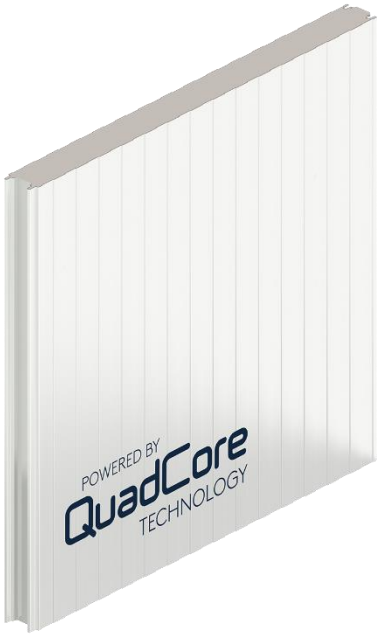
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Quadcore Coldstore
Kingspan Insulated Panels Ltd.



EPD HUB, HUB-6103

Published on 22.04.2026, last updated on 22.04.2026, valid until 22.04.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Kingspan Insulated Panels Ltd.
Address	Greenfield Business Park, 2 Bagillt Rd, Holywell CH8 7GJ, United Kingdom
Contact details	SustainabilityTeam@kingspan.com
Website	https://www.kingspan.com/gb/en-gb

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Becca Spurdle, Kingspan Insulated Panels
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Quadcore Coldstore
Additional labels	-
Product reference	-
Place(s) of raw material origin	UK, EU
Place of production	Sherburn, UK
Place(s) of installation and use	UK, EU
Period for data	01.01.2024 - 31.12.2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	10.6

ENVIRONMENTAL DATA SUMMARY

Declared unit	1m2 (100mm Thickness)
Declared unit mass	12 kg
Mass of packaging	2.498 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	35.6
GWP-total, A1-A3 ($kgCO_2e$)	35.1
Secondary material, inputs (%)	32.3
Secondary material, outputs (%)	63.4
Total energy use, A1-A3 (kWh)	154
Net freshwater use, A1-A3 (m^3)	3.16

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Kingspan Insulated Panels is the worlds largest and leading manufacturer of high-performance insulated panel systems. Offering a range of insulation cores from A-class mineral fibre to Kingspans flagship QuadCore technology, we have a solution that suits all regulatory regimes while delivering a faster speed of construction with less labour when compared with traditional built-up systems. Kingspans proprietary QuadCore technology provides building owners with excellent build quality and air tightness, underpinned by a guaranteed lifetime thermal performance.

We have a long term commitment to delivering a sustainable agenda as part of the Kingspan 10 year sustainability programme. Through Planet Passionate, we aim to impact climate change, circularity and protection of our natural world. We believe that through true collaboration we can help make a difference.

PRODUCT DESCRIPTION

QuadCore Coldstore Panels are designed specifically for use within the food and drink industry in applications such as food manufacture and temperature-controlled storage. Panels can also be used in standard building environment conditions. QuadCore delivers leading thermal performance as it is more than twice as thermally efficient as mineral fibre, allowing thinner & lighter walls.

- Application: Food processing, chilled and cold applications
- Length: 1.8 m - 21 m
- Panel Thickness: 50 mm - 220 mm
- Temperature Range: -40°C to + 60°C
- Installation: Suitable for internal and external use

Further technical information is available on the Kingspan website in the product data sheet.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	64	EU
Minerals		
Fossil materials	36	EU
Bio-based materials		

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.234
Biogenic carbon content in packaging, kg C	1.628

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1m2 (100mm Thickness)
Mass per declared unit	12 kg
Functional unit	-
Reference service life	years

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Not declared = ND.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission. A market-based approach is used in modelling the electricity mix utilized in the factory.
The manufacturing of insulated panels starts with the de-coiling of the internal and external steel coils. The liners are rolled into the desired profiled pattern. The foam formulation is then sprayed on to the internal liner and rises to meet the external liner, creating a chemical bond between the two liner sheets. Protective film is then placed on both liners to protect the paint coating. The panel is packaged with plastic wrap, corrugated cardboard to protect the edges which is held in place with plastic tape, and the packaged product is distributed on wooden pallets. All transportation distances of raw materials from supplier to manufacturing site have been included and assumptions made based on location of suppliers and most common method of transport. A transport assumption of 50km for our manufacturing waste, taken from manufacturing scrap reports on site, to a waste contractor has been included in A3. The steel scrap from our manufacturing sites is sent to recycling and the insulation core is currently sent to incineration with energy recovery. The recycled content included within our product comes from our steel content. 0% of the recycled content in our products comes from our core.
The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

