

ENVIRONMENTAL PRODUCT DECLARATION

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

Owner of the declaration:	UAB „JÜRÈS MEDIS“
Program operator:	The Norwegian EPD Foundation
Publisher:	The Norwegian EPD Foundation
Declaration and registration number:	NEPD-2764-1460-EN
Issue date:	07.04.2021
Valid to:	07.04.2026

Glued laminated timber

UAB JÜRÈS MEDIS

www.epd-norge.no



General information

Product

Glued laminated timber

Program holder

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Declaration number

NEPD-2764-1460-EN

This declaration is based on Product Category Rules:

PCR – Part B for wood and wood-based products for use in construction (NPCR 015 version 3.0)

Statements

The owner of the declaration shall be liable for the underlying information and evidence.
 EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Declared unit:

1 m³ of glue laminated timber

Declared unit with option:

Functional unit:

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

internal external

Third party verifier:



Silvia Vilčeková
 (Independent verifier approved by EPD Norway)

Owner of the declaration

UAB JÜRĖS MEDIS

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Manufacturer

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Place of production:

Jures km., Lithuania

Management system:

ISO 14001, ISO 9001

Organisation no:

165697434

Issue date

07.04.2021

Valid to

07.04.2026

Year of study:

2019

Comparability:

EPD of construction products may not be comparable if they do not comply with EN 15804 and are seen in a building context.

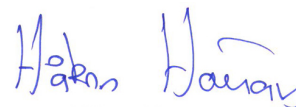
The EPD has been worked out by:

Silvija Serapinaite



VESTA
 Sustainability Consulting

Approved



Håkon Hauan
 Managing Director of EPD-Norway

Product

Product description:

Glued laminated timber (Glulam) is an industrially-manufactured product for load-bearing structures. Glued laminated timber comprises at least two kiln dried coniferous wood planks or laminations which are glued together with the fibres running in parallel. The initial material being strength-graded and homogenization via its layered structure, thanks to, it has improved properties and has higher load-bearing capacities than conventional structural timber. Industrially produced glued laminated timber are a building material with stable mechanical properties, which is a more crack-resistant product compared to solid wood products. Glued laminated timber can be manufactured as straight or curved beams. Apart from monitoring required for technical approval, manufacturing can also be subject to supplementary private monitoring in accordance with the provisions of the glued laminated timber monitoring symbol.

Product specification

Product specification is given below.

Materials	%
Coniferous wood (spruce, pine, larch)	88-90
Water	9-10
PUR adhesive	0,03
MUF adhesive	1,97
	100

Technical data:

Glue laminated timber is manufactured from spruce, pine and larch. Glue laminated timber is manufactured with average moisture content of 12±2%.

The products are manufactured in the following preferred dimensions:

Min. height: 70 mm
 Max. height: 2800 mm
 Min. width: 35 mm
 Max. width: 1000 mm
 Min. lengths: 1000 mm
 Max. lengths: 400000 mm

Description	Value	Unit
Characteristic bending strength parallel to the grain in accordance with EN 14080	24.0 to 32.0	N/mm ²
Characteristic tension strength parallel to the grain in accordance with EN 14080	17,0 – 25,6	N/mm ²
Characteristic tension strength perpendicular to the grain in accordance with EN 14080	0,5	N/mm ²
Characteristic compression strength parallel to the grain in accordance with EN 14080	21,5 to 32,0	N/mm ²
Characteristic compression strength perpendicular to the grain in accordance with EN 14080	2,5	N/mm ²
Characteristic shear strength in accordance with EN 14080	3,5	N/mm ²
Characteristic modulus of elasticity parallel to the grain in accordance with EN 14080	11.000 to 14.200	N/mm ²
Mean shear modulus in accordance with EN 14080	650	N/mm ²
Mean density of various strength classes in accordance with EN 14080	400 – 490	N/mm ²

Market:

Europe

Reference service life:

50 years

LCA: Calculation rules

Declared unit:

The declared unit in the LCA is the provision of 1 m³ glue laminated timber with a mass of 467 kg/m³.

Data quality:

The foreground data collected internally are based on yearly production amounts and extrapolations of measurements on specific machines and plants. Overall the data quality can be described as good. The primary data collection has been done thoroughly.

The Ecoinvent database provides the life cycle inventory data for the raw and process materials obtained from the background system. The used database is Ecoinvent 3.6. The LCA software used in One Click LCA.

