

Environmental product declaration

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Siparila Thermally modified Wood

General information

MANUFACTURER

Manufacturer: Siparila Oy
Address: Horontie 166, 64700 Teuva
Contact details: info@siparila.fi
Website: <https://siparila.com/siparila>

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator: EPD Hub, hub@epdhub.com
Reference standard: EN 15804+A2:2019 and ISO 14025
PCR: EPD Hub Core PCR version 1.0, 1 Feb 2022
Sector: Construction product
Category of EPD: Third party verified EPD
Scope of the EPD: Cradle to gate with options, A4-A5, and modules C1-C4 and D
EPD author: Jori Jokela, Macon Oy
EPD verification: Independent verification of this EPD and data, according to ISO 14025: Internal certification External verification
EPD verifier: H.N, as an authorized verifier acting for EPD Hub Limited

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name: Siparila Thermally modified wood
Place of production: Teuva, Finland
Period for data: 2021
Averaging in EPD: No averaging

ENVIRONMENTAL DATA SUMMARY

Environmental Data summary	
Declared unit	1 m ²
Declared unit mass	10.25 kg
GWP-fossil, A1-A3 (kgCO _{2e})	5,39
GWP-total, A1-A3 (kgCO _{2e})	-12,4
Secondary material, inputs (%)	0.417
Secondary material, outputs (%)	0.0
Total energy use, A1-A3 (kWh)	77.9
Total water use, A1-A3 (m ³ e)	0.0587

Product and manufacturer

ABOUT THE MANUFACTURER

Siparila is the forerunner of the wood industry. We are excited about the opportunities offered through the use of wood and are continually developing new ways of utilising wood in construction and interior design. We encourage our customers to use wood creatively and with an open mind, because it is an excellent material for creating exciting surfaces and unique structures.

Siparila is a traditionally minded wood-processing family business, where responsibility forms an integral part of operations. We want to turn exterior and interior construction and design into an exciting and positive experience for you, whether you are an architect, designer, builder or decorator. Siparila is your partner in construction and interior design.

As a pioneer, we have been involved in the renovation of the Finnish exterior and interior decoration panel market. We are constantly developing product development with designers and architects to provide homebuilders in Finland and abroad with new, innovative and user- centred solutions. We want to bring our finished products made of genuine wood available to all.

PRODUCT DESCRIPTION

Thermally modified wood is a product for indoor and outdoor use. Contains various planed and processed profiles with surface treatment. Product to be applied with tongue and groove joint on the wall equipped with furring strips. Product thickness is 17 mm - 42 mm, widths from 40 mm-220 mm, lengths up to 6,0 m.

Calculations have been made using 25mm*150mm thermally modified wood product data.

Further information can be found at <https://siparila.com/siparila>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	-
Minerals	0	-
Fossil materials	0,02	Finland
Bio-based materials	99,9	Finland

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C: 4.9

Biogenic carbon content in packaging, kg C: 0.001

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit: 1 m²

Mass per declared unit: 10.25 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

Product life-cycle

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

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

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also includes the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Core manufacturing processes are thermal modifying, sawing, planing, surface treatment (primer or wood preservative) and packaging.

The environmental impacts of raw material supply (A1) include emissions generated when raw materials are taken from nature, transported to industrial units for processing and processed, along with waste handling from the various production processes. All major upstream processes are taken into consideration, including infrastructure. This stage includes all the aforementioned for the raw materials which end up in the final product (i.e. wood, surface treatment and packaging) as well as the electricity and heat production which are consumed during the manufacturing at the plant.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is defined according to standard EN 15804:2019 + A2. Manufacturing plant is in Teuva region of Finland. The average transportation distance from manufacturing site to construction site is calculated as 250 km and the transportation method is assumed to be lorry. Empty returns are not taken into account as it is assumed that return trip is used by the transportation company to serve the needs of other clients. Transportation does not cause losses as product are packaged properly.

This stage includes all Installation is assumed to be manual, hence no energy nor material is required; regarding packaging waste, wooden pallet and cardboards are assumed to be incinerated for energy recovery and steel straps recycled.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Demolition is assumed to have only small effects due to easy dismantling (1 kWh/m² or less if machinery used, based on own experience). It is assumed that 100 % of the wooden products are collected (C1). Distance for transportation to treatment is assumed as 50 km and the transportation method is assumed to be lorry (C2). 100 % of wooden products are assumed to be incinerated with energy recovery (C3). Due to the recycling process the end-of-life product is converted into an energy (D).

