



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

OBEX CORTEX 0221FR Class A2 Breather Membrane



EPD HUB, HUB-5791

Published on 19.03.2026, last updated on 19.03.2026, valid until 18.03.2031

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.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	OBEX Protection Ltd
Address	Unit 5, Norton Road, Broomhall, Worcester, WR5 2QR, United Kingdom
Contact details	technical@obexuk.com
Website	obexglobal.com

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 (Verification in process)
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Muhammad Zeeshan (Independent consultant)
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input checked="" type="checkbox"/> Internal verification <input type="checkbox"/> External verification
EPD verifier	Sarah Curpen 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	OBEX CORTEX 0221FR Class A2 Breather Membrane
Additional labels	
Product reference	0221FR Breather Membrane
Place(s) of raw material origin	Europe
Place of production	United Kingdom
Place(s) of installation and use	United Kingdom
Period for data	01/01/2024 until 31/12/2024
Averaging in EPD	No grouping
A1-A3 Specific data (%)	14.2

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m ² of OBEX CORTEX 0221FR Class A2 Breather Membrane
Declared unit mass	0.22344 kg
Mass of packaging	0.0125 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	0.7
GWP-total, A1-A3 (kgCO ₂ e)	0.68
Secondary material, inputs (%)	0.7
Secondary material, outputs (%)	66.5
Total energy use, A1-A3 (kWh)	2.92
Net freshwater use, A1-A3 (m ³)	0

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

OBEX Protection Ltd specializes in the manufacture and distribution of innovative protection films and membrane solutions for the construction industry.

The company was founded in Worcester UK by the Francis family in January 2010 and has since become the global leader in fire-rated membrane innovation for the window and façade industry.

In the early years, OBEX focused on the production of protection tapes and films for the window manufacturing industry, building a reputation for quality products backed by an excellent service.

In 2013, OBEX received ISO 9001 certification. We also opened our Australian office, shipping product from the UK to supply the growing demand in Australasia.

Two years later in 2015 we opened our French division, where the SPEEDSTER taping system proved to be very popular.

It was during 2015 that OBEX took the step of diversification into the production of EPDM membranes, quickly becoming a key supplier of membranes and associated products to the construction industry. Over the next few months, the rapidly increasing demand for OBEX products required investment in state-of-the-art machinery, including sending the first slitting machine out to Australia.

One of the most significant innovations in the history of OBEX has been the development of our OBEX CORTEX fire-rated membrane systems. This has become a real game-changer for the construction industry for two reasons:

- Firstly, architects, contractors and installers now have a source for façade membrane systems that are not only compliant with the

government's fire-regulations but, importantly, are also rigorously tested to the correct EN standards for performance.

- Secondly, they also have access to our expertise in correct product specification, correct installation procedures and compatibility data, as well as a free site-support provision for install training and QA reporting.

July 2020 saw us relocate to our brand new 27,500 sq.ft. premises, providing space for greater stock holding, a new R&D zone and a great environment for the OBEX team.

Today, OBEX Protection continues its rapid growth, based on a strong commitment to innovation, quality and service, backed by a culture of openness, honesty and fairness.

PRODUCT DESCRIPTION

OBEX CORTEX 0221FR Class A2 Breather Membrane features water resistant yet breathable technology, which facilitates the escape of moisture and the prevention of condensation within the external wall construction. It can be applied to many surfaces including sheathing board, concrete and insulation.

OBEX CORTEX 0221FR is a black membrane, so makes for an excellent backdrop behind perforated or open jointed cladding.

The membrane is installed using the OBEX CORTEX 0825 Installation Kit which includes 2 rolls of 0824FR Double-Sided Tape and 6 rolls of single sided 0823FR UV Façade Tape.

TYPICAL USES

Class A2 external breather membrane for use in facades and other construction applications.

Further information can be found at:
obexglobal.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	84.8	Europe
Fossil materials	10.8	Europe
Bio-based materials	4.4	Europe

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.005

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m2 of 0221FR Breather Membrane
Mass per declared unit	0.22344kg
Functional unit	-
Reference service life	60 Years

SUBSTANCES, REACH - VERY HIGH CONCERN

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

TECHNICAL SPECIFICATIONS

Technical Specs

Harmonised Standard

EN 13859-2

Fire Classification | EN 13501-1

A2-s1,d0

Watertightness | EN 13111

W2

Sd Value | EN ISO 12572

0.03m

Tensile Strength | EN 12311-2Longitudinal – 3828 N/50mm, Transversal - 1992
N/50mm**3rd Party Approved**

KIWA Approval – BAW-22-244-P-A-UK

UV Resistance

12 Months UV Resistance

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

Modules not declared = ND. Modules not relevant = MNR

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage include the manufacturing of all raw materials used in production, as well as packaging materials and other ancillary inputs. This stage also covers fuels and electricity used by production machinery, the handling and treatment of waste generated during manufacturing, material losses occurring within the production processes, and losses associated with electricity transmission. All packaging materials used for the packing of the OBEX CORTEX 0221FR breather membrane are documented in the EPD. A location based electricity modelling approach has been applied throughout the study.

