Environmental Product Declaration

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

Nowa

from

OrganoWood AB

Programme:	The International EPD® System, www.environdec.com
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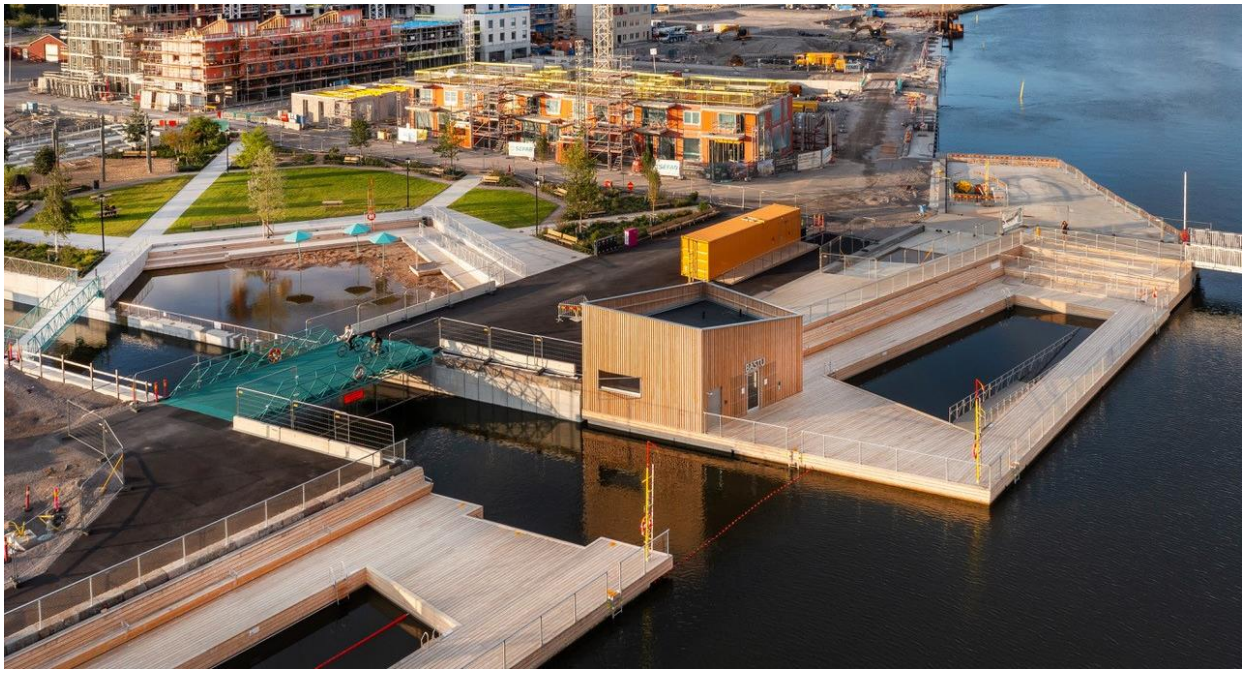
An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



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. Version 1.3.2*
PCR review was conducted by: *The Technical Committee of the International EPD® System. Chair: Claudia A. Peña. Contact via info@environdec.com*
Life Cycle Assessment (LCA)
LCA accountability: *Simon Andersson, IVL Swedish Environmental Research Institute*
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: *Martyna Mikusinska, Sweco Environment AB* 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:
OrganoWood AB

Contact:
info@organowood.com

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.

Product-related or management system-related certifications:
OrganoWood AB is certified under ISO 14001:2015 and ISO 9001:2015.

Name and location of production site(s):
Bitus AB / Nybro
Orreforsvägen 49
SE-382 94 Nybro
SWEDEN

Product information

Product name:
Nowa

Product description:
Planed wood of pine and spruce impregnated with zirconium acetate for roth prevention. Used in outdoor construction for instance patio, terasse and wood cladding with natural expression.

UN CPC code:
311

Geographical scope:
Sweden

LCA information

Declared unit:
1 m3 Nowa product.

The declared unit (1 m3) corresponds to a weight of 487 kg.