Manufacturing process

Raw materials are transported into the manufacturing facility by truck transport.

In the manufacturing process raw materials goes first to the quality check. Then raw boards go thermal modification kiln, where excess water is removed from the wood by heating it. Next raw boards from the kiln go into machine processing. Product thickness is selected to be 17mm-42mm, widths from 40mm-220mm. After machine processing primer/wood preservative is added in the painting line, if needed.

In the end (after primer/wood preservative have dried, if added) the product is cut to the desired length (lengths up to 6,0m).

Ancillary materials used are water (sawing and painting line) and lubricant oil in machinery.

Readymade products are packed for transport to customers. Product transports to our customers are carried out by a truck transportation.

Sawdust and wood chips are generated as waste materials from production process and are utilized for local municipality/industrial energy production. Small amount of packaging material waste is recycled via official waste material recycling system. Waste lubricant oils are collected by official hazardous material recycling company.



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Manufacturing process



Life-cycle assessment

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging materials	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Primary data represents the manufacturing site in Teuva, Finland. Different product thicknesses with similar material composition but different weights are covered by scaling. The kg-based results for products and packaging can be scaled to the weight of each thickness. The different thicknesses are listed in Annex I. The data of 25 mm x 150 mm thermally modified wood board (1 m²) was used to calculate the impacts for the product. The primary data has calculated of the 25 mm x 150 mm product's consumption of raw materials and energy, and production of waste

Type of average: No averaging

Averaging method: Not applicable

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. Ecoinvent and One Click LCA databases were used as sources of environmental data.

Environmental impact data

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
GWP – total	kg CO ₂ e	-1,55E1	7,58E-3	3,05E0	-1,24E1	2,31E-1	3,08E-2	MND	3,31E-1	4,67E-2	3,31E1	oEo	-1,05E1
GWP – fossil	kg CO ₂ e	2,49E0	2,41E-1	2,65E0	5,39E0	2,33E-1	3,5E-4	MND	3,31E-1	4,65E-2	2,42E-1	oEo	-1,04E1
GWP – biogenic	kg CO ₂ e	-1,84E1	2,38E-5	3,9E-1	-1,8E1	7,34E-4	3,04E-2	MND	3E-4	1,47E-4	3,28E1	oEo	-7,34E-2
GWP – LULUC	kg CO ₂ e	4,25E-1	8,66E-5	4,7E-3	4,3E-1	8,37E-5	4,79E-7	MND	3,3E-5	1,67E-5	2,43E-4	oEo	-1,65E-2
Ozone depletion pot.	kg CFC ₁₁ e	3,4E-7	5,75E-8	5,11E-7	9,09E-7	5,56E-8	3,76E-11	MND	7,07E-8	1,11E-8	1,52E-8	oEo	-5,71E-7
Acidification potential	mol H ⁺ e	3,02E-2	1,01E-3	8,73E-3	3,99E-2	9,72E-4	1,89E-6	MND	3,44E-3	1,94E-4	2,13E-3	oEo	-8,07E-2
EP-freshwater	kg Pe	2,68E-4	1,65E-6	2,78E-5	2,97E-4	1,6E-6	1,98E-8	MND	1,1E-6	3,18E-7	1,08E-5	oEo	-4,11E-4
EP-marine	kg Ne	5,41E-3	3,04E-4	1,67E-3	7,38E-3	2,94E-4	3,84E-7	MND	1,52E-3	5,87E-5	8,6E-4	oEo	-9,47E-3
EP-terrestrial	mol Ne	4,68E-2	3,35E-3	1,79E-2	6,8E-2	3,24E-3	4,32E-6	MND	1,67E-2	6,48E-4	9,19E-3	oEo	-1,11E-1
POCP (“smog”)	kg NMVOCe	1,88E-2	1,08E-3	5,42E-3	2,53E-2	1,04E-3	1,26E-6	MND	4,59E-3	2,08E-4	2,29E-3	oEo	-3,08E-2
ADP-minerals & metals	kg Sbe	1,74E-5	5,66E-7	4,2E-6	2,22E-5	5,47E-7	6,89E-9	MND	1,68E-7	1,09E-7	6,63E-7	oEo	-9,16E-6
ADP-fossil resources	MJ	3,87E1	3,69E0	4,4E1	8,64E1	3,57E0	5,5E-3	MND	4,45E0	7,12E-1	3,1E0	oEo	-1,32E2
Water use	m ³ e depr.	1,81E0	1,7E-2	4,27E-1	2,26E0	1,65E-2	1,13E-4	MND	1,2E-2	3,29E-3	7,32E-1	oEo	-1,58E0