The manufacturing process begins with the procurement of raw materials for the 0220FR breather membrane from authorised suppliers. Upon receipt, raw materials are handled and processed according to a defined formulation, after which membrane production is carried out through a controlled manufacturing process. The process then proceeds to packaging, where the membrane is protected using plastic film and cardboard boxes. The packaged products are subsequently placed on pallets for safe handling and transportation. Finally, the finished and securely packaged 0221FR breather membrane is delivered to customers.

This streamlined manufacturing process ensures that product integrity and performance are maintained while adhering to the sustainability practices outlined in the supplier’s Environmental Product Declaration. All manufacturing activities are conducted under the site’s ISO 9001:2015-certified Quality Management System and ISO 14001:2015-certified Environmental Management System.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts in Module A4 cover the delivery of the finished product from the manufacturing facility to the construction site by lorry. These impacts include direct exhaust emissions from fuel combustion as well as the upstream environmental impacts associated with fuel production. To determine the transport distance, the main customers for the year 2024 were identified and the average delivery distance to customer sites was calculated. Based on this assessment, an average transport distance of 187.6 km has been applied in the EPD.

For the declared unit of 1 m², the total transported mass of the product, including packaging, is 0.23594 kg, which forms the basis for transport calculations to the customer site. All packaging materials associated with the product, including plastic film, cardboard, and wooden pallets, are assumed

to become waste during installation and are therefore included in Module A5.

No energy consumption is required for the installation of the OBEX CORTEX 0221FR membrane. Consequently, no energy inputs are modelled in Module A5 for installation activities.

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.

Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

No Energy consumption is considered in this section for the process of deconstruction (C1) from the building as it is removed from the building manually by hand. It is assumed that 70% of the final product is recycled and 30% transported to landfill as per EU directives as it is mostly polymer.

For plastic packaging it is assumed that 70% of the packaging is recycled and 30% is transported to landfill for packaging plastic material in the end-of-life section as per EU directives.

