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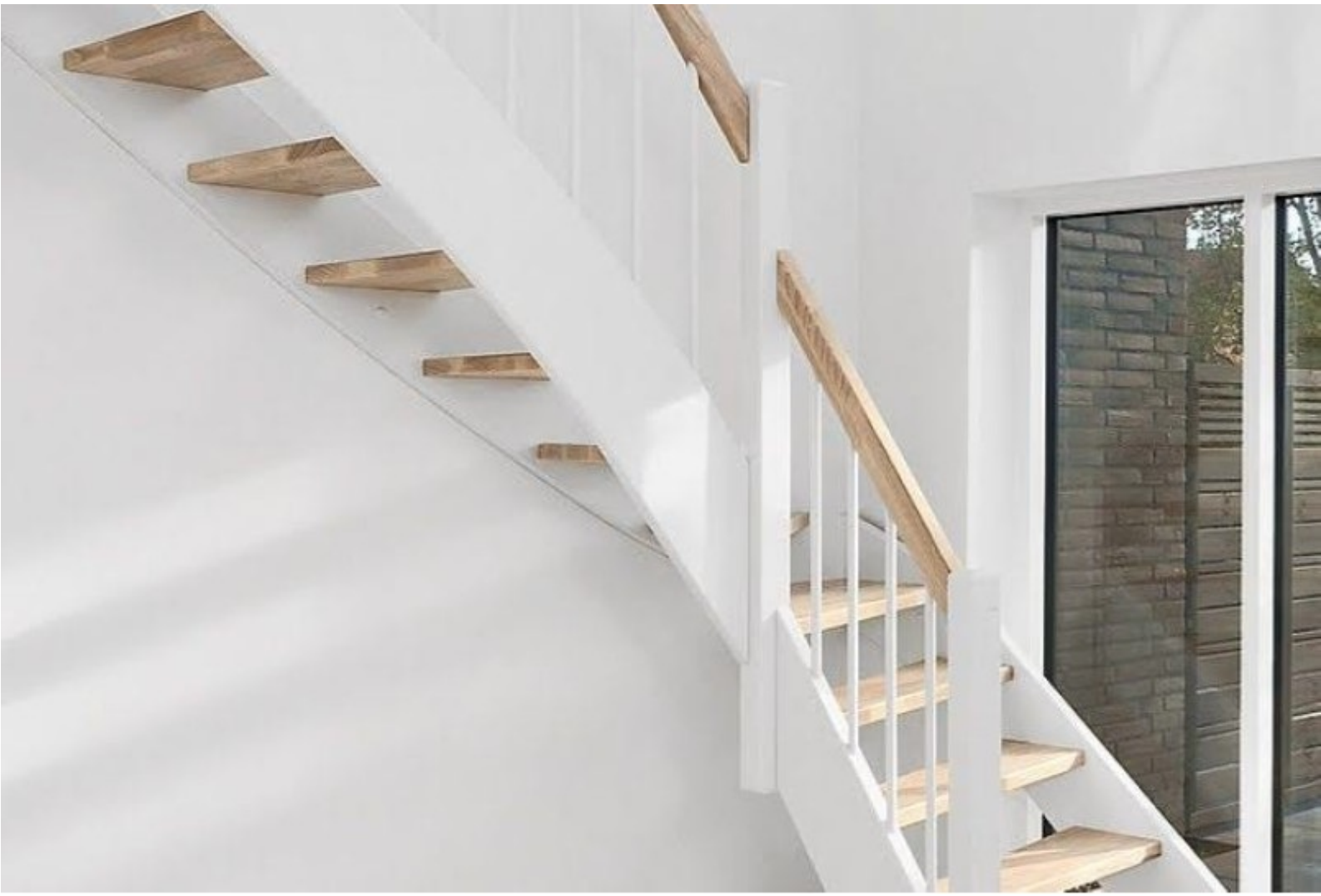
Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Straight staircase and Quarter-turn staircase without risers, with and without railing on one side



EPD-Global

Owner of the declaration:
Sindal Trappen ApS

Product:
Straight staircase and Quarter-turn staircase without risers, with and without railing on one side

Declared unit:
1 pcs

This declaration is based on Product Category Rules:
CEN Standard 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:
NEPD-12998-14269

Issue date:
10.11.2025

Valid to:
10.11.2030

EPD software:
LCAno EPD generator ID: 1285113

General information

Product

Straight staircase and Quarter-turn staircase without risers, with and without railing on one side

Owner of the declaration:

Sindal Trappen ApS
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Manufacturer:

Sindal Trappen ApS

Declaration number:

NEPD-12998-14269

Place of production:

Sindal Trappen ApS
Spurvevej 10
9870 Sindal, Denmark

This declaration is based on Product Category Rules:

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

Management system:

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.

