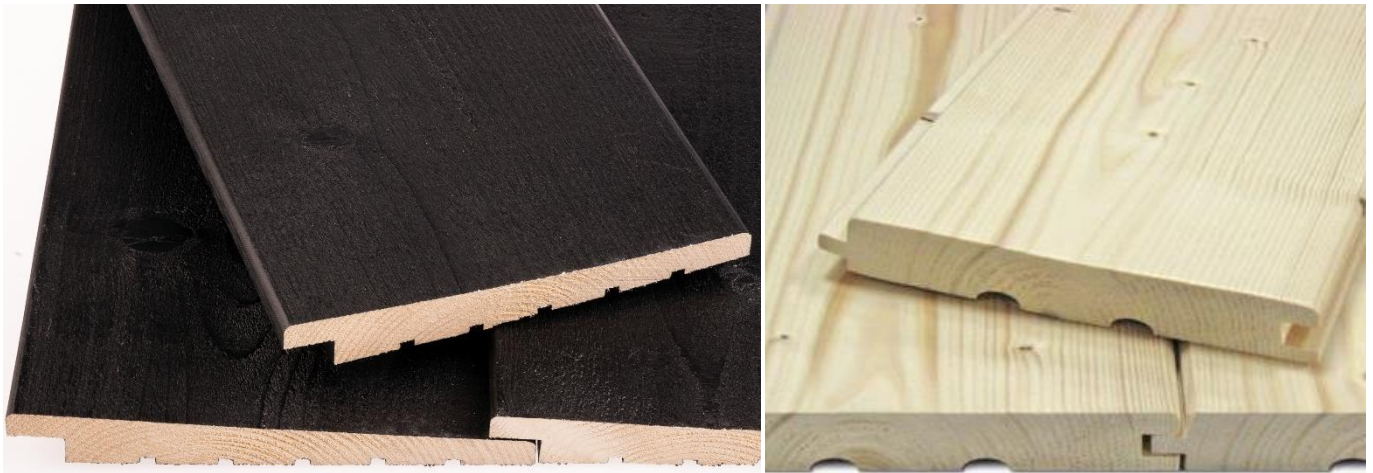



Natural and Painted planed timber exterior cladding



Program operator, publisher:	Rakennustietosäätiö RTS, The Building Information Foundation RTS Malminkatu 16 A 00100 Helsinki http://cer.rts.fi
Owner of the declaration:	Puidukoda OU
Name of the product:	Natural and Painted planed timber exterior cladding
Declaration number:	
Publishing date:	
Valid until:	
Scope of the declaration	This environmental product declaration covers the environmental impacts of natural and painted planed timber products. The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020). This declaration covers the life cycle stages from cradle-to-gate with options (A1–A5 + C + D)
	

Verified according to the requirements of EN 15804:2019 (product group rules)

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

Internal

External

Third party verifier:
Rangi Maja OÜ

20.02.2024

Mari Kirss

GENERAL INFORMATION, PURPOSE OF THE ENVIRONMENTAL DECLARATION, VERIFICATION

1. **Owner of the declaration, manufacturer**

Puidukoda OÜ
Kivi tn 25
Karksi village; Mulgi parish
69104 Viljandi County
Estonia
info@puidukoda.eu
<https://www.puidukoda.eu/>

2. **Product name**

- Natural planed timber products that are used as exterior cladding
- Painted planed timber products that are used as exterior cladding

3. **Place of production**

Produced in Estonia: Kivi tn 25; Karksi village; Mulgi parish; 69104 Viljandi County

4. **Additional information**

Additional information from Martin Stserbakov, martin@puidukoda.ee

5. **Product Category Rules and the scope of the declaration**

The declaration has been prepared in accordance with EN 15804:2019 and ISO 14025 standards and the additional requirements stated in the RTS PCR (English version, 26.8.2020). EPD of construction products may not be comparable if they do not comply with EN15804 and seen in a building context

6. **Author of the life-cycle assessment and declaration**

OÜ Hendrikson & Ko, Maakri 29, 10145 Tallinn, Estonia, tel +372 7409 800
<https://hendrikson.ee/>
Compiler: Anette Suigusaar, +372 55906476

7. **Verification**

This EPD has been verified according to the requirements of EN 15804:2012 + A2:2019 and RTS PCR by a third party.
The verification has been carried out by Rangi Maja OÜ, Mari Kirss.

