

Owner: Kronospan ApS
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3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration

Kronospan ApS
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Issued:
21-06-2021

Valid to:
21-06-2026

Programme operator

Danish Technological Institute
www.dti.dk



Basis of calculation

This EPD is developed in accordance with the European standards EN 15804+A1.

Programme

EPD Danmark
www.epddanmark.dk



Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Declared products

Spaandex particle boards, type P1 8-40 mm, P2 8-40 mm, P4 25 mm and P6 22 mm

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

Production site

Kronospan ApS in Pindstrup, Denmark

EPD type

- Cradle-to-gate
- Cradle-to-gate with options
- Cradle-to-grave


Products use

Particle boards P1 and P2 are for different interior uses. P4 is particle boards for construction - mainly heated floors, whereas P6 particle boards are primarily for ordinary floors and secondly for heated floors.

Declared unit

1 kg Spaandex particle boards in various dimensions.

Results can be recalculated into m² by using information about the specific thickness and density of the products.

CEN standard EN 15804 serves as the core PCR
Independent verification of the declaration and data, according to EN ISO 14025
<input type="checkbox"/> internal <input checked="" type="checkbox"/> external
Third party verifier:  <hr/> David Althoff Palm, Ramboll



Henrik Fred Larsen
EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use								End of life			Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Wood	82-86
Glue	6-10
Water	6-8
Urea	<1%
Hardener	<0.5
Paraffin emulsion	<0.5

The wood is primarily from recycled sources.

Representativity

This declaration, including data collection and the modeled foreground system and results, represents the specified products from a single Kronospan ApS production site in Denmark. One distribution scenario in Denmark and one in Sweden is included. The end-of-life represents disposal by incineration in these countries. Background data are based on GaBi ts database content version 2021.1 and are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Dangerous substances

The particle boards do not contain substances listed in the "Candidate List of Substances of Very High Concern for authorisation"

(<http://echa.europa.eu/candidate-list-table>)

Essential characteristics (CE)

The products are covered by the standard EN 1991-1-1:2007.

Reference Service Life (RSL)

No RSL is declared. This EPD is based on a cradle-to-gate with options assessment and does not include the use stage.

LCA background

Declared unit

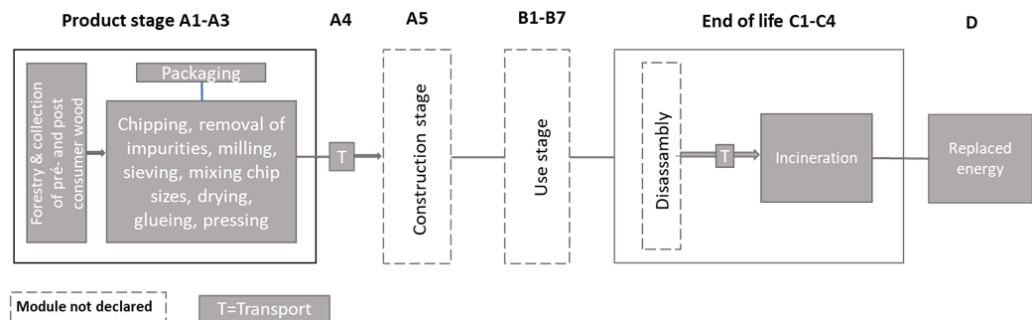
The LCI and LCIA results in this EPD relates to one kilogram of recycled particle boards of varying dimensions.

Name	Value	Unit
Declared unit	1	kg
Density	550-750	kg/m ³

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804 and where relevant the PCR EN16485.

Flow diagram



System boundaries

This EPD is based on a cradle-to-gate with options LCA.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes. In practice, only very minor materials or energy that are far below 1% was excluded.

Product stage (A1-A3) includes:

- A1 – Extraction and processing of raw materials
- A2 – Transport to the production site
- A3 – Manufacturing processes

The product stage comprises acquisition of wood primarily from post-consumer and to some extent pré-consumer wood. Post-consumer wood comes from recycling centrals and similar. The pré-consumer wood comes from production sites, such as for example furniture producers who cannot use the wood themselves. Smaller inputs of primary wood from forests and residual wood from saw mills is also used. The product stage also comprises acquisition of other raw materials and energy, transport to the production site, packaging and waste processing up to the “end-of-waste”

state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

Production processes in Denmark includes cleaning of the wood, chipping, sieving, milling, mixing, drying, glueing, pressing and packing. Data for production was collected for the year 2020.

Construction process stage (A4-A5) includes:

A4 – Transport to the building site, where two distribution scenarios are included – one applicable for Denmark and the other is applicable for Sweden:

Construction wood transport to building site			
Type of transport and payload capacity	Capacity utilized incl. return (%)	Distance (km)	Diesel consumption (l/tonkm)
Truck (25t)	61	200 (DK) 1000 (SE)	2.2E-2

A5 – Module A5 is not included, but packaging materials are disposed of in this module. Different packaging solutions can be used and the applied average includes 12 gram joists, 1 gram cardboard and 0.58 gram plastic material.

End of life stage (C1-C4) includes:

C2-C3 – Transportation and waste processing:

The end-of-life route scenarios in Denmark and in Sweden are both by 100% collection with mixed construction waste for incineration of the products with energy recovery. In practice, it is known that a part of the products are recycled, but the exact ratio is not known. Transport from building site to incineration assumes a 100km transport distance. There is no disposal in C4.

Benefits and loads beyond the system boundaries (D) includes:

For the recovered energy during incineration in Module C, Module D includes net impacts and benefits from avoided Danish or Swedish average electricity production and thermal energy recovery.

