

Environmental Product Declaration



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

OrganoWood®
from
OrganoWood AB



Programme:
Programme operator:
EPD registration number:
Publication date:
Valid until:

The International EPD® System, www.environdec.com
EPD International AB
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2027-03-23



Programme information

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
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Product category rules (PCR): PCR 2019:14 Construction products. Version 1.11, date 2021-02-05.
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Claudia A. Peña. Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14025:2006: <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: Martyna Mikusinska from Sweco Environment AB
Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.

Company information

Owner of the EPD:

OrganoWood AB

Description of the organisation:

OrganoWood sells and markets environmentally friendly wood products as well as complementary wood protection products. OrganoWood has built its business on a core technology where silicon-based substances are bound to the fibers in the wood via organocatalysis and green chemistry, the same technology that is also behind the 2021 Nobel Prize in Chemistry. Based on this technology, environmentally classified products have been developed that give treated wood both a water-repellent surface and effective rot protection. With a strong commitment to the environment, OrganoWood has ensured that the impregnated wood is produced only with substances that can be returned to the natural cycle.

Name and location of production site:

Bitus AB / Nybro
Orreforsvägen 49
SE-382 94 Nybro
SWEDEN

Product information

Product name:

OrganoWood®

Product description:

Planed wood of pine and spruce impregnated with sodium silicate for roth prevention. Used in outdoor construction for instance patio, terasse and wood cladding with natural expression.

Products variants included in the EPD

All variants of decking and construction timber. The EPD is an average EPD where the average is based on the production volumes of the different variants.

UN CPC code:

311

Geographical scope:

Sweden

LCA information

Declared unit:

1 m³ OrganoWood® product.

The declared unit (1 m³) corresponds to a weight of 498 kg.

Reference service life:

OrganoWood® has an estimated reference service life of 15-20 years used as flooring and more than 30 years used as cladding. These estimations are based on results from SS-EN 113 and SS-EN 350.

Time representativeness:

The data used to model product manufacturing corresponds to 2021. The data from generic databases are from 2017 – 2020. No data used is older than 10 years.

Database(s) and LCA software used:

Databases used are Sphera (content version 2021.2) and ecoinvent (v3.7.1). The LCA software used is GaBi (version 10.6).

Type of EPD:

Cradle to gate with options, modules C1-C4, module D and with optional module A4.

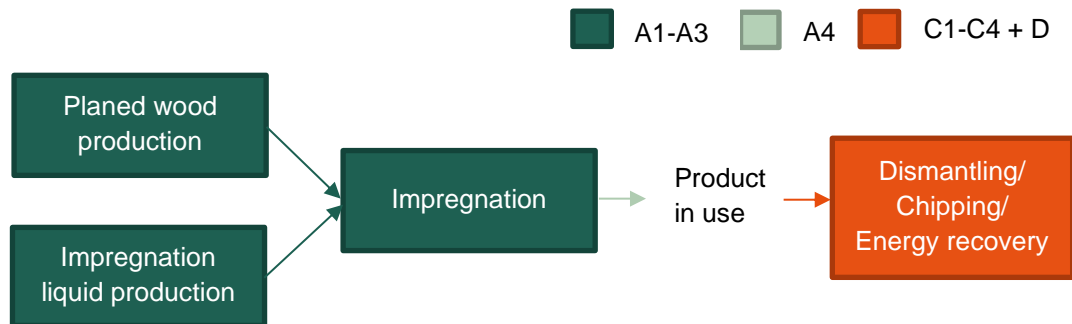
The life cycle stages included are described in the table below:

	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	Deconstruction, demolition	Transport	Waste processing	
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	SE/DE	SE	SE	SE	-	-	-	-	-	-	-	-	SE	SE	SE	SE	SE
Specific data used	36 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

X: Module declared

ND: Module not declared

Flow diagram:



Planned wood production includes several processes (forestry, drying, sawmill etc.) with transports in between. Impregnation liquid production also includes production of the constituents. Dismantling the product, transporting it to incineration facility and chipping are the processes included in the C1-C4 information modules. Module D includes the energy recovery resulting from when the OrganoWood product is incinerated.

