

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Thermowood by Backegards Pine 21x142mm



Owner of the declaration:

Bäckegårds List AB

Product:

Thermowood by Backegards Pine 21x142mm

Declared unit:

1 m²

This declaration is based on Product Category Rules:

EN 15804:2012+A2:2019 serves as core PCR
NPCR 015:2021 Part B for wood and wood-based
products for use in construction

Program operator:

EPD-Global

Declaration number:

Issue date:

Valid to:

EPD software:

LCAno EPD generator ID: 1453451

General information

Product

Thermowood by Backegards Pine 21x142mm

Program operator:

EPD-Global
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Phone: +47 977 22 020
web: www.epd-global.com

Declaration number:

This declaration is based on Product Category Rules:

EN 15804:2012+A2:2019 serves as core PCR
NPCR 015:2021 Part B for wood and wood-based products for use in construction

Statement of liability:

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

Declared unit:

1 m² Thermowood by Backegards Pine 21x142mm

Declared unit with option:

A1-A3, A4, A5, B2, C1, C2, C3, C4, D

Functional unit:

The results in this EPD apply to one square meter of exterior 21×142 mm cladding made of Thermowood pine

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Global's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Alexander Borg, Asplan Viak AS

(no signature required)

Owner of the declaration:

Bäckegårds List AB
Contact person: Adam Hansen
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e-mail: info@backegards.se

Manufacturer:

Bäckegårds List AB

Place of production:

Bäckegårds List AB
Hestravägen 20
333 77 Burseryd, Sweden

Management system:

ISO 9001, 14001 og 45001. FSC, PEFC and Svanen.

Organisation no:

556292-3408

Issue date:

Valid to:

Year of study:

2023

Comparability:

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

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD-Global. NEPDT204

Developer of EPD: Adam Hansen

Reviewer of company-specific input data and EPD: Andreas Sveningsson

Approved:

Product

Product description:

Planned exterior façade cladding in Thermowood pine. The product is manufactured from pine that has been modified through a thermal treatment process to enhance its natural resistance to biological degradation. The product is ready for installation upon delivery to the construction site. More detailed information on handling and care of the product can be found in the FDU and installation instructions.

Product specification

The product is 100% manufactured in Sweden. The pine raw material is sourced from responsibly managed Swedish forests that are PEFC-certified. The certified Thermowood treatment is carried out by Heatwood in close proximity to where the raw material is harvested and further processed into sawn timber. Heatwood uses exclusively renewable energy sources in its thermal treatment process. Natural variations in the product's properties may occur due to the individual growth conditions of each tree.

Materials	kg	%
Wood	9.20	100.00
Total	9.20	100.00

Packaging	kg	%
Packaging - Plastic	0.0088	84.62
Packaging - Plastic straps	0.0016	15.38
Total incl. packaging	9.21	100.00

Technical data:

The table below declares the essential properties of the product

Property	Performance
Density (kg/m ³)	390-520
Moisture content	4-8%
Reaction to fire	D-s1,d0
Linear metres per m ²	7,69
Biological durability NS-EN 350-2	2
Thickness	21mm

Market:

SE, NO, NL

Reference service life, product

Expected service life: at least 50 years

Reference service life, building or construction works

Expected service life: at least 50 years

LCA: Calculation rules

Declared unit:

1 m² Thermowood by Backegards Pine 21x142mm

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

Allocation is made in accordance with the provisions of EN 15804. In the forestry, harvester and forwarder processes are not considered joint-co processes and are sub-divided for all relevant assortments. For all other forestry management operations in the forest, these are allocated to the primary product of industrial roundwood (sawlog, pulpwood) only and nothing to energy wood or forest residues. At sawmills, input energy, water, waste, auxiliary materials and internal transport are divided into sub-processes and then allocated according to income between the main and by-products in intermediary processes. Environmental impact and resource consumption for the primary production of recycled materials is allocated to the original product system.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

All data for the product composition are provided by the manufacturer, were collected during the winter of 2023/24, and are based on production data applicable to 2023. Background data are based on EPDs in accordance with EN 15804 and various LCA databases.