The transportation distance is assumed to be an average of 100km. The insulated panels are made to order, specific to the building's requirements. Installation guides are available to assist the contractor with the correct installation of the product and any ancillaries. The installation scenario assumes steel fixings and a conservative estimate of electricity for a power tool (1 kWh) and diesel (2 kWh) for a crane. Impacts for additional fixings/material required for different applications can be advised by our technical teams. Installation losses are estimated at 2%. The EoL of the

installation waste and packaging have been included within the LCA model. We assume that 95% of the steel goes to recycling, in line with the World Steel Association (2020). The remaining steel alongside the fibre core and non-recyclable packaging is assumed to go to landfill or incineration with energy recovery. An assumption of 50km has been used for transportation from the building site to the waste contractor.

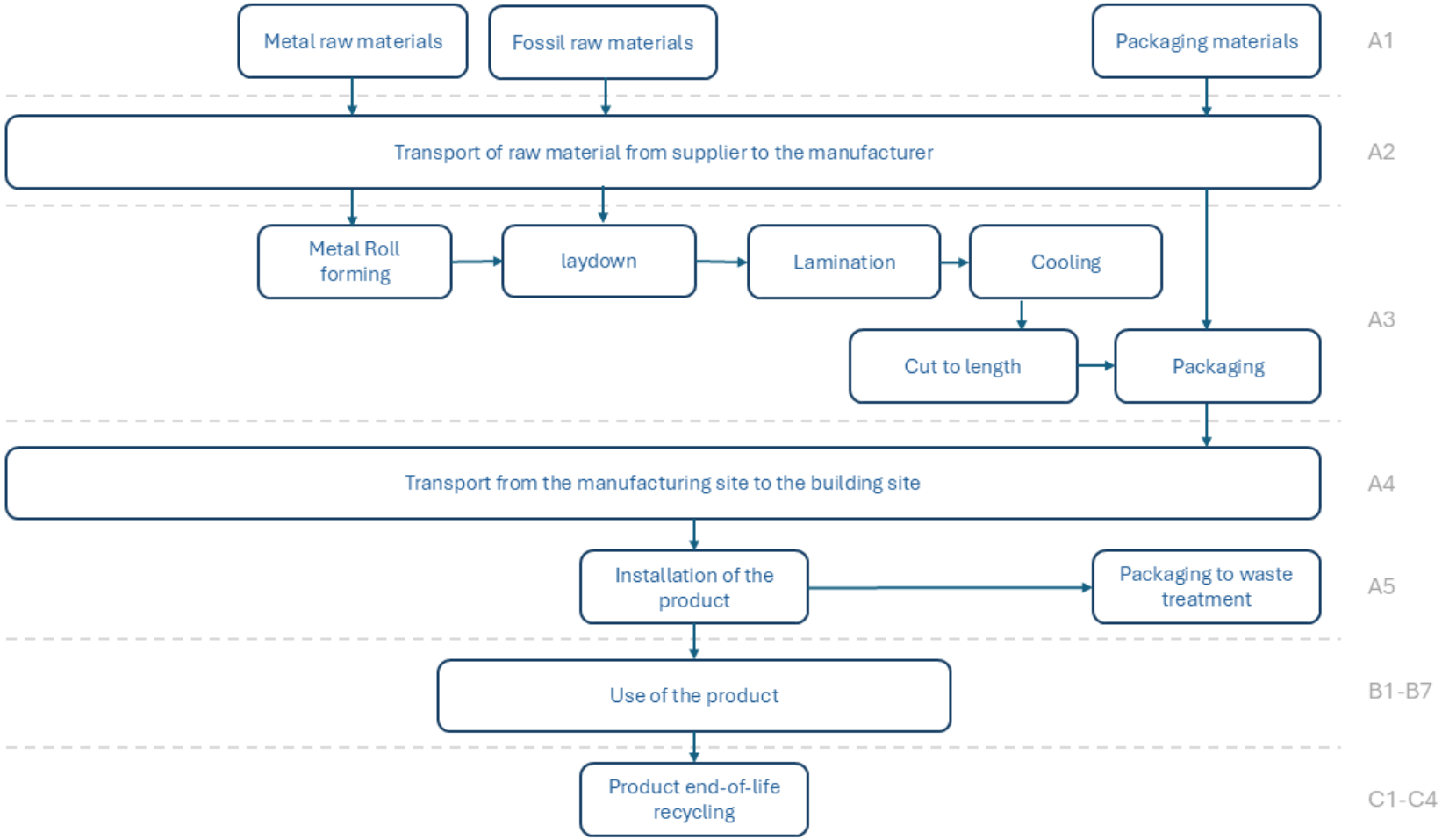
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

