begins with round wood cutting in boards for the kiln drying process. Dried material has been divided into several parts. The top layer for the multilayer board is obtained during this process. Parallelly plywood is cut and calibrated in thickness to serve as the bottom layer. During the glueing process, both parts are glued together with thermoreactive polyurethane glue. After glueing the knots and splits in the surface are filled with filler. Further treatment includes surface sanding, profiling on all sides, and finally, measuring and packing. Finish coating is applied before the material shipping as requested by customer needs.

Recycling the product at the end of its life cycle is possible. The demolition in C1 is considered neglectable and is not declared. Wood could be chipped and used as a material for particleboard production or used for incineration for energy recovery as example.

Cut-of-Rules:

All known inputs and outputs are included in the study. The ancillary materials have been cut-off due to insufficient and minor influence of data. No less than 95 % of all inflows (mass and energy) to the upstream and core modules shall be included.

The raw material necessary for the manufacture is allocated by the mass of the declared unit.

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	✓	✓	✓	ND	ND	ND	ND	ND	ND	ND	ND	ND	✓	✓	✓	✓		✓
Geography	EU			-	-	-	-	-	-	-	-	-	EU					EU
Specific data used	<90%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-		-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-		-

✓– included, ND – Module Not Declared.

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Natural oak	197		100
Birch plywood	449		100
Polyurethane glue	9.92	-	-
Filler	1.95	-	-
Coating	2.94	-	-
TOTAL	660		
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Packaging film	5.08	0.77	-
TOTAL	5.08	0.77	

The product contains no REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	5.02E+02	5.09E+01	3.11E+02	8.64E+02	0.00E+00	6.00E+00	3.77E+00	2.57E+00	-4.11E+02
GWP-biogenic	kg CO_2 eq.	-2.27E+03	3.70E-02	1.17E+03	-1.10E+03	0.00E+00	4.40E-03	7.32E+02	3.95E+02	-2.36E+00
GWP-luluc	kg CO_2 eq.	3.03E+00	1.50E-02	3.30E-01	3.37E+00	0.00E+00	1.80E-03	8.50E-03	1.33E-03	-2.83E-01
GWP-total	kg CO_2 eq.	-1.76E+03	5.10E+01	1.48E+03	-2.31E+02	0.00E+00	6.00E+00	3.89E+00	2.60E+01	-4.14E+02
ODP	kg CFC 11 eq.	7.00E-05	1.20E-05	4.70E-05	1.29E-04	0.00E+00	1.40E-06	3.20E-07	7.73E-07	-2.51E-05
AP	mol H^+ eq.	4.00E+00	2.10E-01	1.80E+00	6.01E+00	0.00E+00	2.50E-02	2.10E-02	2.15E-02	-3.20E+00
EP-freshwater	kg P eq.	4.64E-02	4.10E-04	1.60E-02	6.28E-02	0.00E+00	4.90E-05	3.90E-04	1.71E-02	-2.40E-02
EP-marine	kg N eq.	9.28E-01	6.40E-02	3.20E-01	1.31E+00	0.00E+00	7.60E-03	2.80E-03	1.41E-02	-3.69E-01
EP-terrestrial	mol N eq.	1.28E+01	7.10E-01	3.32E+00	1.68E+01	0.00E+00	8.40E-02	3.40E-02	8.04E-02	-4.38E+00
POCP	kg NMVOC eq.	3.24E+00	2.30E-01	1.03E+00	4.50E+00	0.00E+00	2.70E-02	8.90E-03	2.84E-02	-1.19E+00
ADP-minerals&metals*	kg Sb eq.	9.16E-03	8.70E-04	6.70E-04	1.07E-02	0.00E+00	1.00E-04	1.50E-05	2.82E-05	-5.70E-04
ADP-fossil*	MJ	8.47E+03	7.92E+02	4.96E+03	1.42E+04	0.00E+00	9.33E+01	7.62E+01	5.94E+01	-4.97E+03
WDP*	m^3	5.51E+02	2.95E+00	5.62E+01	6.10E+02	0.00E+00	3.50E-01	9.50E-01	2.62E+00	-4.47E+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									

** Biogenic carbon content 1097 kg CO_2 in 1 m^3 of engineered oak floor boards*

*** 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.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	5.02E+02	5.09E+01	3.11E+02	8.64E+02	0.00E+00	6.00E+00	3.77E+00	2.57E+00	-4.11E+02

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.86E+04	9.97E+00	1.05E+03	1.96E+04	0.00E+00	1.17E+00	1.28E+01	1.05E+00	-1.27E+03
PERM	MJ	2.15E+04	0.00E+00	0.00E+00	2.15E+04	0.00E+00	0.00E+00	7.50E+03	0.00E+00	0.00E+00
PERT	MJ	4.01E+04	9.97E+00	1.05E+03	4.11E+04	0.00E+00	1.17E+00	7.51E+03	1.05E+00	-1.27E+03
PENRE	MJ	8.30E+03	7.92E+02	4.74E+03	1.38E+04	0.00E+00	9.33E+01	7.62E+01	5.94E+01	-4.97E+03
PENRM	MJ	3.33E+02	0.00E+00	2.43E+02	5.76E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.63E+03	7.92E+02	4.98E+03	1.44E+04	0.00E+00	9.33E+01	7.62E+01	5.94E+01	-4.97E+03
SM	kg	4.92E-02	0.00E+00	4.70E-01	5.19E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	2.40E-03	2.40E-03	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	0.00E+00	0.00E+00	0.00E+00
FW	m^3	3.37E+00	1.60E-01	1.71E+00	5.24E+00	0.00E+00	1.90E-02	2.40E-02	6.58E-02	-1.02E+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 indicators

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1.99E+01	7.70E-01	1.04E+01	3.11E+01	0.00E+00	9.10E-02	0.00E+00	1.12E-01	-3.17E+01
Non-hazardous waste disposed	kg	8.09E+02	8.52E+01	2.58E+02	1.15E+03	0.00E+00	1.00E+01	0.00E+00	2.37E+02	-9.54E+02
Radioactive waste disposed	kg	3.45E-02	5.40E-03	2.00E-02	5.99E-02	0.00E+00	6.40E-04	0.00E+00	3.56E-04	-2.10E-02

Output flow indicators

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**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	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	6.50E-02	0.00E+00	0.00E+00	6.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.48E+03	0.00E+00	5.48E+03
Exported energy, electricity	MJ	6.70E-01	0.00E+00	0.00E+00	6.70E-01	0.00E+00	0.00E+00	8.25E+02	0.00E+00	8.25E+02
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.65E+03	0.00E+00	4.65E+03
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

References

General Programme Instructions of the International EPD® System. Version 4.0.
PCR 2019:14 Construction products (EN 15804:A2) (1.2.5),
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.
Ecoinvent database v3.6 (2019) and One Click LCA database.
Engineered oak floor boards LCA background report 20.03.2023
EN 16449:2014 Wood and wood-based products - Calculation of the biogenic carbon content of wood and conversion to carbon dioxide

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