Third party verification on 20.02.2024.

8. **Declaration issue date and validity**

Declaration issue date: The declaration is valid 5 years.

PRODUCT INFORMATION

9. Product description

This study assesses the environmental impacts of painted and natural planed timber products that are used as exterior cladding. The products are produced by Puidukoda OÜ. Both product groups' products are made 83% of sustainably sourced wood (Appendix A). Table below provides technical information about the included products in the study. Figure 1 illustrates the usages of the products – products are used as exterior cladding. The study has been conducted in accordance with ISO 14025 and EN 15804.



Figure 1. Painted planed timber exterior cladding in use

TECHNICAL INFORMATION

Properties	Painted planed timber products	Natural planed timber products
Wood species	Spruce (<i>Picea abies</i>)	Spruce (<i>Picea abies</i>)
Density of the wood	450 kg/m ³	450 kg/m ³
Moisture content	16%	16%
Width	95 – 195 mm	70 – 245 mm
Thickness	9,5 – 28 mm	12 – 44 mm
Purpose	Exterior cladding	Exterior cladding

10. Functional / declared unit

The declared unit (DU) is 1 m³ of solid wood. DU of 1 m³ of solid wood was selected since this unit directly reflects the physical quantity of the material being assessed and the company collects data on a cubic meter basis. The reference year for collected data is 2022.

11. Product raw material main composition

Table below shows content of natural and painted planed timber exterior cladding for 1 m³ of declared unit.

Product structure	Quantity, %		Usability						Origin
			Renewable		Non-renewable		Recycled		
	Natural product	Painted product	Natural product	Painted product	Natural product	Painted product	Natural product	Painted product	
Wood	99,7%	95%	X	X					
Spruce wood, certified	83%	83%	X	X	-	-	-	-	Europe
Spruce wood, un-certified	17%	17%	X	X	-	-	-	-	Europe
Plastic packaging	0,3%	0,4%	-	-	X	X	-	-	Estonia
Chemicals	-	4,6%	-	-	-	X	-	-	Estonia

*Order of magnitude, not exact composition

PRODUCT MAIN COMPOSITION

Product composition	Quantity, %		Origin
	Natural product	Painted product	
Metals	-	-	-
Stone-based materials (minerals)	-	-	-
Fossil materials	0,3%	5,1%	Estonia
Bio-based materials	99,7%	94,9%	Europe

*Order of magnitude, not exact composition

12. Substances under European Chemicals Agency’s REACH, SVHC restrictions

Both products (painted and natural) do not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm). Meaning the products fulfill the requirements of the REACH EU Regulation.

SCOPE OF LIFE CYCLE ASSESMENT (Standard 7.2.1-2)

All the covered modules of the EPD with X. Mandatory modules are marked with blue in the table below. This declaration covers “cradle-to-gate with options”.

Product stage			Construction process stage		Use stage							End of life stage				Supplementary information beyond the life cycle		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	D	D
☒	☒	☒	☒	☒	ND	ND	ND	ND	ND	ND	ND	☒	☒	☒	☒	☒	☒	☒
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Mandatory modules
Mandatory as per the RTS PCR section 6.2.1 rules and terms
Optional modules based on scenarios

13. System boundary

Since the goal of this LCA is to gain insights about the environmental impact of different life cycle phases of natural and painted planed timber exterior cladding as well as its total environmental impact for a number of different effect categories, this study covers the product system from cradle-to-gate with options, i.e., modules A1-A3, modules A4-A5, modules C1–C4 and module D (A1–A5 + C + D), as defined by the RTS PCR published by the Building Information Foundation RTS 26.8.2020. It includes the life cycle phases of raw material extraction, transportation from suppliers to the factory in Viljandi county in Estonia, manufacturing, packaging, distribution from the Puidukoda factory and end-of-life. The included scenarios are currently in use and are representative for one of the most likely scenario alternatives. Figure 2 shows an illustration of the life cycle phases included and assessed in this LCA.

