ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN15804+A2

SMARTPLY AIRTIGHT Oriented Strand Board (OSB)

Owner of the declaration:
Smartply Europe DAC

Product:
SMARTPLY AIRTIGHT Oriented Strand Board (OSB)

Declared unit:
1 m3

This declaration is based on Product Category Rules:
EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
I.S. EN 16485:2014 PCR for Wood and Wood-based Products in Construction

Program operator:
EPD Ireland

Declaration number:
EPDIE-24-177

Issue date:
07.01.2026

Valid to:
06.01.2031

General information

Product

SMARTPLY AIRTIGHT Oriented Strand Board (OSB)

Owner of the declaration:

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Manufacturer:

Smartply Europe DAC

Declaration number:

EPDIE-24-177

Place of production:

Smartply Europe DAC
Belview, Slieverue
X91 PX75 Waterford, Ireland

This declaration is based on Product Category Rules:

EN 15804:2012+A2:2019, EPD Ireland PCR Part A, Version 2.1, 2022
I.S. EN 16485:2014 PCR for Wood and Wood-based Products in Construction

Statement of liability:

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

Type of EPD

Specific product EPD

Issue date:

07.01.2026

Declared unit:

1 m3 SMARTPLY AIRTIGHT Oriented Strand Board (OSB)

Valid to:

06.01.2031

Scope of the EPD:

A1, A2, A3, A4, C1, C2, C3, C4, D

Year of study:

Functional unit:

This EPD is for a Declared Unit, of 1 m3 of OSB

Comparability:

Environmental Product Declarations from different programmes may not be directly comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See clause 5.3 of EN 15804:2012+A2:2019

LCA consultant or person responsible for LCA:
EcoReview, Peter Seymour

Verification:

Independent verification of the declaration and data, according to ISO14025:2010

Approved:

SIGNATURE OF PROGRAMME OPERATOR

Third party verifier:
Jane Anderson

Pat Barry, CEO - Irish Green Building Council

Product

Product description:

SMARTPLY OSB panels comprise of cross oriented layers of sustainably sourced timber flakes bonded with synthetic no-added formaldehyde resin, wax and release agent, with possible further processing or application of UV coating and edge paint depending on the product. The panels are manufactured in accordance with the requirements of EN 300:2006 Oriented Strand Board (OSB) – Definitions, classification and specifications, and are CE marked in accordance with the harmonized standard EN13986 - Wood-based panels for use in construction - characteristics, evaluation of conformity and marking.

SMARTPLY AIRTIGHT is a structural OSB/3 panel with integrated vapour control and air barrier properties for use as structural sheathing in timber frame structures. Airtightness is engineered into the OSB panel substrate, whilst SMARTPLY's in-house specialty surfacing technology provides an integrated vapour barrier with consistently high vapour resistance over the entire surface.

The mean density of the AIRTIGHT panel is 636 kg/m3.

Product specification:

AIRTIGHT standard sizes and thicknesses:

Size: 2497 x 1197mm; thickness: 12.5mm
Size: 2697 x 1197mm; thickness: 12.5mm
Size: 2789 x 1197mm; thickness: 12.5mm
Size: 3000 x 1197mm; thickness: 12.5mm

Technical data:

Technical data for SMARTPLY AIRTIGHT at https://mdfosb.com/en/products/smartply-airtight

Market/Geographical Area:

UK, Republic of Ireland, EU and US.

Reference service life, product

Providing that the panels are used in the correct service class and water/moisture or physical damage is avoided the panels are expected to have a service life equal of the design life of the structure. The design life of most common timber structures is 50 years and therefore if the use conditions are respected, the panels are expected to maintain their performance at least for 50 years.

Reference service life, building or construction works

LCA: Calculation rules

Declared unit:

1 m3 SMARTPLY AIRTIGHT Oriented Strand Board (OSB)

kg per Declared unit 636

Cut-off criteria:

All relevant inputs and outputs - like emissions, energy and materials - have been taken into account in this LCA, and in accordance with EN15804+A2:2019. The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process. Long term emissions have been excluded from the study.