Allocation:

No co-product allocation has been applied.

Scenarios:

The analysis is carried out using factory-specific data for use of energy and utilities and waste generation, as well as product-specific data for use of raw materials. Therefore, the results represents the product system and no other scenarios were applied.

Data quality:

Site-specific production data has been retrieved for 2021 from the production site. The upstream and downstream processes have been modelled based on generic data from databases (Sphera and ecoinvent) but also based on the sector EPD "Swedish sawn and planed wood product" (Svenskt Trä 2021). The collected data was reviewed in terms of consistency, and it is deemed as good quality.

Cut-off criteria:

The maximum cut-off criteria established by the PCR is 1% of all material and energy flows to a single unit process and 5% of total inflows (mass and energy) per module, e.g. per module A1-A3, A4-A5, C1-C4 and module D. No cut-offs exceeding this limit have been made.

Modelling of transportation modules:

Three types of transportation modules are included in this LCA study; the transport of materials to the manufacturing site, including internal transport (A2), the transport of the final product to the customers (A4) and the transport of the discarded product to waste management (C2). The following table presents the transport scenarios applied and the modelling assumptions:

Transport module	Transport mode	Average distance (km)	Capacity utilization (%)
Suppliers to manufacturing (A2)	Planed wood, supplier 1: Truck	993	100
	Planed wood, supplier 2: Truck	1220	100
	Planed wood, supplier 3: Truck	30	100
	Impregnation liquid: Truck	440	100
	Other materials: Truck	260	85
	Internal transport: modelled based on consumed diesel and electricity		
Manufacturing to customer (A4)	Truck	340	95
Customer to waste management (C2)	Results from sector EPD "Swedish sawn and planed wood product" used		

Modelling of product manufacturing (A3):

Planed wood from pine and spruce are impregnated with sodium silicate containing impregnation liquid during high pressure in a vessel. After the impregnation the wood is dried in a drying kiln to make the liquid solidified. After drying, packages are brought either to a warehouse for delivery or brought to further surface-treatment. In the surface-treatment step, boards are after brushing painted with surface treatment and thereafter dried and brought to a warehouse ready to be delivered.

The production process consumes electricity in the different manufacturing processes and electricity and diesel is used for internal transportation, e.g. forklifts. The electricity used is produced from 100% renewable sources.

Water is used in the process to dilute the impregnation liquid and lye is used for cleaning. The waste streams from the manufacturing site include excess impregnation and surface treatment liquid and wooden waste (laths used for packaging).

End of life (C1-C4) and Benefits and loads beyond the system boundary (D) stages:

The results for modules C1-C4 and D in this EPD are used straight from the sector EPD "Swedish sawn and planed wood product", without modifications, as no significant differences are expected between the products in these life cycle stages.

Key estimates and assumptions:

The most relevant assumptions for the EPD are:

- To represent the wood raw material, planed wood, results from the sector EPD "Swedish sawn and planed wood product" (Svenskt Trä 2021) have been used, which have a high influence on the final results.

Content declaration

Material content:

No substances that appear in the REACH candidate list of SVHC (Candidate List of Substances of Very High Concern) are present or used in the product concerning this EPD.

The final product OrganoWood® consists of planed wood (98,1%) and impregnation and surface treatment liquid (1,9%).

Packaging:

The product is transported to the customers covered in plastic, wooden laths and other wooden pieces are also used.

Recycled/renewable material:

No recycled (post-consumer) material is used in the product. The planed wood used is renewable material.