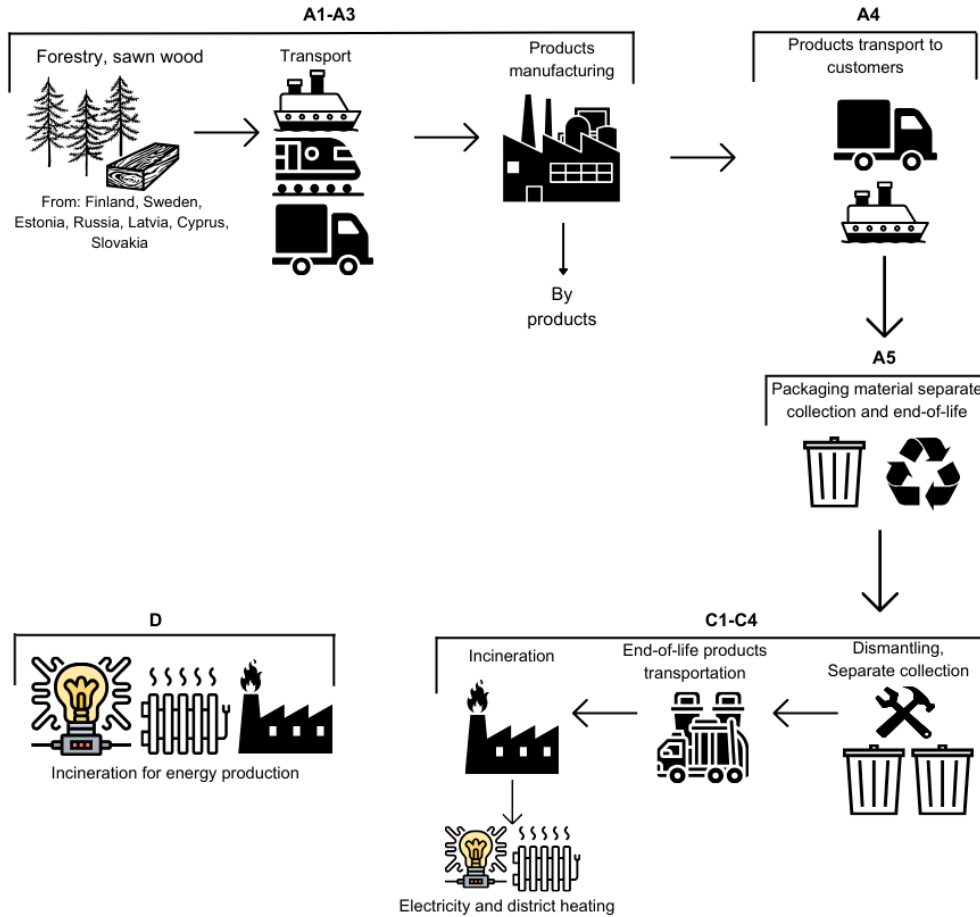


Figure 2. Flow diagram of the assessed life cycle phases of the natural and painted planed timber exterior cladding.

14. Allocation and Cut-off criteria

The allocation is performed according to EN15804. According to EN 15804, all by-products must take their environmental responsibility upstream and inherent properties cannot be allocated away. Allocation is based on production rate in 2022 and all other processes (electricity, generated waste, etc.) are calculated as a weight average per produced kg of all products. To co-products that are generated with the main products are wood shavings and sideboards and the allocation is made according to revenue.

All materials and processes, input and output data in the life cycle have been included in the assessment to the best of the LCA practitioner's knowledge. The method chosen for the allocation procedure of this LCA is the cut-off method. There is no neglected unit process more than 1% of total mass and energy flows. Some production solvents that constitute less than 1% of the product weight have been excluded (e.g., for the maintenance of the machines at the manufacturing site, e.g., oils and cleaning solvents, etc.). This cut-off rule does not apply for hazardous material and substances.

15. Production process

Production A1-A3

The production process begins with unpacking and quality control of the raw materials. After quality control the products will be manufactured. The unsuitable wood is used during packaging. The suitable sawn wood is cut into desired length and shape and then planed. After the product is planed, it is treated with paint and preservative (only painted product). The natural planed timber isn't treated with anything. After packaging the products are stacked and will be ready for transportation to the customer. The generated waste is transported to the recycling center or hazardous waste to the incineration plant.

Transport and Installation A4 – A5

Trucks and boats are used to distribute the finished products to customers in European countries (A4). An average is calculated based on the estimated distance for each country. Because the products are packaged correctly there is not any losses during transportation.

The products installation is estimated to have 0 impact, because it is involved with minimal/zero energy and water consumption. Therefore, the results of A5 show the impact regards to the packaging material. All the packaging materials, that come from packaging used for the final products, at their end-of-life are assumed to be transported to the closest incineration facilities or recycling centers by truck, the average transport distance is estimated to be 50 km.