For removal of the panels, a conservative estimate of electricity for a power tool (1 kWh) and diesel (2 kWh) for a crane has been made. At the end of the panel service life, it is recommended that the panels are sent to a reclamation facility where the steel can be separated from the foam and be recycled. 95% of steel is assumed to be recycled, with the remaining 5% landfilled according to 'World Steel Association, 2020'. To be most representative to the market whilst acknowledging that the foam can be used for waste to energy, we have modelled 50% to incineration and 50% landfill for our foam EOL. Energy recovery rates are considered based on 'Tolvik _ UK Energy from Waste Statistics, 2021'. It is not recommended that the panels are sent to landfill. In Module D, the net benefit of recycling steel, incinerating foam, and waste treatment of packaging materials is included as avoided material production (from recycling) and electricity and heat production (from incineration).

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

All industrial processes from raw material acquisition and pre-processing, production, product distribution and installation, use phase replacements and operational energy, and end-of-life management are included. For easier modelling and because of lack of accuracy in available modelling resources, some constituents under 0,1% of product mass are excluded. These include some ancillary materials which are all present in the product only in very small amounts and have low impacts on the emissions of the product. Transportation and waste streams of the packaging materials used for delivering the raw materials to the factory are omitted since the quantified mass contribution is less than 0.1%.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 1 and 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	No allocation
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.5. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

Tolvik _ UK Energy from Waste Statistics, 2021
https://worldsteel.org/wp-content/uploads/Life-cycle-inventory-LCI-study-2020-data-release.pdf
EPD Hub Core PCR Version 1.2, 24 Mar 2025

