epddanmark

ECO PLATFORM EPD VERIFIED

Owner: a:gain Aps
No.: MD-25165-EN
Issued: 10-10-2025
Valid to: 10-10-2030

3rd PARTY **VERIFIED**

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | **ISO 14025 & EN 15804**

Owner of declaration
A:gain
Langebrogade 3H, 3. sal
DK- 1411 København
CVR: 36902701

Programme
EPD Danmark
www.epddanmark.dk

☐ Industry EPD
☒ Product EPD

☒ Product specific
☐ Average
☐ Worst Case

Declared product(s)
1 m2 End-grain brick flooring in pine wood
- Hjælmø

Number of declared datasets/product variations: 1

Production site
Nr. Bjertvej 24
DK-7830 Vinderup, Danmark

Use of Guarantees of Origin
☒ No certificates used
☐ Electricity covered by GoO
☐ Biogas covered by GoO

Declared/ functional unit
1m^2

Year of production site data (A3)
01/05/2022 - 30/04/2023

EPD version
Version 1.0

Issued: 10-10-2025
Valid to: 10-10-2030

Basis of calculation
This EPD is developed and verified in accordance with the European standard EN 15804+A2.

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.

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.

EPD type
☐Cradle-to-gate with modules C1-C4 and D
☒Cradle-to-gate with options, modules C1-C4 and D
☐Cradle-to-grave and module D
☐Cradle-to-gate
☐Cradle-to-gate with options

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

☐ internal ☒ external

Third party verifier:

Mie Ostenfeldt
Ostenfeldt Consulting

Martha Katrine Sørensen
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	ND	ND	ND	ND	ND	MD	ND	ND	ND	X	X	X	X	X

Product information

Product description

The main product components are shown in the table below.

Material	Weight-% of declared product
Wood (pine wood)	99%
Glue	1%
Sum	**100%**

Product packaging:

The composition of the sales- and transport packaging of the product is shown in the table below.

Material	Weight of packaging material (kg)	Weight-% of packaging
Pallets	0,53	32,75%
Steel nails	0,01	0,58%
Wood frames	0,95	58,05%
Hinges for wood frames	0,14	8,62%
Total	1,63	100%

Representativity

This EPD covers the declared unit of 1 m^2 End-grain brick flooring in pine wood. In terms of temporal representativeness, specific data was provided by the manufacturers and is less than 5 years old, as it is production data from 2022-2023. Upstream and downstream processes are modelled using generic data from Ecoinvent. Although some datasets are based on data from older reference years, Ecoinvent extrapolates the data to 2022 and uncertainties are adjusted accordingly.

Picture of product

Hazardous substances

The product does not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation"

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

Product(s) use

The use of Hjælmø is an End-grain brick flooring made of pine wood, and is used for flooring. Hjælmø is made from wood offcuts that accumulate during wood production.

Essential characteristics

Hjælmø is upcycled wood from offcuts and is sorted out due to knots, which do not affect durability and strength. Hjælmø is a product of these out sorted wood pieces and is used as a brick floor. Hjælmø is sold in 100-120 mm x 50-60 mm with a thickness of 22 mm. Hjælmø brick floor is glued together to obtain these specifications and is further glued together brick to brick when installing. Hjælmø stems from is FSC certified pine wood and has obtained DFl-s1 (without surface treatment) in fire classification.

Hjælmø complies with the EU taxonomy M5.1 which serves the purpose of collecting documentation in the supply chain in connection with (EU) Regulation 2021/2139, appendix C regarding technical screening criteria supplementing Regulation (EU) 2020/852 establishing a framework to facilitate sustainable investment.

Further technical information can be obtained by contacting the manufacturer or on the manufacturer's website:

https://www.again.dk/

LCA background

Declared unit

The LCI and LCIA results in this EPD relates to 1m^2 End-grain brick flooring made from upcycled pine wood

Name	Value	Unit
Declared unit	1	m^2

Functional unit

The use-phase is not declared in the study, so the functional unit is not defined.