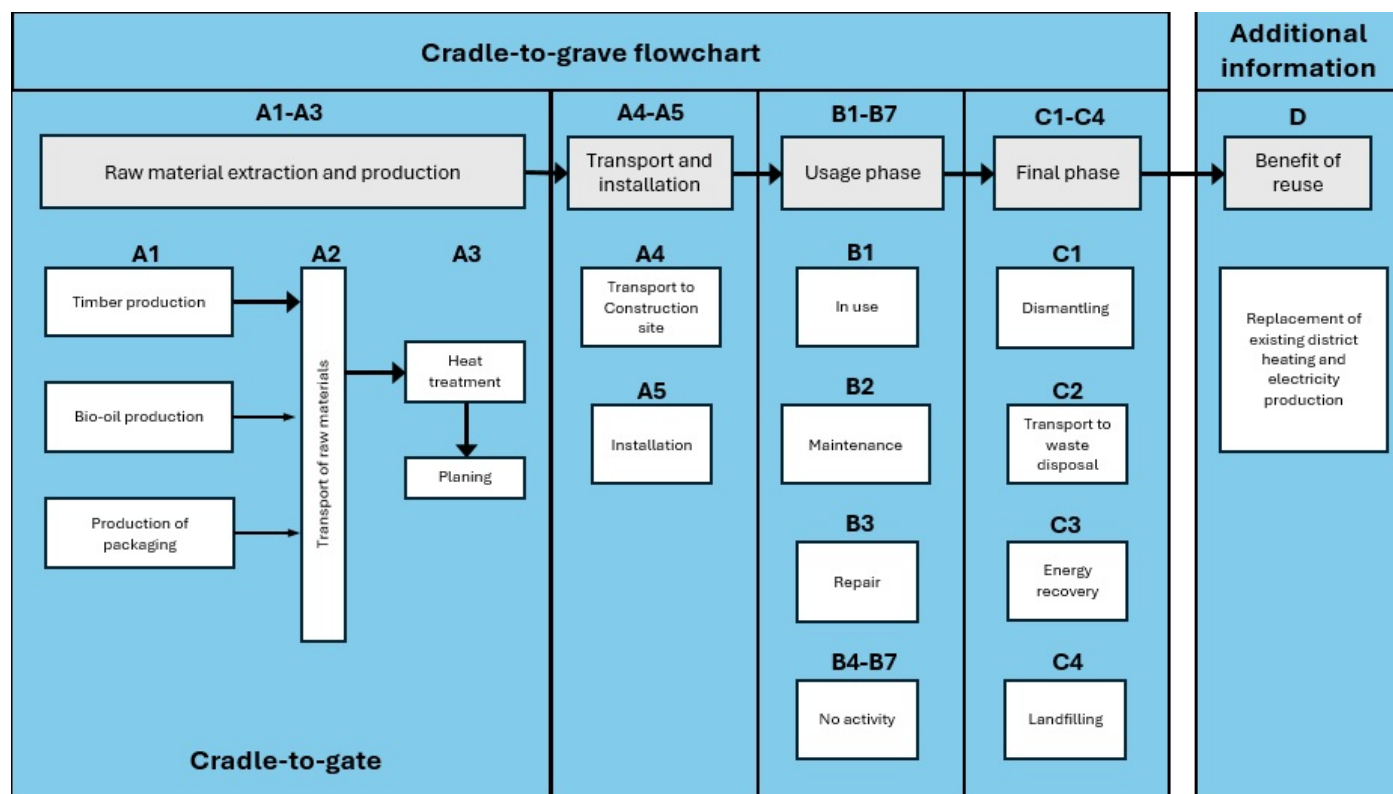
Materials	Source	Data quality	Year
Packaging - Plastic	ecoinvent 3.10.1	Database	2023
Packaging - Plastic straps	ecoinvent 3.10.1	Database	2023
Wood	NEPD-4006-2856-EN	EPD	2021

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

Product stage			Construction installation 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	X	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

According to the flow chart below.



Additional technical information:

LCA: Scenarios and additional technical information

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

A3: 5% material waste in production.

A4: 155 km Euro 6 truck to Helsingborg port, then 2,600 km ferry to Iceland customer.

A5: Energy recovery of offcuts and packaging waste.

B1: No resource consumption or environmental impact during use.

B2: Façade washing as needed, approximately every 5th year. Negligible energy use. Minor water consumption.

B3: N/A.

B4: N/A.

B5: Any damaged panels are replaced during annual inspection. Estimated waste < 1%.

C1: The product is dismantled when the façade is worn and needs replacement.

C2: Transport to the nearest recycling station for untreated wood. 85 km transport.

C3: Energy recovery of untreated wood through combustion.