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	3.11E+01	2.30E+00	1.74E+00	3.51E+01	1.50E-01	2.11E+00	ND	ND	ND	ND	ND	ND	ND	9.73E-01	1.14E-01	5.32E+00	1.95E-01	-1.00E+01
GWP – fossil	kg CO_2e	3.11E+01	2.30E+00	2.17E+00	3.56E+01	1.50E-01	1.97E+00	ND	ND	ND	ND	ND	ND	ND	9.72E-01	1.14E-01	5.32E+00	1.95E-01	-1.00E+01
GWP – biogenic	kg CO_2e	-6.38E-02	5.01E-04	-4.40E-01	-5.03E-01	0.00E+00	1.36E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – LULUC	kg CO_2e	2.22E-02	8.93E-04	8.86E-03	3.20E-02	5.83E-05	1.09E-03	ND	ND	ND	ND	ND	ND	ND	3.80E-04	4.10E-05	2.69E-04	3.06E-05	-2.22E-03
Ozone depletion pot.	kg CFC_{-11}e	7.52E-05	4.79E-08	4.24E-08	7.53E-05	3.13E-09	1.53E-06	ND	ND	ND	ND	ND	ND	ND	2.38E-08	2.27E-09	6.98E-09	7.38E-10	1.49E-07
Acidification potential	mol H^+e	1.15E-01	5.50E-03	1.42E-02	1.34E-01	3.54E-04	1.04E-02	ND	ND	ND	ND	ND	ND	ND	7.19E-03	2.37E-04	6.46E-03	2.71E-04	-3.99E-02
EP-freshwater[2)]	kg Pe	1.08E-02	1.60E-04	2.39E-04	1.12E-02	1.05E-05	3.11E-04	ND	ND	ND	ND	ND	ND	ND	4.51E-05	7.68E-06	1.37E-04	5.30E-06	-4.83E-03
EP-marine	kg Ne	2.41E-02	1.46E-03	6.34E-03	3.19E-02	9.28E-05	4.10E-03	ND	ND	ND	ND	ND	ND	ND	3.21E-03	5.70E-05	3.88E-03	3.93E-02	-8.27E-03
EP-terrestrial	mol Ne	2.56E-01	1.58E-02	6.59E-02	3.38E-01	1.00E-03	4.36E-02	ND	ND	ND	ND	ND	ND	ND	3.52E-02	6.16E-04	2.88E-02	1.09E-03	-8.72E-02
POCP ("smog")[3)]	kg NMVOCe	9.35E-02	9.52E-03	1.97E-02	1.23E-01	6.15E-04	1.34E-02	ND	ND	ND	ND	ND	ND	ND	1.05E-02	3.95E-04	7.31E-03	3.40E-04	-3.03E-02
ADP-minerals & metals[4)]	kg Sbe	1.60E-04	6.56E-06	3.99E-06	1.70E-04	4.29E-07	5.31E-06	ND	ND	ND	ND	ND	ND	ND	1.01E-06	3.80E-07	1.28E-05	6.80E-08	-5.53E-05
ADP-fossil resources	MJ	5.50E+02	3.44E+01	2.98E+01	6.14E+02	2.25E+00	3.00E+01	ND	ND	ND	ND	ND	ND	ND	1.65E+01	1.61E+00	5.23E+00	6.76E-01	-9.09E+01
Water use[5)]	m^3e depr.	-4.63E+00	1.76E-01	3.22E-01	-4.14E+00	1.15E-02	5.11E-02	ND	ND	ND	ND	ND	ND	ND	8.13E-02	7.98E-03	4.12E-01	5.27E-03	-1.86E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	1.76E-06	2.24E-07	3.55E-07	2.34E-06	1.46E-08	2.44E-07	ND	ND	ND	ND	ND	ND	ND	1.90E-07	8.41E-09	4.27E-08	4.82E-09	-6.20E-07
Ionizing radiation[6)]	kBq U235e	1.98E+00	4.15E-02	2.58E-01	2.28E+00	2.71E-03	3.09E-01	ND	ND	ND	ND	ND	ND	ND	2.55E-01	2.07E-03	2.23E-02	1.36E-03	-3.82E-01
Ecotoxicity (freshwater)	CTUe	2.03E+02	4.06E+00	4.53E+00	2.12E+02	2.65E-01	6.05E+00	ND	ND	ND	ND	ND	ND	ND	8.67E-01	2.14E-01	1.35E+01	9.15E+00	4.16E+00
Human toxicity, cancer	CTUh	3.29E-08	3.82E-10	5.54E-10	3.38E-08	2.50E-11	9.42E-10	ND	ND	ND	ND	ND	ND	ND	1.22E-10	1.92E-11	5.93E-10	2.49E-11	2.96E-08
Human tox. non-cancer	CTUh	4.23E-07	2.23E-08	1.14E-08	4.56E-07	1.45E-09	1.49E-08	ND	ND	ND	ND	ND	ND	ND	2.72E-09	1.02E-09	2.57E-08	4.74E-09	1.37E-06
SQP[7)]	-	7.43E+01	3.47E+01	4.08E+01	1.50E+02	2.27E+00	7.87E+00	ND	ND	ND	ND	ND	ND	ND	4.25E+00	9.70E-01	4.91E+00	1.35E+00	-3.94E+01