Environmental performance for OrganoWood®

Potential environmental impact per 1 m3 OrganoWood® product

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
Global warming potential total, GWP - total	kg CO ₂ eq.	-7,20 E+02	-7,34 E+02	2,12 E+01	-7,06 E+00	7,89 E+00	2,45 E-01	6,67 E+00	7,74 E+02	0,00 E+00	-1,16 E+02
Global warming potential fossil, GWP – fossil	kg CO ₂ eq.	5,99 E+01	3,84 E+01	2,10 E+01	5,91 E-01	7,78 E+00	2,45 E-01	6,66 E+00	9,49 E-01	0,00 E+00	-1,15 E+02
Global warming potential biogenic, GWP – biogenic	kg CO ₂ eq.	-7,81 E+02	-7,73 E+02	0,00 E+00	-7,65 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,73 E+02	0,00 E+00	0,00 E+00
Global warming potential land use and land use change, GWP – LULUC	kg CO ₂ eq.	5,02 E-01	3,08 E-01	1,94 E-01	6,28 E-04	1,24 E-01	1,93 E-05	2,74 E-03	7,48 E-05	0,00 E+00	-1,08 E+00
Indicator for climate impact, GWP – GHG	kg CO ₂ eq.	5,94 E+01	3,82 E+01	2,06 E+01	5,73 E-01	7,67 E+00	2,42 E-01	6,60 E+00	9,39 E-01	0,00 E+00	-1,15 E+02
Depletion potential of the stratospheric ozone layer, ODP	kg CFC-11 eq.	9,29 E-06	9,29 E-06	4,90 E-15	6,26 E-15	1,89 E-15	5,30 E-08	1,48 E-06	2,05 E-07	0,00 E+00	-7,40 E-06
Acidification potential of soil and water, AP	Mol H ⁺ eq.	4,00 E-01	3,57 E-01	4,20 E-02	1,11 E-03	1,25 E-02	2,57 E-03	2,02 E-02	9,93 E-03	0,00 E+00	-3,84 E-01
Eutrophication potential, fraction of nutrients reaching freshwater end compartment, EP-freshwater	kg (PO ₄) ³⁻ eq.	6,40 E-03	6,10 E-03	3,00 E-04	1,86 E-06	9,95 E-05	8,81 E-06	5,68 E-04	3,41 E-05	0,00 E+00	-1,87 E-02
Eutrophication potential, fraction of nutrients reaching freshwater end compartment, EP – marine	kg N eq.	1,24 E-01	1,09 E-01	1,51 E-02	3,69 E-04	3,47 E-03	1,13 E-03	4,28 E-03	4,39 E-03	0,00 E+00	-2,03 E-01
Eutrophication potential, Accumulated Exceedance, EP-terrestrial	mol N eq.	1,33 E+00	1,19 E+00	1,41 E-01	4,21 E-03	4,92 E-02	1,24 E-02	4,68 E-02	4,81 E-02	0,00 E+00	-1,22 E+00
Formation potential of tropospheric ozone, POCP	kg NMVOC eq.	3,80 E-01	3,44 E-01	3,48 E-02	1,06 E-03	8,56 E-03	3,42 E-03	1,78 E-02	1,32 E-02	0,00 E+00	-6,35 E-01



Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
Abiotic depletion potential for non-fossil resources, ADP-minerals & metals	kg Sb eq.	3,93 E-04	3,90 E-04	2,84 E-06	1,19 E-07	1,11 E-06	3,76 E-07	2,15 E-04	1,46 E-06	0,00 E+00	-2,64 E-04
Abiotic depletion potential for fossil resources, ADP-fossil fuels	MJ, net calorific value	1,26 E+03	9,61 E+02	2,79 E+02	1,59 E+01	1,31 E+02	3,38 E+00	9,99 E+01	1,31 E+01	0,00 E+00	-2,30 E+03
Water (user) deprivation potential, deprivation weighted water consumption, WDP	m ³ world eq. deprived	1,56 E+01	1,35 E+01	1,65 E+00	4,21 E-01	1,76 E-01	4,52 E-03	3,33 E-01	1,75 E-02	0,00 E+00	-2,61 E+01