Organisation no:

DK32663443

Declared unit:

1 pcs Straight staircase and Quarter-turn staircase without risers, with and without railing on one side

Issue date:

10.11.2025

Declared unit with option:

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

Valid to:

10.11.2030

Year of study:

Functional unit:

1 unit of manufactured staircase, installed and waste treated at end-of-life

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

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

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.

Developer of EPD: Emil Pedersen - Nordic LCA

Reviewer of company-specific input data and EPD: Børge Heggen Johansen, Energiråd AS

Verification of EPD tool:

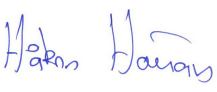
Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Alexander Borg, Asplan Viak AS

(no signature required)

Approved:



Håkon Hauan, CEO EPD-Global

Product

Product description:

Wooden staircase for indoor housing with a width of 90–95 cm. The staircase is made of solid wood.

Product specification

The staircase is constructed from solid wood, primarily pine and oak. Additional wood types may also be included. Adhesives, metal fasteners, and surface treatments are used in the production to ensure stability, durability, and a high-quality finish.

Materials	kg	%
Chemical	8.00	2.97
Glue for wood	1.50	0.556
Metal - Stainless steel	0.10	0.03706
Wood - Solid oak	100.10	37.10
Wood - Solid pine	160.10	59.34
Total	269.80	100.00

Technical data:

Wood materials: Solid pine and oak.
Adhesives: High-strength glue suitable for indoor staircase applications.
Fasteners: Metal screws provide reinforcement and secure assembly.
Surface treatment: Protective coatings applied for durability, aesthetics, and resistance to wear.
Production quality: All wood is processed and finished to meet requirements for indoor housing staircases with a width of 90–95 cm

Market:

Denmark

Reference service life, product

50 years

Reference service life, building or construction works

LCA: Calculation rules

Declared unit:

1 pcs Straight staircase and Quarter-turn staircase without risers, with and without railing on one side

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:

The allocation is made in accordance with the provisions of EN 15804. In forestry, economic allocation between sawn timber and solid wood is used. At sawmills, energy, water, waste, materials and internal transport are divided into sub-processes and then allocated according to income between the main and secondary products. 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.

Materials	Source	Data quality	Year
Chemical	ecoinvent 3.6	Database	2019
Glue for wood	ecoinvent 3.6	Database	2019
Metal - Stainless steel	Modified ecoinvent 3.6	Database	2019
Wood - Solid oak	modified ecoinvent 3.6	Database	2019
Wood - Solid pine	modified ecoinvent 3.6	Database	2019

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	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

This Environmental Product Declaration (EPD) is based on a cradle-to-grave approach and includes the following life cycle modules, in accordance with EN 15804:

A1–A3 (Product stage):
Covers the extraction and processing of raw materials, transportation of materials to the production site, and the manufacturing of the staircase components. This includes the processing of solid wood, adhesives, metal fasteners, and surface treatments.

A4 (Transport):
Accounts for the transportation of the finished staircase from the production site to the place of installation.

A5 (Construction/installation):
Includes the activities related to on-site installation of the staircase, such as handling, assembly, use of fasteners and adhesives, and disposal of packaging materials.