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy[8)]	MJ	3.85E+01	5.61E-01	7.50E+00	4.66E+01	3.66E-02	-2.24E+00	ND	ND	ND	ND	ND	ND	ND	2.12E+00	2.81E-02	4.93E-01	1.89E-02	-1.08E+01
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.87E+00	3.87E+00	0.00E+00	-3.87E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	3.85E+01	5.61E-01	1.14E+01	5.05E+01	3.66E-02	-6.12E+00	ND	ND	ND	ND	ND	ND	ND	2.12E+00	2.81E-02	4.93E-01	1.89E-02	-1.08E+01
Non-re. PER as energy	MJ	4.47E+02	3.44E+01	2.50E+01	5.07E+02	2.25E+00	2.36E+01	ND	ND	ND	ND	ND	ND	ND	1.65E+01	1.61E+00	-5.32E+01	-5.79E+01	-9.09E+01
Non-re. PER as material	MJ	1.03E+02	0.00E+00	-1.32E+00	1.02E+02	0.00E+00	-1.49E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	-5.09E+01	-4.94E+01	0.00E+00
Total use of non-re. PER	MJ	5.50E+02	3.44E+01	2.37E+01	6.08E+02	2.25E+00	2.21E+01	ND	ND	ND	ND	ND	ND	ND	1.65E+01	1.61E+00	-1.04E+02	-1.07E+02	-9.09E+01
Secondary materials	kg	3.87E+00	1.49E-02	1.72E-01	4.06E+00	9.73E-04	9.23E-02	ND	ND	ND	ND	ND	ND	ND	4.72E-03	7.46E-04	3.98E-03	2.22E-04	3.32E+00
Renew. secondary fuels	MJ	4.51E-03	1.88E-04	6.46E-02	6.93E-02	1.23E-05	1.43E-03	ND	ND	ND	ND	ND	ND	ND	1.29E-05	9.43E-06	1.70E-04	3.96E-06	-1.18E-03
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m^3	3.15E+00	5.08E-03	7.33E-03	3.16E+00	3.32E-04	6.59E-02	ND	ND	ND	ND	ND	ND	ND	1.97E-03	2.19E-04	8.67E-03	-7.63E-03	-6.21E-02

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	8.55E+00	4.98E-02	6.00E-02	8.66E+00	3.26E-03	2.31E-01	ND	ND	ND	ND	ND	ND	ND	1.93E-02	2.33E-03	1.08E-01	1.55E-03	-4.07E+00
Non-hazardous waste	kg	5.86E+01	9.97E-01	1.66E+00	6.13E+01	6.52E-02	2.62E+00	ND	ND	ND	ND	ND	ND	ND	2.83E-01	4.93E-02	2.77E+00	1.04E+01	-2.27E+01
Radioactive waste	kg	5.06E-04	1.03E-05	5.71E-05	5.73E-04	6.71E-07	6.92E-05	ND	ND	ND	ND	ND	ND	ND	5.56E-05	5.15E-07	5.69E-06	3.32E-07	3.84E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	2.25E-01	2.25E-01	ND	1.57E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.64E+00	ND	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	1.06E-01	1.06E-01	ND	1.19E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.90E+00	ND	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	4.35E-01	4.35E-01	0.00E+00	8.24E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	7.77E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	7.77E-02	7.77E-02	0.00E+00	1.47E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	1.39E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	3.58E-01	3.58E-01	0.00E+00	6.77E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	6.39E+00	0.00E+00	0.00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	3.07E+01	2.28E+00	2.19E+00	3.52E+01	1.49E-01	1.96E+00	ND	ND	ND	ND	ND	ND	ND	9.68E-01	1.13E-01	5.30E+00	1.87E-01	-9.98E+00
Ozone depletion Pot.	kg $CFC_{-11}e$	9.92E-05	3.81E-08	3.66E-08	9.93E-05	2.49E-09	2.01E-06	ND	ND	ND	ND	ND	ND	ND	1.91E-08	1.81E-09	5.84E-09	5.92E-10	1.40E-07
Acidification	kg SO_2e	9.38E-02	4.35E-03	1.00E-02	1.08E-01	2.81E-04	7.66E-03	ND	ND	ND	ND	ND	ND	ND	5.09E-03	1.91E-04	4.69E-03	1.93E-04	-3.37E-02
Eutrophication	kg $PO_4^{3}e$	2.66E-02	1.09E-03	5.78E-03	3.34E-02	7.00E-05	1.94E-03	ND	ND	ND	ND	ND	ND	ND	1.17E-03	4.82E-05	1.64E-03	1.46E-03	-1.68E-03
POCP (“smog”)	kg C_2H_4e	1.16E-02	4.42E-04	8.24E-04	1.29E-02	2.86E-05	6.84E-04	ND	ND	ND	ND	ND	ND	ND	3.85E-04	2.02E-05	2.84E-04	3.85E-05	-4.45E-03
ADP-elements	kg Sbe	1.48E-04	6.41E-06	3.90E-06	1.58E-04	4.19E-07	5.03E-06	ND	ND	ND	ND	ND	ND	ND	9.89E-07	3.71E-07	1.27E-05	6.62E-08	-5.45E-05