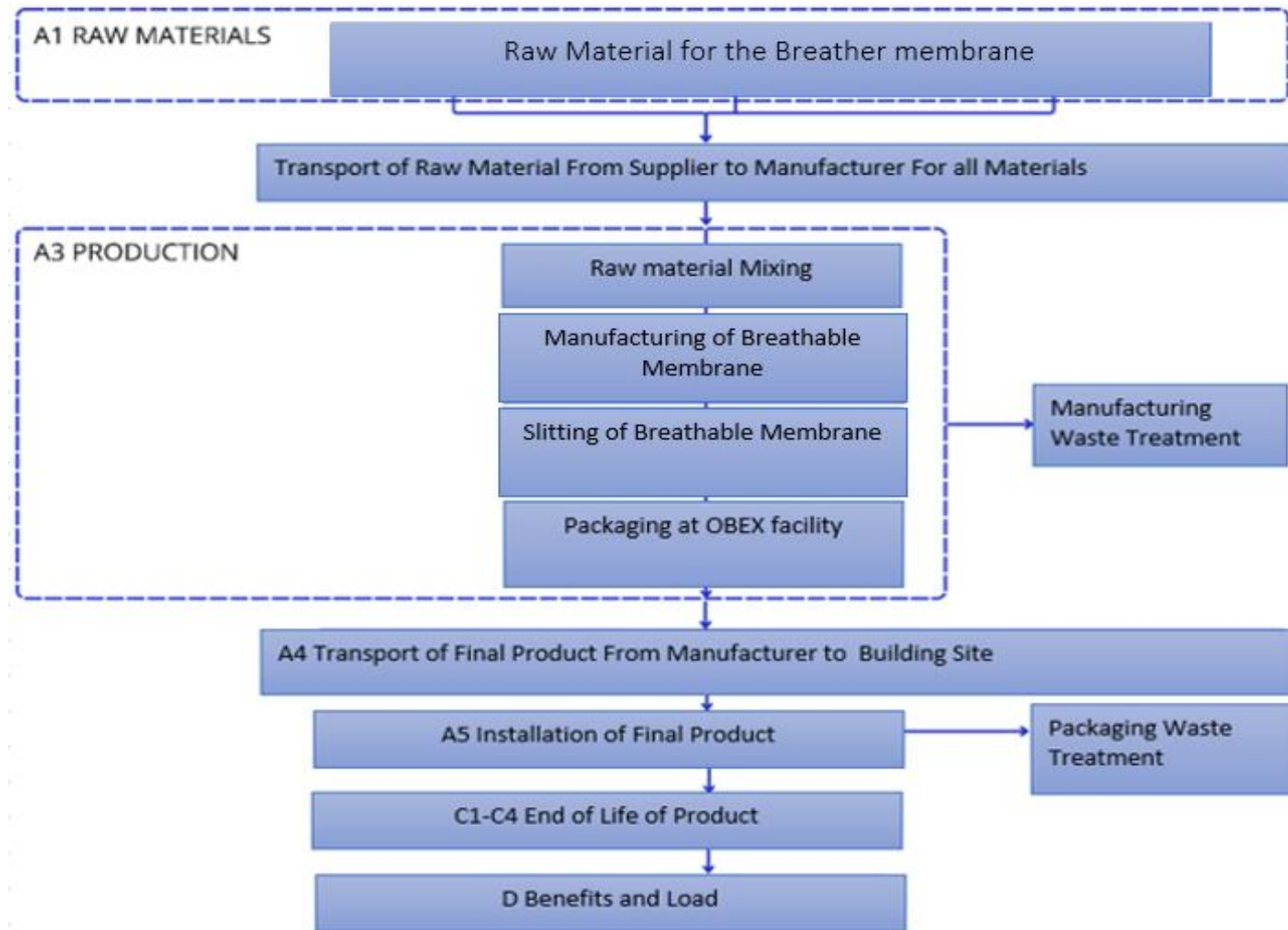
For cardboard packaging it is assumed that 80% of the cardboard packaging is recycled and 20% is transported to landfill as per European Commission.

The wooden pallet is taken as per the RICS WLCA methodology, which states that the end-of-life scenarios for wood panel products are 99% incineration for energy recovery, with 1% disposed of in landfill.

The recycling facility, incineration facility and landfill site are assumed to be 50 km away from the demolition site. All the distance is covered using EURO 6 lorry 3.5-7.5 metric ton.

As demolition did not involve any process or energy that's why it is not included in the C1 section. It is done manually. In C2 transportation from the demolition site to incineration/ recycling/ landfilling site are included in the EPD. In C3 section plastic/ cardboard materials are recycled back after end of life and wood base products are burnt for energy recovery. All transportation involved in the end of life is incorporated in the EPD. Remaining waste after recycling and incineration is landfilled as mentioned in the C4 section. For recycling of the final product after end-of-life benefits of recycled material is added in the section D. Module D reports the potential benefits and loads associated with the end-of-life treatment of packaging materials used for the product. This includes recycling of plastic and cardboard packaging and energy recovery from incineration of untreated wood. These impacts are reported beyond the system boundary in accordance with EN 15804+A2, with no double counting with Module C.

SYSTEM DIAGRAM



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.

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	No allocation
Manufacturing energy and waste	No allocation

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 System Verification v3.2.3. 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 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