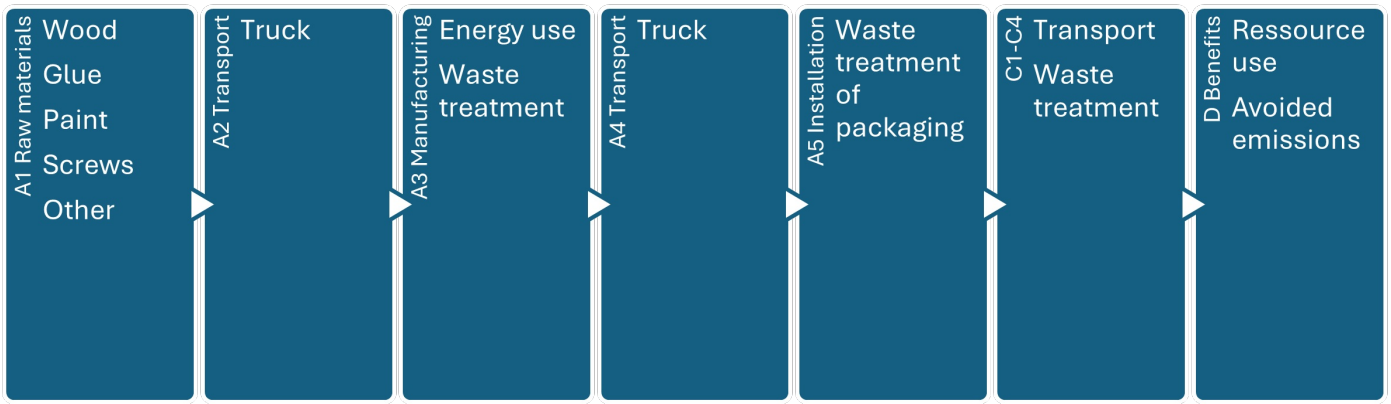
C1 (Deconstruction/demolition):
Refers to the dismantling of the staircase at the end of its service life.

C2 (Transport):
Covers the transport of dismantled materials to waste treatment or recycling facilities.

C3 (Waste processing):
Includes processes such as sorting, shredding, and other pre-treatment before final disposal or recycling.

C4 (Disposal):
Accounts for the final disposal of materials not suitable for recycling or energy recovery (e.g., landfill or incineration without energy use).

D (Benefits and loads beyond the system boundary):
Considers potential benefits and avoided impacts from the recycling and energy recovery of materials, such as reuse of wood in secondary applications or energy generation from waste wood, as well as metal recycling.



Additional technical information:

LCA: Scenarios and additional technical information

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

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Van, diesel, Mercedes Sprinter, 2.5t/cap 1.15t (kgkm) - RER	19.7 %	300.00	0.416	l/tkm	124.80

De-construction demolition (C1)	Unit	Value			
Demolition of building per kg (kg) - GLO - C1	kg	269.90			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, unspecified (kgkm) - RER	48.7 %	50.00	0.051	l/tkm	2.55

Waste processing (C3)	Unit	Value			
Waste treatment per kg Wood, incineration with fly ash extraction (kg)	kg	269.90			
Balancing waste - RPEM (MJ) - (Type 4)	MJ	5059.88			
Balancing waste - Biogenic carbon in product (kg) - (Type 4)	kg	426.81			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Wood, process per kg ashes and residues (kg)	kg	3.10			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of Electricity, Denmark (kWh)	kWh	187.70			
Substitution of District heating, Denmark (MJ)	MJ	2839.69			

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	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	-2.65E+02	1.62E+02	0	3.56E-01	1.78E+00	4.30E+02	1.33E-01	-1.35E+02
	GWP-fossil	kg CO_2 -eq	1.61E+02	1.61E+02	0	3.56E-01	1.78E+00	3.31E+00	1.33E-01	-1.34E+02
	GWP-biogenic	kg CO_2 -eq	-4.27E+02	1.43E-01	0	6.67E-05	7.62E-04	4.27E+02	7.24E-05	-2.76E-01
	GWP-luluc	kg CO_2 -eq	1.27E+00	7.87E-02	0	2.80E-05	6.29E-04	5.04E-04	2.15E-05	-1.57E-01
	ODP	kg CFC11 -eq	1.40E-05	3.01E-05	0	7.69E-08	4.05E-07	2.76E-07	1.58E-08	-4.89E-06
	AP	mol H+ -eq	8.93E-01	7.74E-01	0	3.72E-03	1.01E-02	4.23E-02	4.96E-04	-8.43E-01
	EP-FreshWater	kg P -eq	1.68E-02	3.08E-03	0	1.30E-06	1.46E-05	5.52E-05	1.78E-06	-8.40E-03
	EP-Marine	kg N -eq	2.13E-01	1.93E-01	0	1.64E-03	3.62E-03	2.03E-02	1.57E-04	-1.39E-01
	EP-Terrestial	mol N -eq	2.58E+00	2.16E+00	0	1.80E-02	3.99E-02	2.15E-01	1.78E-03	-1.93E+00
	POCP	kg NMVOC -eq	8.88E-01	6.78E-01	0	4.96E-03	1.14E-02	5.28E-02	4.94E-04	-4.23E-01
	ADP-minerals&metals[1]	kg Sb-eq	2.29E-03	1.46E-02	0	5.46E-07	4.60E-05	1.34E-05	8.32E-07	-7.67E-04
	ADP-fossil[1]	MJ	2.30E+03	2.30E+03	0	4.90E+00	2.73E+01	2.64E+01	1.32E+00	-1.58E+03
	WDP[1]	m^3	4.07E+04	2.89E+03	0	1.04E+00	2.58E+01	6.41E+01	1.22E+01	-1.57E+04