Allocation:

The measurement of environmental impacts in this EPD uses the LCIA methodologies recommended for PEF 3.1. In this EPD, the waste processes are allocated in the relevant module. In the case of the use of secondary materials or energy recovered from secondary fuels, the system boundary between the system under study and the previous system (providing the secondary materials) is set where outputs of the previous system, e.g. materials, products, building elements or energy, reach the end-of-waste state. The modularity and the polluter payer principles have been followed.

Data quality:

Time Representativeness
In this LCA the data relating to the manufacturing of Smartply OSB panels, and the data relating to the background processes for environmental impacts are recent (<2 years), thus, Time Representativeness is considered to be very good.

Geographical Representativeness
The processes and material references used in this LCA to represent the production of the OSB panels are generally geographically representative, insofar as the general production location of the panels, and the raw materials supplied, lie within the regions for which the relevant Ecoinvent (version 3.9.1) environmental records have been selected, being Europe, however as an Ireland-specific dataset for Irish grown and harvested timber is not used, and this LCA defaults to the Ecoinvent (European) reference for softwood under bark, thus the Geographical Representativeness is considered to be good.

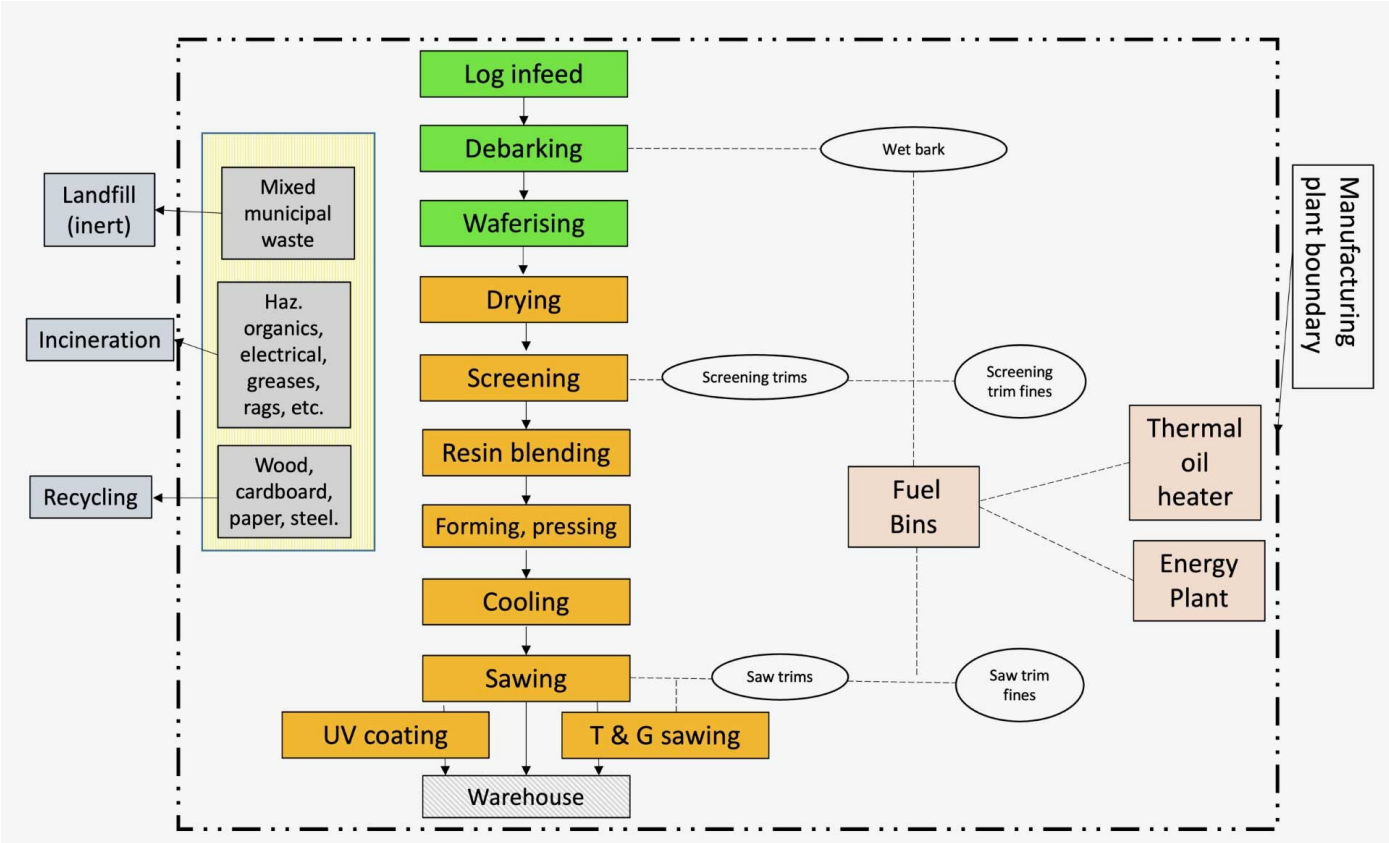
Technical Representativeness
Processes and energies used in the process have been modelled as accurately as possible from the data provided by the manufacturer, and are based directly on the production data in relation to the raw materials, processes and fuels used, using datasets from Ecoinvent (version 3.9.1) in the absence of Irish-specific data sets for softwood under bark. Generally, the technical representativeness of the data on the raw materials is robust, thus the Technical Representativeness is considered to be good.