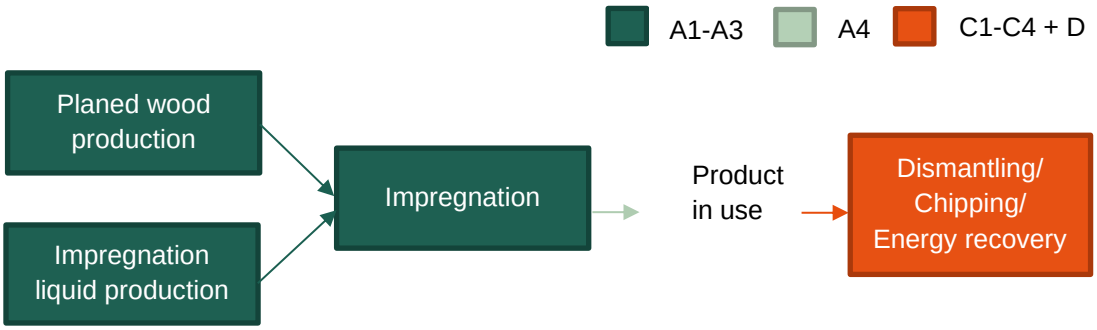
Estimated life span:
Nowa has an estimated life span of 15-20 years used as flooring and more than 25 years used as cladding. These estimations are based on results from SS-EN 113-2.

Time representativeness:
The data used to model product manufacturing corresponds to 2023. The generic data obtained from databases are from 2019 – 2022. No data used is older than 10 years.

Database(s) and LCA software used:
Databases used are Sphera (content version 2023.2) and ecoinvent (v3.9.1). The LCA software used is Sphera LCA for Experts (version 10.7).

Description of system boundaries:
The EPD is of type *Cradle to gate with options, modules C1–C4, module D and with optional modules.* Module A4 is included as an optional module. The production, maintenance, and after-use treatment of capital goods and infrastructure are excluded in the study.

System diagram:



Planed 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 Nowa product is incinerated.

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	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Global	Global	SE	SE	-	-	-	-	-	-	-	-	SE	SE	SE	SE	SE
Specific data used	10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Data quality:
Site-specific production data has been retrieved for 2023 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 product manufacturing (A3):
Planed wood from pine and spruce are impregnated with zirconium acetate containing impregnation liquid during high pressure in a vessel. Board packages are then brought to a warehouse for drying. Thereafter dried packages are ready to be delivered.

The impregnation process consumes electricity and electricity and HVO is used for internal transportation, e.g. forklifts. The electricity used is produced from 100% renewable sources (wind, hydro, solar and biomass). The resulting climate impact from this electricity, as modelled, is 0,0162 kg CO2 eq./kWh (GWP-GHG indicator).

Water is used in the process to dilute the impregnation liquid. The waste streams from the manufacturing site is limited to excess impregnation liquid which is sent for treatment.

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	89	85
	Planed wood, supplier 2: Truck	401	85
	Planed wood, supplier 3: Truck	493	85
	Planed wood, supplier 4: Truck	1 220	100
	Planed wood, supplier 5: Truck	30	100
	Impregnation liquid: Truck	440	100
	Internal transport: modelled based on consumed HVO and electricity		
Manufacturing to costumer (A4)	Truck	340	95
Customer to waste management (C2)	Results from sector EPD “Swedish sawn and planed wood product” used		

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. In modules C1-C4 the product is assumed to be dismantled, transported to an incineration facility and chipped, according to the sector EPD. Module D consist of energy recovery which is the most common way of waste treatment in Sweden according to the sector EPD.

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/declared unit
Planed wood	470	0	100 resp. 202
Impregnation	16,6	0	0 resp. 0
TOTAL	487	0	97 resp. 202
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/declared unit**
Plastics (film and straps)	0,158	0,0325	0
Wooden laths and blocks	5,44	1,12	2,34
TOTAL	5,60	1,15	2,34

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.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804[12]