Material properties

Name	Mass factor	Unit
Hjælmø	11	Kg/DU
Density	500	Kg/m^3

PCR

This EPD is developed in accordance with the core rules for the product category of construction products in EN 15804+A2 and the complementary rules in EN 16485:2014 (product category rules for wood and wood-based products for use in construction).

Reference Service Life (RSL)

Not defined

Conversion factors

Name	Conversion factor (1m^2 to 1 kg)
Hjælmø	0,091

Energy modelling principles

The manufacturer does not purchase guarantees of origin. The LCA study is therefore modelled as described in the following.

The foreground system is modelled using the national electricity residual mix of Denmark, see the table below for further information.

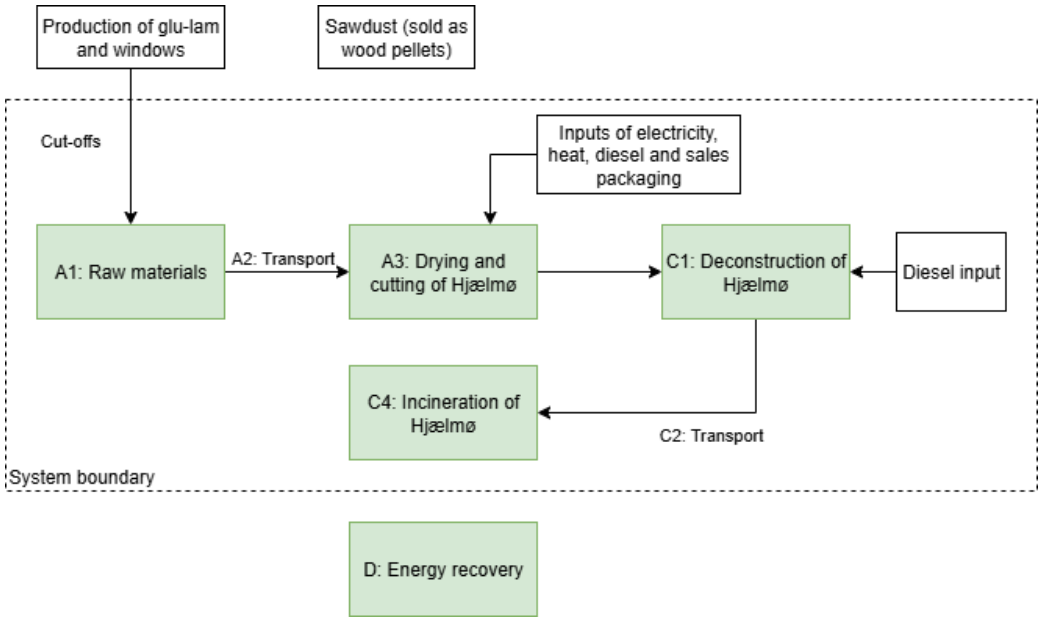
Information about the energy mix in the foreground system:

Energy mix	EF	Unit
Residual grid mix, DK.	0,647	kg CO_2e/kWh
Heat production, Natural gas, DK	0,0305	kg CO_2e/MJ

Background system:

The background system is modelled using electricity grid mixes both upstream and downstream

Flowdiagram



System boundary

This EPD is based on a cradle-to-gate LCA, in which 100 weight-% has been accounted for.

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.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

For the production of Hjælmø, A:gain purchases pine wood offcuts from a Danish wood manufacturer. These offcuts are normally discarded due to aesthetic defects and do not fulfil the requirements for A-quality wood product. Due to an agreement between the A:gain and the manufacturer the wood offcuts are further profiled, planned and glued by the wood manufacturer according to A:gain's requirements of Hjælmø. The wood is then transported to a second manufacture whom dries the wood to obtain a final moisture content of 7%. The wood is transported back to the first manufacturer, where it is packaged and sold directly from the manufacturer to a:gains customers.

Economic allocation is applied, as a results of A:gain's purchase of secondary material, to allocate the raw material inputs in module A1, A2 and some processes of A3 to the Hjælmø product

and to the A-quality pine wood. Allocation is not applied when Hjælmø is further processed at the second manufacturer. When installing Hjælmø A:gain recommends using a MS Parquet lim 268 as glue. It should be notated that the glue for installing the bricks is not included in this EPD, since A5 is not declared.