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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 ₂ e	5.82E-01	4.31E-02	5.26E-02	6.78E-01	2.79E-02	2.18E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.82E-03	1.42E-02	2.30E-02	-4.33E-01
GWP – fossil	kg CO ₂ e	5.82E-01	4.30E-02	7.36E-02	6.98E-01	2.79E-02	6.12E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.82E-03	1.42E-02	2.30E-02	-4.30E-01
GWP – biogenic	kg CO ₂ e	0.00E+00	0.00E+00	-2.12E-02	-2.12E-02	0.00E+00	2.12E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.70E-03
GWP – LULUC	kg CO ₂ e	6.59E-04	2.31E-05	1.76E-04	8.59E-04	1.49E-05	2.68E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.43E-06	1.56E-05	6.97E-06	-1.79E-04
Ozone depletion pot.	kg CFC ₋₁₁ e	2.71E-08	6.12E-10	2.67E-09	3.04E-08	3.93E-10	4.71E-12	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.04E-11	5.62E-11	1.04E-10	-1.35E-08
Acidification potential	mol H ⁺ e	4.46E-03	5.82E-04	2.34E-04	5.28E-03	6.50E-05	3.13E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.49E-06	5.01E-05	7.47E-05	-1.36E-03
EP-freshwater ²⁾	kg Pe	1.67E-04	2.86E-06	2.27E-05	1.93E-04	2.54E-06	1.04E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.46E-07	3.16E-06	6.75E-05	-7.52E-05
EP-marine	kg Ne	8.83E-04	1.43E-04	6.23E-05	1.09E-03	1.37E-05	1.39E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.92E-06	3.45E-05	2.47E-05	-2.54E-04
EP-terrestrial	mol Ne	9.52E-03	1.58E-03	6.59E-04	1.18E-02	1.48E-04	1.31E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.08E-05	1.69E-04	2.49E-04	-2.75E-03
POCP (“smog”) ³⁾	kg NMVOCe	2.87E-03	4.67E-04	2.02E-04	3.54E-03	8.26E-05	3.70E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.01E-05	5.25E-05	7.17E-05	-2.00E-03
ADP-minerals & metals ⁴⁾	kg Sbe	6.24E-05	1.27E-07	2.13E-07	6.27E-05	1.21E-07	2.61E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.10E-08	9.30E-08	9.92E-08	-3.15E-06
ADP-fossil resources	MJ	7.27E+00	5.63E-01	1.65E+00	9.48E+00	3.81E-01	5.04E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.93E-02	7.77E-02	1.36E-01	-1.21E+01
Water use ⁵⁾	m ³ e depr.	1.80E-01	2.38E-03	1.99E-02	2.03E-01	1.96E-03	3.60E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.99E-04	2.72E-03	2.76E-03	-1.17E-01

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	3.56E-08	1.95E-09	2.73E-09	4.03E-08	1.55E-09	8.14E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.94E-10	5.32E-09	7.71E-10	-1.12E-08
Ionizing radiation ⁶⁾	kBq	3.09E-02	4.27E-04	4.77E-02	7.90E-02	3.64E-04	9.66E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.65E-05	3.28E-04	2.34E-04	-1.40E-02
Ecotoxicity (freshwater)	CTUe	3.43E+01	8.72E-02	5.40E+00	3.98E+01	7.88E-02	3.90E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.33E-03	2.47E+00	2.30E+01	-3.03E+00
Human toxicity, cancer	CTUh	4.34E-10	8.24E-12	2.05E-10	6.47E-10	4.94E-12	1.44E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.90E-13	3.94E-11	9.88E-10	-5.02E-11
Human tox. non-cancer	CTUh	2.84E-08	2.62E-10	3.99E-08	6.86E-08	2.30E-10	3.17E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.42E-11	3.10E-10	2.24E-07	-2.86E-09
SQP ⁷⁾	-	1.47E+00	1.65E-01	2.76E+00	4.40E+00	1.60E-01	4.47E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.37E-02	1.52E-01	1.45E-01	-1.07E+00

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	5.40E-01	7.71E-03	5.00E-01	1.05E+00	6.69E-03	-1.53E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.42E-04	8.81E-03	6.18E-03	-1.94E-01
Renew. PER as material	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	2.00E-02
Total use of renew. PER	MJ	5.40E-01	7.71E-03	5.00E-01	1.05E+00	6.69E-03	-1.53E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.42E-04	8.81E-03	6.18E-03	-1.74E-01
Non-re. PER as energy	MJ	7.27E+00	5.63E-01	1.64E+00	9.47E+00	3.81E-01	-1.91E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.93E-02	-6.56E+00	1.36E-01	-1.21E+01
Non-re. PER as material	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	6.69E+00
Total use of non-re. PER	MJ	7.27E+00	5.63E-01	1.64E+00	9.47E+00	3.81E-01	-1.91E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.93E-02	-6.56E+00	1.36E-01	-5.42E+00
Secondary materials	kg	1.64E-03	2.87E-04	8.52E-04	2.78E-03	2.03E-04	7.43E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.96E-05	4.88E-04	3.12E-05	1.68E-01
Renew. secondary fuels	MJ	1.84E-05	2.59E-06	4.45E-03	4.47E-03	2.61E-06	1.11E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.52E-07	4.11E-06	4.71E-06	-1.40E-05
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	4.25E-03	6.45E-05	4.47E-04	4.76E-03	5.48E-05	3.15E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.70E-06	4.77E-05	6.48E-05	-2.94E-03