Scope and type of EPD (X = Module declared; ND = Module not declared)

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	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X

System boundary:

This LCA covers the Product (A1, A2 and A3), Construction (A4, A5) End of Life (C1 to C4) and Benefits/loads beyond the system boundary (D) Stages, as indicated above. This is termed: "Cradle to gate with options, modules C1 to C4, and module D". A schematic of the manufacturing process is presented in the flow diagram below.



Additional technical information:

Electricity modelling
The CO2 intensity of the electricity is 0.035 kg CO2 eq per kWh. The impact of electricity is calculated on the market-based approach. This is 100% renewable electricity generation, verified by Captured Carbon Ltd.

LCA: Scenarios and additional technical information

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

A4. Transport to customer
The modelled distance of delivery to customer is 100km, on the basis that the truck goes out full, and returns empty.. The vehicle type modelled is: 16-32 tonne capacity truck; EURO6 engine. This value can be extrapolated to further distances according to the location of the customer. However, sea shipping is not include in A4, as it would distort any extrapolation for customers who do not receive the product by ship, and because there are a wide variety of potential shipping routes to overseas markets.

A5. Installation
Due to unknowns of A5 parameters such as installation losses and other elements of the installation of the products in the various different markets served, these are considered to be beyond the scope of this LCA, and are not modelled.

B. Use Stage
This stage is not included in the LCA.

End of Life Stages
The general assumption in modules C and D is that at end of life 90% of the panels go to incineration, and 10% to landfill.

C1. De-construction demolition
It is assumed that the OSB panels are removed mostly manually from building. Thus, no energy or other materials are required for module C1, and the impacts are assumed to be zero in C1.

C2. Transport
it is assumed that the removed panels travel 50 km to landfill, and 125 km to incineration, as applicable.

C3. Waste processing
It is assumed that 90% of the OSB panels go to incineration for energy recovery.

C4. Disposal
It is assumed that 10% of the OSB panels are disposed of in managed landfill sites. The ecoinvent reference used does not include an element of energy recovery from landfill gas.