C1-C4 End-of-life stage

The products are dismantled from the walls and collected separately. It is assumed to be associated with no or minimal energy consumption and no use of resources. Therefore, the impact from this stage was estimated to be 0 (C1).

All end-of-life products are assumed to be transported to the closest incineration facilities by truck, the average transport distance is estimated to be 50 km (C2). Products are assumed to be incinerated at the end-of-life, producing electricity and district heating (C3). Module C3 is relevant to the European region. There is no disposal of planed timber because it is incinerated (C4).

D Benefits and loads beyond the system boundary

Module D consist of inputs and outputs that leave the product system and have undergone the final treatment stage. Module provides information about reusable products, recycled materials and useful energy carriers leaving the product system. Module D is relevant to the European region. The efficiency of the wood incineration process is not 100%, so 13,5 MJ/kg net calorific value was used. Net calorific value is obtained from Phyllis2 database and the incineration efficiency that was used is 75%. For hazardous waste incineration process was used an average net calorific value (9,75 MJ/kg).

Because the products are assumed to be incinerated at the end-of-life, producing electricity and district heating (C3), there is no disposal of planed timber products (C4). Use stage (module B) is omitted because it is not associated with any major energy or material use during its expected lifetime, and therefore the environmental impact is considered negligible.

SCOPE OF THE LIFE-CYCLE ASSESSMENT

NATURAL PLANED TIMBER EXTERIOR CLADDING

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804 +2

Indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	-2,61E+02	2,35E+02	7,01E+01	0,00E+00	4,24E+00	7,97E+02	0,00E+00	-2,96E+01
GWP-fossil	kg CO2 eq	3,21E+02	2,35E+02	3,46E+00	0,00E+00	4,24E+00	9,12E+00	0,00E+00	-2,79E+01
GWP- biogenic	kg CO2 eq	-6,20E+02	1,25E-01	6,08E+01	0,00E+00	3,83E-03	6,59E+02	0,00E+00	-1,38E+02
GWP-luluc	kg CO2 eq	3,87E+01	1,36E-01	5,74E+00	0,00E+00	2,06E-03	1,30E+02	0,00E+00	1,36E+02
ODP	kg CFC 11 eq	7,16E-06	4,59E-06	1,66E-07	0,00E+00	9,22E-08	1,97E-07	0,00E+00	-4,22E-07
AP	mol H ⁺ eq	2,39E+00	2,85E+00	1,50E-02	0,00E+00	1,38E-02	8,61E-02	0,00E+00	-6,75E-01
EP-freshwater	kg P eq	6,55E-02	1,35E-02	5,54E-04	0,00E+00	2,96E-04	5,09E-03	0,00E+00	-1,28E-02
EP-marine	kg N eq.	8,07E-01	7,61E-01	4,37E-03	0,00E+00	4,75E-03	4,08E-02	0,00E+00	-3,02E-01
EP-terrestrial	mol N eq.	8,70E+00	8,34E+00	4,52E-02	0,00E+00	5,02E-02	3,88E-01	0,00E+00	-3,45E+00

POCP	kg NMVOC eq.	3,00E+00	4,59E-06	1,66E-07	0,00E+00	9,22E-08	1,97E-07	0,00E+00	-1,28E+00
ADP-minerals & metals	kg Sb eq.	8,93E-04	5,76E-04	4,23E-05	0,00E+00	1,36E-05	1,65E-05	0,00E+00	-1,80E-04
ADP-fossil	MJ. Net calorific value	4,72E+03	3,18E+03	1,07E+02	0,00E+00	6,01E+01	1,21E+02	0,00E+00	-4,18E+02
WDP	M3world eq. deprived	2,88E+01	1,12E+01	1,48E+00	0,00E+00	2,45E-01	1,70E+00	0,00E+00	-4,25E+00

GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Because the products are made 83% of wood that comes from sustainable forest, and 17% of wood material that does not come from sustainable managed forest the GWP-biogenic and GWP-luluc was calculated according to the RTS PCR in line with EN 15804+A2. Meaning the uncertified wood enters the product system in A1 as 0 and the biogenic CO2 emissions is allocated to module A3 and C3 as GWP-luluc.