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	4.15E-02	9.91E-04	3.03E-02	7.28E-02	7.77E-04	2.23E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.59E-05	1.46E-03	1.54E-01	-2.30E-02
Non-hazardous waste	kg	1.35E+00	1.76E-02	6.22E-02	1.43E+00	1.51E-02	9.62E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.46E-03	3.51E-02	1.28E-02	-1.66E+00
Radioactive waste	kg	7.52E-06	1.05E-07	1.04E-05	1.81E-05	8.92E-08	2.33E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.94E-09	8.22E-08	5.76E-08	-3.37E-06

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	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
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.65E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	1.56E-01	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.91E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	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
Exported energy – Electricity	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
Exported energy –	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

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 ₂ e	5.80E-01	4.28E-02	7.38E-02	6.96E-01	2.77E-02	6.80E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.81E-03	1.64E-02	2.29E-02	-4.16E-01
Ozone depletion Pot.	kg CFC ₁₁ e	2.78E-08	4.88E-10	2.15E-09	3.05E-08	3.15E-10	3.85E-12	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.23E-11	4.85E-11	8.45E-11	-1.11E-08
Acidification	kg SO ₂ e	3.67E-03	4.65E-04	1.84E-04	4.32E-03	5.30E-05	2.28E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.96E-06	3.87E-05	5.54E-05	-1.12E-03
Eutrophication	kg PO ₄ ³ e	1.27E-03	5.74E-05	1.43E-04	1.47E-03	1.27E-05	7.62E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.44E-06	1.31E-05	1.18E-05	-7.75E-03
POCP (“smog”)	kg C ₂ H ₄ e	1.96E-04	2.51E-05	1.55E-05	2.37E-04	4.89E-06	2.22E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.43E-07	7.20E-06	3.91E-06	-1.49E-04
ADP-elements	kg Sbe	6.23E-05	1.23E-07	2.01E-07	6.26E-05	1.18E-07	1.98E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.07E-08	9.22E-08	5.87E-08	-3.11E-06
ADP-fossil	MJ	6.74E+00	5.56E-01	1.00E+00	8.30E+00	3.75E-01	4.88E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.87E-02	7.25E-02	1.33E-01	-1.19E+01

ENVIRONMENTAL IMPACTS – FRENCH NATIONAL COMPLEMENTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements	kg Sbe	0.00E+00	1.23E-07	1.47E-09	1.25E-07	1.18E-07	2.99E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.07E-08	0.00E+00	0.00E+00	-3.11E-06
Hazardous waste disposed	kg	4.15E-02	9.91E-04	3.03E-02	7.28E-02	7.77E-04	2.23E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.59E-05	1.46E-03	1.54E-01	-2.30E-02
Non-haz. waste disposed	kg	1.35E+00	1.76E-02	6.22E-02	1.43E+00	1.51E-02	9.62E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.46E-03	3.51E-02	1.28E-02	-1.66E+00
Air pollution	m ³	2.91E+02	7.97E+00	1.69E+01	3.16E+02	5.11E+00	1.38E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.66E-01	4.82E+00	3.29E+00	-1.41E+02
Water pollution	m ³	2.09E+00	2.64E-01	2.03E+00	4.38E+00	1.73E-01	7.72E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.79E-02	3.40E-02	5.39E+00	-5.56E+00

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 ₂ e	5.82E-01	4.31E-02	7.38E-02	6.99E-01	2.79E-02	6.12E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.82E-03	1.42E-02	2.30E-02	-4.30E-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. Market for electricity, medium voltage, United Kingdom, Ecoinvent, 0.30 kgCO₂e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry 3.5-7.5 metric ton, EURO6, 200 km

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste polyethylene terephthalate, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.00105 kg
2. Treatment of residues, MSWI, waste plastic, consumer electronics, residual material landfill, Ecoinvent, 4.5E-4 kg
3. Treatment of residues, MSWI, waste plastic, consumer electronics, residual material landfill, Ecoinvent, 9.0E-5 kg
4. Treatment of residues, MSWI, waste plastic, consumer electronics, residual material landfill, Ecoinvent, 4.0E-4 kg
5. Treatment of waste plaster-cardboard sandwich, recycling, Ecoinvent, Materials for recycling, 0.0016 kg
6. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, Materials for energy recovery, 0.00891 kg

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

1. Treatment of residues, MSWI, waste plastic, consumer electronics, residual material landfill, Ecoinvent, 0.067032 kg
2. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.156408 kg

Scenario information	Value
Scenario assumptions e.g. transportation	50

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

Sarah Curpen as an authorized verifier for EPD Hub
19.03.2026