C4: Disposal of ash.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Ship, Ferry, Sea (km)	50.0 %	2750.00	0.034	l/tkm	93.50
Truck, 16-32 tonnes, EURO 6 (km)	38.8 %	155.00	0.044	l/tkm	6.82
Assembly (A5)	Unit	Value			
Waste, packaging, PET straps, to average treatment (kg)	kg	0.0016			
Waste, packaging, plastic film (LDPE), to average treatment (kg)	kg	0.0088			
Maintenance (B2)	Unit	Value			
Water (kg)	kg	5.00			
Detergent (kg)	kg	0.20			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 5 (km)	38.8 %	85.00	0.045	l/tkm	3.83
Waste processing (C3)	Unit	Value			
Avfallsbehandling ubehandlet tre, 0% vann, forbrenning, Norge (kg)	kg	9.20			
Disposal (C4)	Unit	Value			
Avfallsbehandling ubehandlet tre, 0% vann, deponering av aske, Norge (kg)	kg	9.20			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0.00001209			
Substitution of electricity, in Norway (MJ)	MJ	0.000000799			
Avfallsbehandling ubehandlet tre, 0% vann, substitusjon av elektrisitet og varme, Norge (kg)	kg	9.20			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact											
Indicator		Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
	GWP-total	kg CO ₂ -eq	-1.04E+01	3.69E+00	8.24E-04	1.51E-01	0	1.70E-01	1.46E+01	5.49E-03	-8.67E-01
	GWP-fossil	kg CO ₂ -eq	3.36E+00	3.69E+00	8.24E-04	1.48E-01	0	1.70E-01	1.16E-01	5.49E-03	-8.64E-01
	GWP-biogenic	kg CO ₂ -eq	-1.38E+01	2.34E-04	1.14E-07	6.33E-04	0	1.29E-04	1.45E+01	2.83E-06	-1.21E-10
	GWP-luluc	kg CO ₂ -eq	4.05E-02	1.76E-03	6.32E-08	2.89E-03	0	5.99E-05	3.63E-05	8.51E-07	-2.48E-03
	ODP	kg CFC11 -eq	1.03E-07	6.32E-08	5.00E-11	4.77E-09	0	3.51E-09	7.44E-09	6.35E-10	-1.03E-07
	AP	mol H+ -eq	2.33E-02	1.01E-01	1.02E-06	7.04E-04	0	5.30E-04	1.72E-03	2.01E-05	-6.61E-03
	EP-FreshWater	kg P -eq	4.83E-04	1.17E-04	1.70E-09	9.54E-06	0	1.12E-05	2.29E-06	7.14E-08	-2.86E-05
	EP-Marine	kg N -eq	8.18E-03	2.55E-02	9.29E-07	1.38E-04	0	1.79E-04	8.41E-04	6.48E-06	-2.60E-03
	EP-Terrestrial	mol N -eq	8.53E-02	2.83E-01	3.64E-06	1.54E-03	0	1.95E-03	8.93E-03	7.32E-05	-2.95E-02
	POCP	kg NMVOC -eq	2.14E-02	7.70E-02	1.20E-06	6.82E-04	0	8.32E-04	2.17E-03	2.03E-05	-7.60E-03
	ADP-minerals&metals ¹	kg Sb-eq	2.40E-03	3.99E-06	4.39E-09	2.43E-06	0	5.55E-07	3.15E-07	9.38E-09	-9.82E-06
	ADP-fossil ¹	MJ	9.15E+01	4.57E+01	3.40E-03	4.09E+00	0	2.38E+00	7.80E-01	5.41E-02	-1.20E+01
	WDP ¹	m ³	2.83E+00	1.28E-01	1.20E-02	1.12E-01	0	1.17E-02	2.62E-02	2.94E-04	-2.55E-01

GWP-total = Global Warming Potential total; 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

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator

Remarks to environmental impacts

The LCA results in the EPD are calculated using a specific methodological approach for accounting energy resources, see the additional requirements section for more information. In this EPD the following approach was used: Location-based approach.