Allocation:

The allocation is made in accordance with the provisions of ISO 14025. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

System boundary:

Cradle to gate with options. The LCA was carried out considering the Product stage phases (A1-A2-A3), Distribution (A4), End of life (C1-C2-C3-C4), Potential environmental benefits (D) in accordance with EN 15804.

Cut-off criteria:

All major raw materials and all the essential energy is included. The production process for raw materials and energy flows that are included with very small amounts (<1%) are not included. This cut-off rule does not apply for hazardous materials and substances.

Variability:

The size of the product differs from project to project, but the results are given per tonne product and based on the production volume, this is assumed to be a representative estimate of the environmental burden of the products.

LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

The transport distance from the production site to consumer is an average distance based on factory location and typical customer location for this product.

Transport from production place to assembly/user (A4)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (kWh/t)
Truck	56%	EURO 5 truck with a trailer with an average load of 32t	1561 km	0,001 kWh/tkm	1,56
Boat	50%	Container ship	154 km	0,003 l/tkm	4,99

The product reaches the end-of-waste state after deconstruction from the building. At its end-of-life, the product is considered a secondary fuel as the End Of Life scenario is based on the energetic treatment of the product. Therefore, the product is incinerated in a biomass power plant. The scenario includes a recycling rate of 100% after deconstruction of the building.

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	
Collected as mixed construction waste	kg	
Reuse	kg	
Recycling	kg	
Energy recovery (moisture of 12%)	kg	476
To landfill	kg	

The transportation in C2 is from the site to heating power plant. It is assumed that waste processing happens at site.

Transport to waste processing (C2)

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy consumption	Value (l/t)
Truck	56%	EURO 5 truck with a trailer with an average load of 32t	150 km	0,014 l/tkm	2,1

The energy from insinerated product substitutes fuels from fossil sources, whereby it is assumed that the electricity is generated from natural gas in power plant.

	Unit	Value
Colorific value of wood	kWh/kg	4.7
Efficiency of power plant	%	60

LCA: Results

The LCA results for 1m³ of the product.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage								End of life stage				Beyond the system boundaries
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
x	x	x	x	MND	MNR	MNR	MNR	MNR	MNR	MNR	MNR	x	x	x	x	x	

Environmental impact

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eqv	-9,103E2	2,69E+01	6,95E+01	-8,139E2	6,77E+01	1,57E+00	6,49E+00	7,03E+02	0,00E+00	-7,403E2
GWP-fossil	kg CO ₂ eqv	2,72E+01	2,69E+01	6,31E+01	1,17E+02	6,77E+01	1,57E+00	6,49E+00	6,91E+00	0,00E+00	-7,403E2
GWP-biogenic	kg CO ₂ eqv	-9,38E2	-4,074E-3	5,76E+00	-9,322E2	1,852E-3	1,151E-4	1,838E-4	6,97E+02	0,00E+00	-5,095E-2
GWP-LULUC	kg CO ₂ eqv	4,928E-1	1,096E-2	6,289E-1	1,13E+00	2,043E-2	1,326E-4	1,953E-3	1,34E-3	0,00E+00	-3,814E-2
ODP	kg CFC11-eqv	5,154E-6	6,005E-6	9,23E-6	2,039E-5	1,591E-5	3,388E-7	1,525E-6	5,555E-7	0,00E+00	-6,137E-5
AP	mol H ⁺ eqv	1,363E-1	8,219E-2	3,3E-1	5,485E-1	1,626E-1	2,683E-3	1,525E-2	7,601E-2	0,00E+00	-1,302E0
EP-freshwater	kg PO ₄ ³ eqv	6,901E-3	2,97E-3	1,589E-2	2,577E-2	4,825E-3	5,697E-5	4,627E-4	3,197E-3	0,00E+00	-1,559E-2
EP-marine	kg N eqv	4,668E-2	1,747E-2	6,802E-2	1,322E-1	2,366E-2	3,608E-4	2,181E-3	4,014E-2	0,00E+00	-2,731E-1
EP-terrestrial	mol N eqv	4,705E-1	1,874E-1	6,41E-1	1,30E+00	2,53E-1	3,86E-3	2,329E-2	3,84E-1	0,00E+00	-2,931E0
POSC	kg NMVOC eqv	1,716E-1	7,437E-2	1,807E-1	4,266E-1	1,366E-1	3,841E-3	1,286E-2	9,364E-2	0,00E+00	-1,01E0
ADP-mineral & metals	kg Sb eqv	3,831E-4	4,304E-4	2,025E-4	1,016E-3	1,154E-3	2,396E-6	1,107E-4	9,106E-5	0,00E+00	-4,074E-4
ADP-fossil	MJ	4,09E+02	4,09E+02	9,19E+02	1,74E+03	1,04E+03	2,13E+01	9,98E+01	6,89E+01	0,00E+00	-1,311E4
WDP	m ³	3,89E+02	5,38E+02	8,60E+04	8,69E+04	8,06E+02	4,58E+00	7,74E+01	1,74E+01	0,00E+00	-1,155E3