Results per declared unit (1 m3 Nowa product)								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	9,70E+01	7,80E+00	2,45E-01	6,66E+00	9,49E-01	0,00E+00	-1,15E+02
GWP-biogenic	kg CO_2 eq.	-7,73E+02	2,75E-02	7,24E-04	1,22E-02	7,73E+02	0,00E+00	-2,54E-01
GWP-luluc	kg CO_2 eq.	4,58E-01	1,04E-01	1,93E-05	2,74E-03	7,48E-05	0,00E+00	-1,08E+00
GWP-total	kg CO_2 eq.	-6,84E+02	7,91E+00	2,45E-01	6,67E+00	7,74E+02	0,00E+00	-1,16E+02
ODP	kg CFC 11 eq.	2,04E-05	1,68E-15	5,30E-08	1,48E-06	2,05E-07	0,00E+00	-7,40E-06
AP	mol H^+ eq.	6,26E-01	1,44E-02	2,57E-03	2,02E-02	9,93E-03	0,00E+00	-3,84E-01
EP-freshwater	kg P eq.	2,70E-02	9,35E-05	8,81E-06	5,68E-04	3,41E-05	0,00E+00	-1,87E-02
EP-marine	kg N eq.	1,69E-01	4,78E-03	1,13E-03	4,28E-03	4,39E-03	0,00E+00	-2,03E-01
EP-terrestrial	mol N eq.	1,79E+00	6,40E-02	1,24E-02	4,68E-02	4,81E-02	0,00E+00	-1,22E+00
POCP	kg NMVOC eq.	5,23E-01	1,04E-02	3,42E-03	1,78E-02	1,32E-02	0,00E+00	-6,35E-01
ADP-minerals&metals*	kg Sb eq.	6,02E-04	9,44E-07	3,76E-07	2,15E-04	1,46E-06	0,00E+00	-2,64E-04
ADP-fossil*	MJ	2,01E+03	1,01E+02	3,38E+00	9,99E+01	1,31E+01	0,00E+00	-2,30E+03
WDP*	m^3	6,39E+01	1,68E-01	4,52E-03	3,33E-01	1,75E-02	0,00E+00	-2,61E+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							

** 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.*

[1] The “EN 15804 reference package” based on EF 3.0 has been used to obtain the results.

[2] The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

Additional mandatory and voluntary impact category indicators

Results per declared unit (1 m3 Nowa product)								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[3]	kg CO_2 eq.	9,56E+01	7,71E+00	2,42E-01	6,60E+00	9,39E-01	0,00E+00	-1,15E+02

Resource use indicators

Results per declared unit (1 m3 Nowa product)								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	3,45E+02	1,58E+01	1,83E-02	1,65E+00	7,07E-02	0,00E+00	1,34E+03
PERM	MJ	8,10E+03	0,00E+00	0,00E+00	0,00E+00	-8,10E+03	0,00E+00	0,00E+00
PERT	MJ	8,44E+03	1,58E+01	1,83E-02	1,65E+00	-8,10E+03	0,00E+00	1,34E+03
PENRE	MJ	2,04E+03	1,01E+02	3,58E+00	1,06E+02	1,39E+01	0,00E+00	-2,33E+03
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	2,05E+03	1,01E+02	3,58E+00	1,06E+02	1,39E+01	0,00E+00	-2,33E+03
SM	kg	0,00E+00	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
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,55E+00	2,12E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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							

[3] 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.

Waste indicators

Results per declared unit (1 m3 Nowa product)								
Indicator	**Unit**	**A1-A3**	**A4**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,17E-03	6,48E-09	9,19E-06	2,60E-04	3,56E-05	0,00E+00	-4,08E-04
Non-hazardous waste disposed	kg	1,20E+01	4,40E-02	4,09E-03	5,76E+00	1,58E-02	0,00E+00	-8,25E+00
Radioactive waste disposed	kg	1,13E-02	2,76E-04	2,34E-05	6,73E-04	9,07E-05	0,00E+00	-3,04E-02

Output flow indicators

Results per declared unit (1 m3 Nowa product)								
Indicator	**Unit**	**A1-A3**	**A4**	**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
Material for recycling	kg	2,78E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	3,24E+00	0,00E+00	0,00E+00	0,00E+00	4,89E+02	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	5,63E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Disclaimer: The A1-A3 result should not be used without considering the results of module C. This holds for all results reported above.

References

EPD International (2021), General Programme Instructions for the International EPD® System. Version 4.0, date 2021-03-29.

EPD International (2023) PCR 2019:14 Construction products. Version 1.3.2, date 2023-12-08.

CEN European Committee for Standardisation (2021). EN 15804:2012+A2:2019/AC:2021, 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.

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