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-fossil	MJ	5.19E+02	3.38E+01	2.62E+01	5.79E+02	2.21E+00	2.58E+01	ND	ND	ND	ND	ND	ND	ND	1.31E+01	1.57E+00	4.85E+00	6.54E-01	-8.18E+01

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	3.12E+01	2.30E+00	2.18E+00	3.56E+01	1.50E-01	1.97E+00	ND	ND	ND	ND	ND	ND	ND	9.73E-01	1.14E-01	5.32E+00	1.95E-01	-1.00E+01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, wind, 1-3MW turbine, onshore, United Kingdom, Ecoinvent, 0.0144 kgCO2e/kWh
2. Heat and power co-generation, wood chips, 6667 kW, state-of-the-art 2014, United Kingdom, Ecoinvent, 0.0550 kgCO2e/kWh
3. Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted, United Kingdom, Ecoinvent, 0.0806 kgCO2e/kWh
4. Electricity production, hydro, pumped storage, United Kingdom, Ecoinvent, 0.41 kgCO2e/kWh
5. Diesel, burned in building machine, World, Ecoinvent, 0.10 kgCO2e/MJ
6. Electricity voltage transformation from high to medium voltage, United Kingdom, Ecoinvent, 0.25 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry >32 metric ton, EURO6, 100 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	0.00E+00
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

1. Steel production, converter, low-alloyed, Ecoinvent, 0.021 kg
2. Metal working, average for steel product manufacturing, Ecoinvent, 0.021 kg
3. Market for electricity, medium voltage, Ecoinvent, 1.0 kWh
4. Diesel, burned in building machine, Ecoinvent, 2.0 kWh

Installation scenario documentation - A5 (Installation waste)

1. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.15238 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.00802 kg
3. Market for waste plastic, mixture, Ecoinvent, Materials for energy recovery, 0.079381818 kg
4. Market for waste plastic, mixture, Ecoinvent, Materials for energy recovery, 0.037 kg
5. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.1225 kg
6. Market for waste packaging paper, Ecoinvent, 0.211 kg
7. Exported Energy: Thermal, Ecoinvent, 0.374481776 MJ
8. Exported Energy: Thermal, Ecoinvent, 6.385671909 MJ
9. Exported Energy: Electricity, Ecoinvent, 0.081409082 MJ
10. Exported Energy: Electricity, Ecoinvent, 1.388189545 MJ

End-of-life scenario documentation - C1-C4 (Data source)

1. Market for electricity, medium voltage, Ecoinvent, 1.0 kWh
2. Diesel, burned in building machine, Ecoinvent, 2.0 kWh
3. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 7.63895 kg
4. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.40205 kg
5. Treatment of waste polyurethane, municipal incineration, Ecoinvent, Materials for energy recovery, 1.9 kg
6. Treatment of waste plastic plaster, sanitary landfill, Ecoinvent, 0.186 kg
7. Treatment of waste polyurethane, sanitary landfill, Ecoinvent, 1.9 kg
8. Exported Energy: Electricity, Ecoinvent, 1.388189545 MJ
9. Exported Energy: Thermal, Ecoinvent, 6.385671909 MJ

Scenario information	Value
Scenario assumptions e.g. transportation	50km

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

Verified tools

Tool verifier: Magaly Gonzalez Vazquez
Tool verification validity: 27 March 2025 - 26 March 2028

Yazan Badour as an authorized verifier for EPD Hub Limited 22.04.2026

VERIFIED ISO 14025

ANNEX 1

SCALING TABLE A1-A3

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Thickness of Product	50mm	60mm	80mm	100mm	125mm	150mm	175mm	200mm	220mm
Impact Category	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3	A1-A3
GWP Total KgCO2e	0.83	0.87	0.93	1.00	1.05	1.17	1.25	1.33	1.40
GWP Fossil kgCO2e	0.83	0.87	0.94	1.00	1.04	1.17	1.25	1.33	1.40

ANNEX 2

SCALING TABLE A-C:

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Thickness of Product	50mm	60mm	80mm	100mm	125mm	150mm	175mm	200mm	220mm
Impact Category	A-C	A-C	A-C	A-C	A-C	A-C	A-C	A-C	A-C
GWP Total KgCO2e	0.80	0.84	0.92	1.00	1.05	1.20	1.30	1.39	1.47
GWP Fossil kgCO2e	0.80	0.84	0.92	1.00	1.05	1.20	1.30	1.40	1.47