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
 PM	Disease incidence	1.13E-04	1.08E-07	1.80E-11	6.18E-09	0	1.32E-08	2.08E-08	2.67E-10	-4.84E-07
 IRP ²	kgBq U235 -eq	3.37E+00	2.23E-02	1.54E-05	5.41E-03	0	3.04E-03	2.16E-03	2.52E-04	-7.10E-02
 ETP-fw ¹	CTUe	3.94E+01	3.50E+00	3.24E-03	3.31E+00	0	3.13E-01	2.36E+00	9.21E-02	-5.72E+01
 HTP-c ¹	CTUh	1.12E-08	0.00E+00	0.00E+00	1.61E-10	0	0.00E+00	4.42E-10	9.00E-12	-1.13E-09
 HTP-nc ¹	CTUh	4.05E-07	3.20E-09	3.00E-12	1.48E-09	0	1.75E-09	1.93E-08	1.56E-10	-3.47E-08
 SQP ¹	dimensionless	2.65E+02	5.67E+00	5.93E-03	6.99E-01	0	1.42E+00	1.83E+00	9.29E-02	-2.05E+02

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

1. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Resource use											
Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D	
 PERE	MJ	3.50E+02	3.60E-01	8.58E-05	1.91E-01	0	4.12E-02	1.77E+02	2.96E-03	-7.68E+01	
 PERM	MJ	1.50E+02	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	-1.50E+02	0.00E+00	0.00E+00	
 PERT	MJ	5.00E+02	3.60E-01	8.58E-05	1.91E-01	0	4.12E-02	2.71E+01	2.96E-03	-7.68E+01	
 PENRE	MJ	9.11E+01	4.57E+01	3.40E-03	4.10E+00	0	2.38E+00	7.80E-01	5.41E-02	-1.20E+01	
 PENRM	MJ	4.73E-01	0.00E+00	-4.10E-01	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
 PENRT	MJ	9.15E+01	4.57E+01	-4.07E-01	4.10E+00	0	2.38E+00	7.80E-01	5.41E-02	-1.20E+01	
 SM	kg	2.26E-04	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
 RSF	MJ	5.29E-04	6.48E-05	2.25E-06	6.75E-08	0	1.38E-05	3.96E-01	0.00E+00	-5.14E+01	
 NRSF	MJ	0.00E+00	0.00E+00	5.89E-06	0.00E+00	0	0.00E+00	2.52E-01	0.00E+00	-3.27E+01	
 FW	m ³	2.28E-01	3.21E-03	1.80E-06	8.02E-03	0	3.21E-04	3.24E-03	4.99E-05	-2.70E-01	

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 materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9.0 E-03 = $9.0 \cdot 10^{-3}$ = 0.009"

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
	HWD	kg	9.03E-02	5.65E-02	0.00E+00	6.32E-04	0	3.42E-03	1.01E-03	1.14E-01	-6.32E-03
	NHWD	kg	2.78E+00	8.07E-01	1.04E-02	6.30E-02	0	7.21E-02	2.86E-02	4.30E-02	-3.26E-01
	RWD	kg	1.17E-02	1.37E-03	0.00E+00	4.28E-06	0	7.55E-07	2.42E-06	3.27E-07	-4.96E-05

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

End of life - Output flow

Indicator		Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	4.90E-02	0.00E+00	5.31E-03	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MER	kg	1.48E-10	0.00E+00	5.20E-07	0.00E+00	0	0.00E+00	1.11E+01	0.00E+00	0.00E+00
	EEE	MJ	1.15E-05	0.00E+00	7.99E-07	0.00E+00	0	0.00E+00	1.79E+01	0.00E+00	0.00E+00
	EET	MJ	4.84E-05	0.00E+00	1.21E-05	0.00E+00	0	0.00E+00	1.24E+02	0.00E+00	0.00E+00

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9.0 E-03 = 9.0×10^{-3} = 0.009"

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	3.95E+00
Biogenic carbon content in accompanying packaging	kg C	0.00E+00

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

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

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

Electricity mix	Source	Amount	Unit	GWP _{total} [kg CO ₂ /Unit]	SUM [kg CO ₂]
Location-based approach.					
Electricity, Sweden, low voltage (kWh)	ecoinvent 3.10.1	9.45E+00	kWh	3.77E-02	3.56E-01
Market-based approach.					
Electricity, Sweden, low voltage, residual mix	ecoinvent 3.10.1	9.45E+00	kWh	6.55E-02	6.18E-01

"Reading example: 9.0 E-03 = 9.0*10⁻³ = 0.009"

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

N/A

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products										
Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	C4	D
GWPIOBC	kg CO ₂ -eq	3.38E+00	3.69E+00	8.24E-04	1.51E-01	0	1.70E-01	1.17E-01	5.49E-03	-8.97E-01

GWP-IOBC: Global warming potential calculated according to the principle of instantaneous oxidation. In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Bibliography

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 ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products.
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 NPCR 015 Part B for wood and wood-based products , Ver. 4.0, 07.10.2021, EPD Norway.
 Declaration of Performance (DoP): DOP-TMW-01-v2

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