Construction process stage (A4-A5) includes:

Not declared

Use stage (B1-B7) includes:

Not declared.

End of Life (C1-C4) includes:

C1 – Deconstruction and demolition

C2 – Transport

C3 – Waste processing for reuse, recovery and/or recycling

C4 - Disposal

The end-of-life is modelled under the assumption that the Hjælmø is collected with mixed construction waste and incinerated in Denmark. It could be expected that some of the wood is reused or recycled, however the share is unknown. As per EN 16485, waste treatment also includes shredding of the wood prior to incineration.

Crushing and incinerating Hjælmø is modelled in module C4 in accordance with EN 16485 as the energy recovery from incineration (R1-value) is below 0.60. No burdens are therefore allocated to module C3.

Transport to waste treatment (C2) is modelled by estimating the distance from the construction site to the nearest incineration plants.
The deconstruction/demolition (C1) is modelled with generic factors for demolition from the Danish EPA.

Re-use, recovery and recycling potential (D) includes:

D – Reuse, Recovery and/or recycling potentials

Energy is recovered from the incineration of the Hjælmø product at the end-of-life and from the incineration of the packaging materials.

LCA results

Environmental Impacts per m2							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	-1,92E+01	5,86E-02	2,30E-02	0,00E+00	1,90E+01	-4,60E+00
GWP-fossil	kg CO_2 eq.	1,74E+00	5,86E-02	2,30E-02	0,00E+00	3,83E-01	-4,60E+00
GWP-biogenic	kg CO_2 eq.	-2,10E+01	0,00E+00	0,00E+00	0,00E+00	1,86E+01	0,00E+00
GWP-luluc	kg CO_2 eq.	5,68E-03	5,10E-06	7,65E-06	0,00E+00	2,36E-05	-4,33E-04
ODP	kg CFC 11 eq.	5,12E-08	8,97E-10	4,57E-10	0,00E+00	2,03E-09	-1,26E-07
AP	mol H^+ eq.	7,19E-03	5,29E-04	4,79E-05	0,00E+00	1,70E-03	-1,14E-02
EP-freshwater	kg P eq.	5,27E-04	1,71E-06	1,56E-06	0,00E+00	5,23E-05	-1,36E-03
EP-marine	kg N eq.	1,90E-03	2,45E-04	1,15E-05	0,00E+00	9,22E-04	-2,59E-03
EP-terrestrial	mol N eq.	2,08E-02	2,69E-03	1,24E-04	0,00E+00	8,85E-03	-2,63E-02
POCP	kg NMVOC eq.	7,78E-03	8,01E-04	7,96E-05	0,00E+00	2,21E-03	-8,76E-03
ADPm[1]	kg Sb eq.	8,53E-06	2,04E-08	7,47E-08	0,00E+00	2,32E-07	-6,93E-06
ADPf[1]	MJ	2,70E+01	7,67E-01	3,23E-01	0,00E+00	1,18E+00	-6,65E+01
WDP[1]	m^3 world eq. deprived	9,22E-01	2,25E-03	1,82E-03	0,00E+00	9,77E-02	-3,27E+00
Caption	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 = Ozone Depletion; AP = Acidifcation; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water use						
Disclaimer	[1] The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.						