D. Benefits and Loads Beyond the System Boundary
For the 90% of the panels that are incinerated, and based on UK Energy from Waste Statistics (2023) where the typical output from a UK EfW plant per tonne of waste input is 605 kWh electricity and 111 kWh thermal energy per tone of waste, the energy generated per m3 of OSB board is calculated as 315 kWh electricity and 58 kWh thermal energy.

The calculation for the avoided electricity is based on low voltage UK electricity mix. The calculation for avoided heat generation uses the ecoinvent reference for Heat (MJ), district or industrial, natural gas, Europe without Switzerland.

Biogenic Carbon
Biogenic carbon in the AIRTIGHT OSB panel is 285.5 kg C per m3.
Biogenic carbon in the packaging is 10.43 kg C per m3.

Database used: Ecoinvent v 3.9.1
LCA tool used: Ecochain Helix v 4.3.1

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	A2	A3	A4	C1	C2	C3	C4	D
GWP-total	kg CO_2 -eq	-8.98E+02	6.21E+00	8.72E+01	1.17E+01	0.00E+00	1.26E+01	9.52E+02	1.20E+02	-1.19E+02
GWP-fossil	kg CO_2 -eq	1.46E+02	6.20E+00	4.87E+01	1.16E+01	0.00E+00	1.26E+01	9.76E+00	1.49E+01	-9.52E+01
GWP-biogenic	kg CO_2 -eq	-1.05E+03	3.01E-03	3.83E+01	1.07E-02	0.00E+00	1.15E-02	9.42E+02	1.05E+02	-1.20E+01
GWP-luluc	kg CO_2 -eq	1.86E+00	4.29E-03	2.06E-01	5.75E-03	0.00E+00	6.20E-03	2.62E-03	1.12E-02	-1.17E+01
ODP	kg CFC11 -eq	1.27E-05	1.03E-07	7.91E-07	2.53E-07	0.00E+00	2.73E-07	1.71E-07	3.44E-07	-4.88E-06
AP	mol H+ -eq	9.44E-01	1.44E-01	9.55E-01	2.54E-02	0.00E+00	2.75E-02	1.04E-01	1.06E-01	-1.70E+02
EP-FreshWater	kg P -eq	1.14E-02	3.95E-05	3.69E-03	9.46E-05	0.00E+00	1.02E-04	1.47E-04	2.64E-04	-1.67E-03
EP-Marine	kg N -eq	1.63E-01	3.66E-02	4.11E-01	6.26E-03	0.00E+00	6.76E-03	5.00E-02	7.44E-02	-7.58E-02
EP-Terrestial	mol N -eq	1.88E+00	4.05E-01	4.58E+00	6.52E-02	0.00E+00	7.04E-02	5.33E-01	4.20E-01	-8.40E+00
POCP	kg NMVOC -eq	8.70E-01	1.12E-01	1.17E+00	3.95E-02	0.00E+00	4.26E-02	1.35E-01	1.71E-01	-2.40E-01
ADP-minerals&metals[1]	kg Sb-eq	1.28E-03	9.15E-06	7.96E-04	3.81E-05	0.00E+00	4.11E-05	1.69E-05	3.09E-05	-1.35E-03
ADP-fossil[1]	MJ	3.34E+03	7.92E+01	5.98E+02	1.65E+02	0.00E+00	1.78E+02	8.37E+01	3.19E+02	-2.43E+03
WDP[1]	m^3	8.65E+01	2.37E-01	6.19E+00	6.84E-01	0.00E+00	7.39E-01	-7.51E+00	1.34E+01	-6.90E+00