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4,85E-7	2,83E-8	6,24E-8	5,76E-7	2,74E-8	2,42E-11	MND	9,22E-8	5,47E-9	1,97E-8	oEo	-7,62E-7
Ionizing radiation	kBq U235e	3,69E-1	1,9E-2	8,61E-1	1,25E0	1,84E-2	1,03E-4	MND	2,05E-2	3,67E-3	4,96E-2	oEo	-2,61E0
Ecotoxicity (freshwater)	CTUe	7,22E1	3,06E0	2,73E1	1,03E2	2,96E0	6,42E-3	MND	2,68E0	5,92E-1	3,54E0	oEo	-2,46E2
Human toxicity, cancer	CTUh	2,63E-9	8,09E-11	1,05E-9	3,76E-9	7,82E-11	2,84E-13	MND	1,03E-10	1,56E-11	4,97E-10	oEo	-3,35E-9
Human tox. non-cancer	CTUh	6,99E-8	3,24E-9	1,38E-8	8,7E-8	3,14E-9	7,54E-12	MND	1,94E-9	6,26E-10	2,25E-8	oEo	-1E-7
SQP	-	1,95E3	4,29E0	1,12E1	1,97E3	4,16E0	3,73E-3	MND	5,79E-1	8,3E-1	7,04E-1	oEo	-9,07E1

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Renew. PER as energy	MJ	1,97E2	4,78E-2	1,09E0	1,98E2	4,62E-2	-7,02E-4	MND	2,54E-2	9,22E-3	-1,43E2	oEo	-2,82E1
Renew. PER as material	MJ	1,64E2	oEo	3,88E0	1,68E2	oEo	-1,99E-1	MND	oEo	oEo	-1,6E1	oEo	oEo
Total use of renew. PER	MJ	3,61E2	4,78E-2	4,98E0	3,66E2	4,62E-2	-1,99E-1	MND	2,54E-2	9,22E-3	-1,59E2	oEo	-2,82E1
Non-re. PER as energy	MJ	3,51E1	3,69E0	4,39E1	8,26E1	3,57E0	-7,24E-3	MND	4,45E0	7,12E-1	3,1E0	oEo	-1,32E2
Non-re. PER as material	MJ	4,15E0	oEo	9,26E-2	4,24E0	oEo	-7,26E-3	MND	oEo	oEo	-4,17E0	oEo	8,49E-3
Total use of non-re. PER	MJ	3,92E1	3,69E0	4,4E1	8,69E1	3,57E0	-1,45E-2	MND	4,45E0	7,12E-1	-1,07E0	oEo	-1,32E2
Secondary materials	kg	3,67E-2	1,04E-3	5,04E-3	4,28E-2	1,01E-3	3,35E-6	MND	1,74E-3	2,01E-4	3,88E-3	oEo	-1,2E-2
Renew. secondary fuels	MJ	6,33E-4	9,18E-6	6,93E-3	7,58E-3	8,86E-6	4,83E-8	MND	5,7E-6	1,77E-6	8,63E-6	oEo	-6,45E-5
Non-ren. secondary fuels	MJ	oEo	oEo	oEo	oEo	oEo	oEo	MND	oEo	oEo	oEo	oEo	oEo
Use of net fresh water	m3	4,29E-2	4,89E-4	1,52E-2	5,87E-2	4,73E-4	3,45E-6	MND	2,7E-4	9,44E-5	-6,9E-4	oEo	-1,04E-1