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT*

Impact category	Unit	A1-A3	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	-5,80E-01	5,51E-01	5,22E-01	1,56E-01	0,00E+00	9,43E-03	1,77E+00	0,00E+00	-6,57E-02
ADP-minerals & metals	kg Sb eq	1,99E-06	7,21E-08	1,28E-06	9,41E-08	0,00E+00	3,02E-08	3,67E-08	0,00E+00	-4,01E-07
ADP-fossil	MJ	7,13E-01	3,06E-02	5,22E-01	7,68E-03	0,00E+00	9,42E-03	2,03E-02	0,00E+00	-6,21E-02
Water use	m3 depriv.	6,41E-02	5,98E-03	2,48E-02	3,28E-03	0,00E+00	5,44E-04	3,78E-03	0,00E+00	-9,45E-03
Secondary materials	kg	5,58E-02	5,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	-	4,31E-01	-	-	-	-	-	-	-

* Compulsory table

USE OF NATURAL RESOURCES

Use of natural resources	Unit	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,32E+04	1,33E+04	4,81E+01	-1,97E+02	4,12E+01	3,05E+02	0,00E+00	9,33E-01	6,09E+03	0,00E+00	-9,17E+03
PERM	MJ	6,38E+03	6,09E+03	0,00E+00	2,85E+02	0,00E+00	-3,04E+02	0,00E+00	0,00E+00	-6,08E+03	0,00E+00	0,00E+00
PERT	MJ	1,95E+04	1,94E+04	4,81E+01	8,79E+01	4,12E+01	1,12E+00	0,00E+00	9,33E-01	1,56E+01	0,00E+00	-9,17E+03
PENRE	MJ	4,68E+03	1,50E+03	2,91E+03	2,65E+02	3,18E+03	1,52E+02	0,00E+00	6,01E+01	1,21E+02	0,00E+00	-4,18E+02
PENRM	MJ	4,56E+01	4,56E+01	0,00E+00	0,00E+00	0,00E+00	-4,56E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,72E+03	1,55E+03	2,91E+03	2,65E+02	3,18E+03	1,07E+02	0,00E+00	6,01E+01	1,21E+02	0,00E+00	-4,18E+02
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	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	0,00E+00	0,00E+00
FW	m3	2,85E+01	1,41E+01	1,17E+01	2,68E+00	1,11E+01	1,46E+00	0,00E+00	2,44E-01	1,66E+00	0,00E+00	-3,99E+00
SM	kg	2,51E+01	0,00E+00	0,00E+00	2,51E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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

BIOGENIC CARBON CONTENT

Biogenic carbon content	Unit	A3
Biogenic carbon content in product	kg C	194
Biogenic carbon content in packaging	kg C	9,45

END OF LIFE – WASTE

Waste categories	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2,52E-02	1,89E-02	8,30E-05	0,00E+00	3,82E-04	1,11E-03	0,00E+00	-1,73E-03
Non-hazardous waste	kg	2,80E+02	1,11E+02	8,03E-01	0,00E+00	2,93E+00	7,94E+00	0,00E+00	-6,90E+00
Radioactive waste	kg	5,60E-03	8,23E-04	5,79E-05	0,00E+00	1,95E-05	5,50E-04	0,00E+00	-1,14E-03

END OF LIFE – OUTPUT FLOWS

Other environmental indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	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
Materials for recycling	kg	0,00E+00	0,00E+00	1,48E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,28E+02	0,00E+00	2,25E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (heat)	MJ/energy source	3,51E+01	0,00E+00	1,52E+02	0,00E+00	0,00E+00	6,08E+03	0,00E+00	0,00E+00