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

Resource use

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
RPEE	MJ	8,43E+02	8,64E+00	5,13E+02	1,37E+03	1,33E+01	1,168E-1	1,27E+00	1,39E+00	0,00E+00	-2,227E1
RPEM	MJ	9,74E+03	0,00E+00	0,00E+00	9,74E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TPE	MJ	1,06E+04	8,64E+00	5,13E+02	1,11E+04	1,33E+01	1,168E-1	1,27E+00	1,39E+00	0,00E+00	-2,227E1
NRPE	MJ	4,24E+02	4,24E+02	1,20E+03	2,05E+03	1,06E+03	2,15E+01	1,02E+02	7,01E+01	0,00E+00	-1,313E4
NRPM	MJ	0,00E+00	0,00E+00	2,21E+01	2,21E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
TRPE	MJ	4,24E+02	4,24E+02	1,22E+03	2,07E+03	1,06E+03	2,15E+01	1,02E+02	7,01E+01	0,00E+00	-1,313E4
SM	kg	1,543E-2	0,00E+00	7,467E-3	2,29E-2	0,00E+00	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	8,57E+02	8,57E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
W	m3	1,354E-1	9,299E-2	2,544E-1	4,828E-1	2,191E-1	1,907E-3	2,101E-2	1,215E-1	0,00E+00	-2,953E0

RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water

End of life - Waste

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
HW	kg	9,708E-1	5,619E-1	2,09E+00	3,62E+00	1,02E+00	2,324E-2	9,809E-2	2,65E+00	0,00E+00	-5,086E0
NHW	kg	2,26E+01	4,61E+01	8,55E+01	1,54E+02	1,13E+02	2,484E-1	1,09E+01	4,85E+02	0,00E+00	-7,233E1
RW	kg	2,239E-3	2,805E-3	6,758E-3	1,18E-2	7,229E-3	1,512E-4	6,929E-4	1,335E-4	0,00E+00	-1,573E-3

HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed

End of life - Output flow

Parameter	Unit	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
CR	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
MR	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
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,76E+02	0,00E+00	0,00E+00
EE	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	0,00E+00

CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EE Exported energy

Reading example: $9,0 \text{ E-}03 = 9,0 \cdot 10^{-3} = 0,009$

Additional Norwegian requirements

Greenhouse gas emission from the use of electricity in the manufacturing phase

National production mix from import, medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process(A3).

Data source	Amount	Unit
Ecoinvent 3.6	54	CO ₂ -eqv/kWh

Dangerous substances

- The product contains no substances given by the REACH Candidate list or the Norwegian priority list
- The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforsikten, Annex III), see table.

Indoor environment





No tests have been carried out on the product concerning indoor climate.

Carbon footprint

Carbon footprint has not been worked out for the product.

Bibliography

ISO 14025:2010	<i>Environmental labels and declarations - Type III environmental declarations - Principles and procedures</i>
ISO 14044:2006	<i>Environmental management - Life cycle assessment - Requirements and guidelines</i>
EN 15804:2012+A2:2019	<i>Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products</i>
ISO 21930:2007	<i>Sustainability in building construction - Environmental declaration of building products</i>
LCA_report	<i>Life Cycle Assessment Report: Glue Laminated Timber</i>
PCR Part A	<i>Construction products and services (version 1.0)</i>
NPCR 015 version 3.0	<i>PCR – Part B for wood and wood-based products for use in construction</i>
Tools and database	<i>One Click LCA tool and Ecoinvent 3.6 database</i>

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