LCA results

ENVIRONMENTAL IMPACTS PER KG										
Parameter	Unit	A1-A3	A4 (DK)	A4 (SE)	C2	C3 (DK)	C3 (SE)	C4	D (DK)	D (SE)
GWP-fossil	[kg CO ₂ -eq.]	1.81E-01	1.28E-02	6.40E-02	8.13E-03	1.19E-01	1.16E-01	0.00E+00	-9.21E-01	-7.53E-01
GWP	[kg CO ₂ -eq.]	-1.36E+00	1.28E-02	6.40E-02	8.13E-03	1.66E+00	1.66E+00	0.00E+00	-9.21E-01	-7.53E-01
ODP	[kg CFC11-eq.]	7.60E-10	2.22E-18	1.11E-17	1.41E-18	3.56E-16	2.25E-16	0.00E+00	-3.33E-14	-6.02E-16
AP	[kg SO ₂ -eq.]	3.69E-04	2.81E-05	1.41E-04	1.96E-05	2.18E-04	2.02E-04	0.00E+00	-1.08E-03	-2.18E-04
EP	[kg PO ₄ ³⁻ -eq.]	1.24E-04	6.80E-06	3.40E-05	4.77E-06	4.21E-05	3.91E-05	0.00E+00	-2.29E-04	-4.24E-05
POCP	[kg ethene-eq.]	3.68E-05	-1.00E-05	-5.00E-05	-7.23E-06	1.50E-05	1.47E-05	0.00E+00	-1.14E-04	-4.00E-05
ADPE	[kg Sb-eq.]	7.77E-08	9.93E-10	4.96E-09	6.33E-10	4.45E-09	3.26E-09	0.00E+00	-3.87E-07	-2.10E-08
ADPF	[MJ]	3.55E+00	1.72E-01	8.62E-01	1.10E-01	3.82E-01	3.49E-01	0.00E+00	-1.01E+01	-1.31E+01
Caption	GWP = Global warming potential; ODP = Ozone depletion potential; AP = Acidification potential of soil and water; EP = Eutrophication potential; POCP = Photochemical ozone creation potential; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources									

RESOURCE USE PER KG										
Parameter	Unit	A1-A3	A4 (DK)	A4 (SE)	C2	C3 (DK)	C3 (SE)	C4	D (DK)	D (SE)
PERE	[MJ]	2.10E+00	9.68E-03	4.84E-02	6.16E-03	1.35E-01	1.02E-01	0.00E+00	INA	INA
PERM	[MJ]	1.65E+01	0.00E+00	0.00E+00	0.00E+00	-1.63E+01	-1.63E+01	0.00E+00	1.63E+01	1.63E+01
PERT	[MJ]	1.86E+01	9.68E-03	4.84E-02	6.16E-03	-1.61E+01	-1.62E+01	0.00E+00	INA	INA
PENRE	[MJ]	3.76E+00	1.74E-01	8.68E-01	1.11E-01	4.11E-01	4.31E-01	0.00E+00	INA	INA
PENRM	[MJ]	1.33E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INA	INA
PENRT	[MJ]	3.78E+00	1.74E-01	8.68E-01	1.11E-01	4.11E-01	4.31E-01	0.00E+00	INA	INA
SM	[kg]	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INA	INA
RSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INA	INA
NRSF	[MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	INA	INA
FW	[m ³]	4.47E-03	1.11E-05	5.54E-05	7.06E-06	4.36E-03	4.42E-03	0.00E+00	INA	INA
Caption	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 material; RSF = Use of renewable secondary fuels; NRSF = Use of non renewable secondary fuels; FW = Use of net fresh water; INA = Indicator Not Assessed									

WASTE CATEGORIES AND OUTPUT FLOWS PER KG										
Parameter	Unit	A1-A3	A4 (DK)	A4 (SE)	C2	C3 (DK)	C3 (SE)	C4	D (DK)	D (SE)
HWD	[kg]	1.78E-09	8.75E-12	4.37E-11	5.57E-12	7.03E-10	6.47E-11	0.00E+00	-1.90E-08	-1.51E-09
NHWD	[kg]	8.20E-03	2.58E-05	1.29E-04	1.64E-05	4.10E-02	4.09E-02	0.00E+00	-3.70E-02	-4.29E-03
RWD	[kg]	7.21E-05	2.10E-07	1.05E-06	1.34E-07	1.11E-05	3.36E-05	0.00E+00	-8.27E-04	-5.80E-04

CRU	[kg]	INA	INA	INA	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	[kg]	INA	INA	INA	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	[kg]	INA	INA	INA	0.00E+00	1.00E+00	1.00E+00	0.00E+00	-1.00E+00	-1.00E+00
EEE	[MJ]	INA	INA	INA	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EET	[MJ]	INA	INA	INA	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy									

Additional information

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on measurement of release of regulated dangerous substances from construction products using harmonised test methods according to the provisions of the respective technical committees for European product standards are not available.

References

Publisher	 epddanmark http://www.epddanmark.dk
Programme operator	Danish Technological Institute Buildings & Environment Gregersensvej DK-2630 Taastrup http://www.teknologisk.dk
LCA-practitioner	 FORCE Technology Applied Environmental Assessment Park Allé 345 DK-2605 Brøndby https://forcetechnology.com/da
LCA software /background data	GaBi ts database version 10.0.1.92 incl. databases + Ecoinvent
3rd party verifier	David Althoff Palm, Ramboll Sweden AB

General programme instructions

Version 2.0
www.epddanmark.dk

EN 15804

DS/EN 15804 + A1:2013 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 – "Environmental management – Life cycle assessment – Requirements and guidelines"

EN 16485

DS/EN 16485:2014 – "Round and sawn timber – Environmental Product Declarations – Product category rules for wood and wood-based products for use in construction"

EN 1991-1-1:2007

Eurocode 1: Actions on structures – Part 1-1: General actions – Densities, self-weight, imposed loads for buildings.