PAINTED PLANED TIMBER EXTERIOR CLADDING

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804 +2

Indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	-1,28E+02	1,87E+02	7,13E+01	0,00E+00	4,46E+00	8,31E+02	0,00E+00	-3,09E+01
GWP-fossil	kg CO2 eq	4,24E+02	1,87E+02	4,76E+00	0,00E+00	4,45E+00	9,70E+00	0,00E+00	-2,79E+01
GWP- biogenic	kg CO2 eq	-6,20E+02	9,63E-02	6,08E+01	0,00E+00	4,03E-03	6,91E+02	0,00E+00	-1,38E+02
GWP-luluc	kg CO2 eq	6,83E+01	1,09E-01	5,74E+00	0,00E+00	2,16E-03	1,30E+02	0,00E+00	1,35E+02
ODP	kg CFC 11 eq	1,27E-05	3,63E-06	2,37E-07	0,00E+00	9,69E-08	2,23E-07	0,00E+00	-4,22E-07
AP	mol H ⁺ eqv	4,03E+00	2,35E+00	1,96E-02	0,00E+00	1,45E-02	9,14E-02	0,00E+00	-6,75E-01
EP-freshwater	kg P eq	1,24E-01	1,07E-02	6,86E-04	0,00E+00	3,12E-04	5,39E-03	0,00E+00	-1,28E-02
EP-marine	kg N eq.	1,06E+00	6,23E-01	5,35E-03	0,00E+00	4,99E-03	4,29E-02	0,00E+00	-3,02E-01
EP-terrestrial	mol N eq.	9,98E+00	6,83E+00	5,60E-02	0,00E+00	5,28E-02	4,09E-01	0,00E+00	-3,45E+00
POCP	kg NMVOC eq.	3,48E+00	2,05E+00	2,05E-02	0,00E+00	2,17E-02	1,06E-01	0,00E+00	-1,28E+00
ADP-minerals&metals	kg Sb eq.	7,09E-03	4,53E-04	6,13E-05	0,00E+00	1,43E-05	1,79E-05	0,00E+00	-1,80E-04
ADP-fossil	MJ. Net calorific value	6,18E+03	2,52E+03	1,52E+02	0,00E+00	6,31E+01	1,28E+02	0,00E+00	-4,18E+02
WDP	M3world eq. deprived	1,09E+02	8,81E+00	2,12E+00	0,00E+00	2,57E-01	1,87E+00	0,00E+00	-4,25E+00

GWP = Global Warming Potential; EP = Eutrophication potential; POCP = Photochemical ozone formation; ADP = Abiotic depletion potential. EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Because the products are made 83% of wood that comes from sustainable forest, and 17% of wood material that does not come from sustainable managed forest the GWP-biogenic and GWP-luluc was calculated according to the RTS PCR in line with EN 15804+A2. Meaning the uncertified wood enters the product system in A1 as 0 and the biogenic CO2 emissions is allocated to module A3 and C3 as GWP-luluc.

USE OF NATURAL RESOURCES

Use of natural resources	Unit	A1-A3	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	1,35E+04	1,37E+04	4,82E+01	-2,16E+02	3,24E+01	3,05E+02	0,00E+00	9,81E-01	6,09E+03	0,00E+00	-9,17E+03
PERM	MJ	6,38E+03	6,09E+03	0,00E+00	2,85E+02	0,00E+00	-3,04E+02	0,00E+00	0,00E+00	-6,08E+03	0,00E+00	0,00E+00
PERT	MJ	1,99E+04	1,98E+04	4,82E+01	6,88E+01	3,24E+01	1,25E+00	0,00E+00	9,81E-01	1,65E+01	0,00E+00	-9,17E+03
PENRE	MJ	6,11E+03	2,85E+03	2,92E+03	3,38E+02	2,52E+03	2,19E+02	0,00E+00	6,31E+01	1,28E+02	0,00E+00	-4,18E+02
PENRM	MJ	6,68E+01	6,68E+01	0,00E+00	0,00E+00	0,00E+00	-6,68E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	6,18E+03	2,92E+03	2,92E+03	3,38E+02	2,52E+03	1,52E+02	0,00E+00	6,31E+01	1,28E+02	0,00E+00	-4,18E+02
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	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	0,00E+00	0,00E+00
FW	m3	1,06E+02	9,15E+01	1,18E+01	2,75E+00	8,79E+00	2,09E+00	0,00E+00	2,56E-01	1,83E+00	0,00E+00	-3,99E+00
SM	kg	2,51E+01	0,00E+00	0,00E+00	2,51E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

KEY INFORMATION TABLE (RTS) – KEY INFORMATION PER KG OF PRODUCT*

Impact category	Unit	A1-A3	A3	A4	A5	C1	C2	C3	C4	D
GWP-total	kg CO2 eq	-2,84E-01	5,74E-01	4,16E-01	1,58E-01	0,00E+00	9,91E-03	1,85E+00	0,00E+00	-6,87E-02
ADP-minerals & metals	kg Sb eq	1,57E-05	7,37E-08	1,01E-06	1,36E-07	0,00E+00	3,18E-08	3,97E-08	0,00E+00	-4,01E-07
ADP-fossil	MJ	1,37E+01	7,51E-01	5,60E+00	3,38E-01	0,00E+00	1,40E-01	2,85E-01	0,00E+00	-9,29E-01
Water use	m3 depriv.	2,42E-01	6,13E-03	1,96E-02	4,70E-03	0,00E+00	5,72E-04	4,16E-03	0,00E+00	-9,45E-03
Secondary materials	kg	5,58E-02	5,58E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Biogenic carbon content in product	kg C	-	4,09E-01	-	-	-	-	-	-	-