Use of resources per 1 m3 OrganoWood® product

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials, PERE	MJ, net calorific value	6,11 E+02	4,30 E+02	1,79 E+02	2,22 E+00	1,72 E+01	1,83 E-02	1,65 E+00	7,07 E-02	0,00 E+00	1,34 E+03
Use of renewable primary energy resources used as raw materials, PERM	MJ, net calorific value	8,10 E+03	8,10 E+03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Total use of renewable primary energy resources, PERT	MJ, net calorific value	8,71 E+03	8,53 E+03	1,79 E+02	2,22 E+00	1,72 E+01	1,83 E-02	1,65 E+00	7,07 E-02	0,00 E+00	1,34 E+03
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials, PENRE	MJ, net calorific value	1,29 E+03	9,95 E+02	2,79 E+02	1,59 E+01	1,31 E+02	3,58 E+00	1,06 E+02	1,39 E+01	0,00 E+00	-2,33 E+03
Use of non-renewable primary energy resources used as raw material, PENRM	MJ, net calorific value	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Total use of non-renewable primary energy resources, PENRT	MJ, net calorific value	1,29 E+03	9,95 E+02	2,79 E+02	1,59 E+01	1,31 E+02	3,58 E+00	1,06 E+02	1,39 E+01	0,00 E+00	-2,33 E+03



Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
Use of secondary material, SM	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Use of renewable secondary fuels, RSF	MJ, net calorific value	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Use of non-renewable secondary fuels, NRSF	MJ, net calorific value	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Net use of fresh water, FW	m ³	3,14 E-01	2,11 E-01	6,96 E-02	3,36 E-02	2,27 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

Waste production per 1 m3 OrganoWood® product

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
Hazardous waste disposed, HWD	kg	1,17 E-03	1,17 E-03	2,86 E-07	2,58 E-09	6,93 E-09	9,19 E-06	2,60 E-04	3,56 E-05	0,00 E+00	-4,08 E-04
Non-hazardous waste disposed, NHWD	kg	1,21 E+01	1,17 E+01	1,81 E-01	2,38 E-01	3,57 E-02	4,09 E-03	5,76 E+00	1,58 E-02	0,00 E+00	-8,25 E+00
Radioactive waste disposed, RWD	kg	1,02 E-02	9,11 E-03	5,58 E-04	5,49 E-04	2,18 E-04	2,34 E-05	6,73 E-04	9,07 E-05	0,00 E+00	-3,04 E-02



Output flows per 1 m3 OrganoWood® product

Parameter describing environmental impacts	Unit	A1-A3	A1	A2	A3	A4	C1	C2	C3	C4	D
Components for re-use (CRU)	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Materials for Recycling (MFR)	kg	2,78 E+00	2,78 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Material for Energy Recovery (MER)	Kg	3,33 E+00	1,24 E+00	0,00 E+00	2,09 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,89 E+02	0,00 E+00	0,00 E+00
Exported electrical energy (EEE)	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Exported thermal energy (EET)	MJ	5,63 E+01	5,63 E+01	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00



Additional information

Certifications and labels:

OrganoWood AB is certified under ISO 14001:2015 and ISO 9001:2015.

References




EPD International (2019) PCR 2019:14 Construction products. Version 1.11, date 2021-02-05.

CEN European Committee for Standardisation (2019). EN15804:2012+A2:2019 (CEN 2019), Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

Svenskt Trä (2021). EPD Swedish sawn and planed wood product. EPD Registration number: S-P-02657.

Gabi LCA software. The Gabi LCA software and corresponding database are provided by Sphera in Leinfelden-Echterdingen, Germany.

Contact information

EPD owner:	 OrganoWood® Email: info@organowood.com Telephone: +46 8 674 00 80 Address: Linjalvägen 9-11, SE-187 66 Täby
LCA author:	 Swedish Environmental Research Institute IVL Swedish Environmental Research Institute, Box 210 60 SE-100 31 Stockholm, www.ivl.se . Contact: simon.andersson@ivl.se
Programme operator:	 EPD® EPD International AB info@environdec.com