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 on environmental impacts

Additional environmental impact indicators

Indicator		Unit	A1	A2	A3	A4	C1	C2	C3	C4	D
	PM	Disease incidence	8.41E-06	2.54E-07	3.36E-05	8.64E-07	0.00E+00	9.32E-07	1.13E-06	2.25E-06	-5.73E-06
	IRP[2]	kgBq U235 -eq	5.72E+00	3.81E-02	1.01E+00	8.38E-02	0.00E+00	9.04E-02	3.86E-02	1.75E-01	-3.97E+01
	ETP-fw[1]	CTUe	6.22E+03	3.88E+01	4.55E+02	8.17E+01	0.00E+00	8.82E+01	7.37E+01	2.01E+02	-2.70E+02
	HTP-c[1]	CTUh	2.00E-06	2.81E-09	9.07E-08	5.31E-09	0.00E+00	5.73E-09	2.69E-08	8.64E-09	-4.32E-08
	HTP-nc[1]	CTUh	2.82E-06	3.17E-08	2.55E-06	1.17E-07	0.00E+00	1.27E-07	1.27E-06	2.55E-07	-1.69E-06
	SQP[1]	dimensionless	6.88E+04	1.80E+01	2.36E+04	1.00E+02	0.00E+00	1.08E+02	2.38E+01	7.21E+02	-1.25E+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	A2	A3	A4	C1	C2	C3	C4	D
	PERE	MJ	1.13E+03	1.09E+00	5.66E+03	2.60E+00	0.00E+00	2.80E+00	2.09E+00	5.86E+00	-6.32E+02
	PERM	MJ	1.08E+04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	1.20E+04	1.09E+00	5.66E+03	2.60E+00	0.00E+00	2.80E+00	2.09E+00	5.86E+00	-6.32E+02
	PENRE	MJ	2.67E+03	8.42E+01	6.37E+02	1.76E+02	0.00E+00	1.90E+02	9.08E+01	3.39E+02	-2.57E+03
	PENRM	MJ	8.95E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PENRT	MJ	3.57E+03	8.42E+01	6.37E+02	1.76E+02	0.00E+00	1.90E+02	9.08E+01	3.39E+02	-2.56E+03
	SM	kg	0.00E+00	0.00E+00	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	0.00E+00	-4.01E-06
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	FW	m^3	2.43E+00	8.31E-03	1.80E-01	2.22E-02	0.00E+00	2.40E-02	-1.44E-01	3.20E-01	-1.24E+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*10-3 = 0.009"

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	C1	C2	C3	C4	D
	HWD	kg	7.24E-03	4.15E-04	3.11E-03	1.05E-03	0.00E+00	1.14E-03	4.19E-04	1.58E-03	-1.04E-02
	NHWD	kg	2.59E+01	1.10E+00	1.66E+01	8.21E+00	0.00E+00	8.86E+00	7.55E+00	1.25E+03	-7.91E+00
	RWD	kg	4.46E-03	2.56E-05	6.42E-04	5.44E-05	0.00E+00	5.87E-05	2.49E-05	1.07E-04	-1.80E-02

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	A2	A3	A4	C1	C2	C3	C4	D
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	-6.14E-04
	MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-3.57E-02
	EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.13E+03	0.00E+00	0.00E+00
	EET	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.09E+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	2.86E+02
Biogenic carbon content in accompanying packaging	kg C	1.04E+01

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

Additional requirements

Dangerous substances

None of the substances contained in the product are listed in the “Candidate List of Substances of Very High Concern for authorisation”, or they do not exceed the limit for registration with the European Chemicals Agency.

Mandatory additional information on release of dangerous substances to indoor air, soil and water.

Bibliography

[1] ISO 14040: Environmental management - Life cycle assessment – Principles and [1] ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardisation, ISO14040:2006.
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[4] I.S. EN 15804:2012+A2:2019/AC:2021: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
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[6] Product Category Rules: Part A, Implementation and use of EN 15804:2012+A2:2019 and CEN TR 16970:2016 in Ireland for the development of Environmental Product Declarations; Version 2.0, issue date: 17.08.2021, published by the EPD Ireland Programme operator (Irish Green Building Council).
[9] I.S. EN 16485:2014 Round and sawn timber - Environmental Product Declarations - Product category rules for wood and wood-based products for use in construction.
[10] UK Energy from Waste Statistics - 2023 – Tolvik.

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