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Hazardous waste	kg	3,27E-1	3,95E-3	4,69E-2	3,78E-1	3,82E-3	2,25E-5	MND	5,96E-3	7,63E-4	7,21E-3	oEo	-8,15E-1
Non-hazardous waste	kg	7,85E0	6,88E-2	1,27E0	9,18E0	6,65E-2	9,37E-4	MND	4,19E-2	1,33E-2	1,06E1	oEo	-3,26E1
Radioactive waste	kg	1,85E-4	2,54E-5	3,66E-4	5,77E-4	2,46E-5	3,79E-8	MND	3,13E-5	4,91E-6	1,26E-5	oEo	-7,44E-4

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Components for re-use	kg	oEo	oEo	oEo	oEo	oEo	oEo	MND	oEo	oEo	oEo	oEo	oEo
Materials for recycling	kg	oEo	oEo	3,82E0	3,82E0	oEo	2E-3	MND	oEo	oEo	oEo	oEo	oEo
Materials for energy rec	kg	oEo	oEo	2,65E-1	2,65E-1	oEo	3,83E-2	MND	oEo	oEo	oEo	oEo	oEo
Exported energy	MJ	oEo	oEo	oEo	oEo	oEo	2,94E-1	MND	oEo	oEo	1,52E2	oEo	oEo

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO ₂ e	2,84E0	2,39E-1	2,64E0	5,72E0	2,31E-1	3,47E-4	MND	3,27E-1	4,61E-2	2,33E-1	oEo	-1,02E1
Ozone depletion Pot.	kg CFC ₋₁₁ e	2,83E-7	4,56E-8	4,06E-7	7,35E-7	4,41E-8	3,05E-11	MND	5,6E-8	8,8E-9	1,31E-8	oEo	-4,66E-7
Acidification	kg SO ₂ e	2,56E-2	7,79E-4	7,22E-3	3,36E-2	7,53E-4	1,54E-6	MND	2,45E-3	1,5E-4	1,56E-3	oEo	-6,89E-2
Eutrophication	kg PO ₄ ³⁻ e	9,16E-3	1,74E-4	1,54E-3	1,09E-2	1,68E-4	9,61E-7	MND	5,69E-4	3,36E-5	1,66E-3	oEo	-1,48E-2
POCP ("smog")	kg C ₂ H ₄ e	2,34E-3	3,06E-5	2,91E-4	2,66E-3	2,96E-5	6,6E-8	MND	5,36E-5	5,92E-6	5,52E-5	oEo	-2,98E-3
ADP-elements	kg Sbe	1,67E-5	5,51E-7	4,19E-6	2,15E-5	5,32E-7	6,87E-9	MND	1,65E-7	1,06E-7	6,11E-7	oEo	-9,2E-6
ADP-fossil	MJ	3,87E1	3,69E0	4,32E1	8,56E1	3,56E0	5,49E-3	MND	4,45E0	7,12E-1	3,1E0	oEo	-1,29E2

ANNEX 1. ARTICLES COVERED BY THIS EPD.

Article	Thickness	Net weight kg	GWP-fossil, A1-A3 (kg CO ₂ e/item)
Siparila Thermally Modified Wood	17 mm	7,3	5,0
Siparila Thermally Modified Wood	18 mm	7,7	5,0
Siparila Thermally Modified Wood	19 mm	7,9	5,1
Siparila Thermally Modified Wood	20 mm	8,2	5,2
Siparila Thermally Modified Wood	21 mm	8,6	5,2
Siparila Thermally Modified Wood	22 mm	9	5,3
Siparila Thermally Modified Wood	23 mm	9,4	5,3
Siparila Thermally Modified Wood	24 mm	9,8	5,4
Siparila Thermally Modified Wood	25 mm	10,3	5,4
Siparila Thermally Modified Wood	26 mm	10,7	5,5
Siparila Thermally Modified Wood	30 mm	12,3	6,5
Siparila Thermally Modified Wood	32 mm	13,1	6,8
Siparila Thermally Modified Wood	36 mm	15,5	8,2
Siparila Thermally Modified Wood	38 mm	15,8	9,6
Siparila Thermally Modified Wood	40 mm	16,6	10,5
Siparila Thermally Modified Wood	42 mm	18	11,5

Verification statement

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? [Read more online](#)

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited 30.04.2023



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