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

Additional environmental impact indicators									
Indicator		**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
	PM	Disease incidence	2.11E-05	7.13E-06	0	9.85E-08	1.62E-07	4.41E-07	6.46E-09	-7.18E-06
	IRP[2]	kgBq U235 -eq	1.24E+01	9.26E+00	0	2.10E-02	1.19E-01	5.12E-02	6.12E-03	-5.29E+00
	ETP-fw[1]	CTUe	4.28E+03	3.29E+03	0	2.68E+00	2.04E+01	5.25E+01	2.21E+00	-4.33E+03
	HTP-c[1]	CTUh	1.81E-07	1.62E-07	0	0.00E+00	0.00E+00	9.45E-09	1.09E-10	-5.98E-08
	HTP-nc[1]	CTUh	3.34E-06	3.08E-06	0	2.43E-09	2.70E-08	4.66E-07	3.98E-09	-1.98E-06
	SQP[1]	dimensionless	2.37E+04	9.77E+02	0	6.22E-01	2.33E+01	3.91E+00	4.16E+00	-7.16E+03

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	C1	C2	C3	C4	D
	PERE	MJ	6.85E+03	6.52E+01	0	2.65E-02	3.91E-01	8.70E-01	6.99E-02	-2.00E+03
	PERM	MJ	5.06E+03	0.00E+00	0	0.00E+00	0.00E+00	-5.06E+03	0.00E+00	0.00E+00
	PERT	MJ	1.19E+04	6.52E+01	0	2.65E-02	3.91E-01	-5.06E+03	6.99E-02	-2.00E+03
	PENRE	MJ	2.30E+03	2.30E+03	0	4.90E+00	2.73E+01	2.64E+01	1.32E+00	-1.58E+03
	PENRM	MJ	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	2.30E+03	2.30E+03	0	4.90E+00	2.73E+01	2.64E+01	1.32E+00	-1.58E+03
	SM	kg	6.48E-03	0.00E+00	0	2.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	RSF	MJ	4.51E+01	1.65E+00	0	6.52E-04	1.39E-02	2.03E-02	1.74E-03	-3.21E+01
	NRSF	MJ	9.45E-01	-9.51E+00	0	9.59E-03	4.89E-02	0.00E+00	9.56E-01	-4.03E-01
	FW	m^3	5.24E+00	5.35E-01	0	2.52E-04	3.09E-03	5.49E-02	1.21E-03	-3.19E+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 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*10-3 = 0.009"

End of life - Waste

Indicator		Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
	HWD	kg	9.11E-01	5.99E-01	0	1.44E-04	1.47E-03	0.00E+00	2.25E+00	-2.91E-01
	NHWD	kg	3.87E+01	6.57E+01	0	5.80E-03	1.69E+00	0.00E+00	8.51E-01	-9.43E+00
	RWD	kg	1.03E-02	1.36E-02	0	3.40E-05	1.85E-04	0.00E+00	6.50E-06	-1.41E-03

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	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	1.06E-01	0.00E+00	0	2.36E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MER	kg	7.23E-06	0.00E+00	0	7.32E-06	0.00E+00	2.70E+02	0.00E+00	0.00E+00
	EEE	MJ	4.10E-05	0.00E+00	0	2.51E-05	0.00E+00	1.88E+02	0.00E+00	0.00E+00
	EET	MJ	6.20E-04	0.00E+00	0	3.80E-04	0.00E+00	2.84E+03	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	1.17E+02
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).

Electricity mix	Source	Amount	Unit
Electricity, Denmark (kWh)	ecoinvent 3.6	338.20	g CO2-eq/kWh

Dangerous substances

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

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products									
Indicator	**Unit**	A1-A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	2.05E+02	1.62E+02	0	3.56E-01	1.78E+00	3.34E+00	1.38E-01	-1.59E+02

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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NPCR Part A: Construction products and services. Ver. 2.0, 24.03.2021 EPD Norway.
NPCR 015 Part B for wood and wood-based products , Ver. 4.0, 07.10.2021, EPD Norway.

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