* Compulsory table

BIOGENIC CARBON CONTENT

Biogenic carbon content	Unit	A3
Biogenic carbon content in product	kg C	184,3
Biogenic carbon content in packaging	kg C	9,45

END OF LIFE – WASTE

Waste categories	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	kg	2,96E-02	1,49E-02	8,69E-05	0,00E+00	4,02E-04	1,17E-03	0,00E+00	-1,73E-03
Non-hazardous waste	kg	3,28E+02	8,61E+01	9,24E-01	0,00E+00	3,09E+00	1,02E+01	0,00E+00	-6,90E+00
Radioactive waste	kg	7,44E-03	6,47E-04	7,16E-05	0,00E+00	2,05E-05	5,81E-04	0,00E+00	-1,14E-03

END OF LIFE – OUTPUT FLOWS

Other environmental indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	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
Materials for recycling	kg	0,00E+00	0,00E+00	2,17E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	1,28E+02	0,00E+00	2,25E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy (heat)	MJ/energy source	3,51E+01	0,00E+00	1,52E+02	0,00E+00	0,00E+00	6,39E+03	0,00E+00	0,00E+00

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

MANUFACTURING ENERGY SCENARIO DOCUMENTATION

Scenario parameter	Value
Electricity data source and quality	Ecoinvent 3.9.1, Estonia residual mix
Electricity CO2e / kwh	0,71
Electricity data source and quality	Ecoinvent 3.9.1, solar panels
Electricity CO2e / kwh	0,08

TRANSPORT SCENARIO DOCUMENTATION (A4)

Scenario parameter	Value
Specific transport CO2e emissions, kg CO2e / tkm	Lorry: 0,189 Ship: 0,118 Intermodal containers via sea: 0,0102
Average transport distance for natural planed timber products, km	1750 km by lorry 164 km by ship 14472 km by intermodal containers (sea)
Average transport distance for painted planed timber products, km	1295 km by lorry 40 km by ship 12476 km by intermodal containers (sea)
Capacity utilization, %	100
Volume capacity utilization factor	=1
Bulk density of transported products (including packaging, kg/m3)	Natural planed timber products: 474,1 Painted planed timber products: 497,8

PRODUCT INSTALLATION SCENARIO DOCUMENTATION

Scenario parameter	Value	
	Natural planed timber products	Painted planed timber products
Auxiliary materials used during installation, kg	0	0
Water consumption, kg	0	0
Other used resources, kg	0	0
Energy consumption, kWh	0	0
Waste generated during the installation of the product, kg	Plastic packaging: 1,48 Wood packaging (sideboards): 22,5	Plastic packaging: 2,17 Wood packaging (sideboards): 22,5
Output materials, which have been generated during the handling of waste on the construction site, kg	0	0

END OF LIFE SCENARIO DOCUMENTATION

Scenario parameter	Natural planed timber products	Painted planed timber products
Collection process – kg collected separately	450	473,1
Collection process – kg collected with mixed waste	-	-
Recovery process – kg for re-use	-	-
Recovery process – kg for recycling	-	-
Recovery process – kg for energy recovery	450	473,1
Disposal – kg for final deposition	-	-
Scenario assumptions e.g. transportation	End-of-life products are assumed to be transported 50 km with an average lorry	

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- European Commission. Integrated Pollution Prevention and Control. [Reference Document on the Best Available Techniques for Waste incineration](#). August 2006

APPENDIX A – SUSTAINABLE MANAGED FORESTRY CERTIFICATES

FSC and FSC Controlled Wood certificate for Puidukoda OÜ, FSC License Code FSC-C103733. FSC certificate registration sub-code for Puidukoda OÜ: SA-COC-007702. The certificate is valid from 14-12-2020 to 13-12-2025.



PEFC certificate for Puidukoda OÜ. PEFC certificate registration sub-code for Puidukoda OÜ: SA-PEFC/COC-007702. The certificate is valid from 14-12-2022 to 13-12-2025.