Additional Environmental Impacts per m2							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PM	[Disease incidence]	2,02E-07	1,50E-08	1,69E-09	0,00E+00	1,84E-08	-4,18E-08
IRP[2]	[kBq U235 eq.]	1,61E-01	3,43E-04	4,19E-04	0,00E+00	2,29E-03	-4,32E-01
ETP-fw[1]	[CTUe]	2,20E+01	1,09E-01	8,81E-02	0,00E+00	1,97E+00	-8,04E+00
HTP-c[1]	[CTUh]	1,34E-08	2,29E-10	1,63E-10	0,00E+00	2,94E-09	-5,91E-09
HTP-nc[1]	[CTUh]	1,73E-08	1,04E-10	2,09E-10	0,00E+00	1,82E-08	-3,17E-08
SQP[1]	-	4,79E+02	5,37E-02	1,95E-01	0,00E+00	3,07E-01	-6,10E+00
Caption	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 = Soil Quality						
Disclaimers	[1] The results of this environmental 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 per m2							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	[MJ]	8,98E+01	4,69E-03	5,55E-03	0,00E+00	4,10E-02	-3,34E+00
PERM	[MJ]	1,58E+02	0,00E+00	0,00E+00	0,00E+00	-1,57E+02	0,00E+00
PERT	[MJ]	2,48E+02	4,69E-03	5,55E-03	0,00E+00	-1,57E+02	-3,34E+00
PENRE	[MJ]	2,71E+01	7,67E-01	3,23E-01	0,00E+00	1,18E+00	-6,65E+01
PENRM	[MJ]	3,98E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	2,71E+01	7,67E-01	3,23E-01	0,00E+00	1,18E+00	-6,65E+01
SM	[kg]	1,09E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	9,53E-03	8,32E-07	1,90E-06	0,00E+00	6,63E-06	-2,65E-05
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m^3]	2,20E-02	5,48E-05	4,48E-05	0,00E+00	2,30E-03	-7,70E-02
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 = Net use of fresh water						

Waste Categories and Ouput Flows per m2							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
HWD	[kg]	1,18E-01	8,57E-04	4,72E-04	0,00E+00	5,45E-02	-3,77E-01
NHWD	[kg]	2,69E+00	1,17E-02	9,96E-03	0,00E+00	1,14E+01	-6,83E+00
RWD	[kg]	4,05E-05	8,42E-08	1,04E-07	0,00E+00	5,71E-07	-1,06E-04
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	4,74E+00	0,00E+00	0,00E+00	0,00E+00	2,07E+01	0,00E+00
EET	[MJ]	9,54E+00	0,00E+00	0,00E+00	0,00E+00	4,17E+01	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						

BIOGENIC CARBON CONTENT PER M2		
Parameter	**Unit**	**At the factory gate**
Biogenic carbon content in product	[kg C]	5,06
Biogenic carbon content in accompanying packagaing	[kg C]	0,65
Note	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2	

It is important to note that the GWP-biogenic does not balance when summing the modules A1-C4. This is due to the fact that the sales packaging contains biogenic carbon and is released in module A5 which is not declared in this EPD. Therefore you need to add the sales packaging biogenic carbon (see table above) to the balance by multiply 0,65*44/12 which gives 2,38 kg CO2.

Additional information

LCA interpretation

The primary contributor across the various impact categories is Module A1. Although a:gain does not account for 100% of the raw material wood due to the allocation factor, it still represents a relatively significant contribution. Another material contributing within Module A1 is the adhesive used in brick production. In the impact category GWP-fossil, Module A3 is the main contributor, primarily due to electricity consumption and the reliance on residual mix, which has a higher emission factor compared to the grid mix. For the impact category GWP-biogenic, Module C4 is the largest contributor, as this is where the embedded biogenic carbon dioxide in the product is released.

Technical information on scenarios

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately		kg
Collected with mixed waste		kg
For reuse		kg
For recycling		kg
For energy recovery	11	kg
For final disposal		kg
Assumptions for scenario development		As appropriate

Re-use, recovery and recycling potential (D)

Scenario information/Material	Value	Unit
Energy recovery from waste incineration (electric)	19,1	MJ
Energy recovery from waste incineration (Thermal)	38,4	MJ

Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	www.epddanmark.dk Template version 2024.2
Programme operator	Danish Technological Institute Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Transition ApS Regnbuepladsen 7, 1550 København V Jón Jacobsen, Josefine Fie Birkedal Nielsen, Lasse Langstrup Hägerstrand
LCA software /background data	SimaPro 9.6.0.1 ecoinvent v.3.10.0 (EN15804)
3rd party verifier	Mie Ostenfeldt (Ostenfeldt Consulting) mie@ostenfeldtconsulting.dk

General programme instructions
General Programme Instructions, version 2.0, spring 2020
www.epddanmark.dk

EN 15804
DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 16485
DS/EN 16485:2014 - "Product category rules for wood and wood-based products for use in construction".

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"