ELLIS

Holding Power

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH
EN 15804+A2 & ISO 14025

POLYMER CABLE CLEATS

EPD HUB, HUB-5531 Published on 16.03.2026,
last updated on 16.03.2026, valid until 15.03.2031

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Ellis Patents Ltd
Address	High Street, Rillington, Malton, North Yorkshire, YO17 8LA, United Kingdom
Contact details	sales@ellispatents.co.uk
Website	https://www.ellispatents.co.uk/

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	Manufactured product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Sonia Villalobos
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited

PRODUCT

Product name	Polymer Cable Cleat
Additional labels	Solus, Trident
Product reference	TR24-29GFN, TR27-32GFN, TR30-36GFN, TR34-41GFN, TR39-47GFN, TR45-54GFN, TR52-62GFN, TR60-72GFN, TR69-83GFN, TR24-29LSF, TR27-32LSF, TR30-36LSF, TR34-41LSF, TR39-47LSF, TR45-54LSF, TR52-62LSF, TR60-72LSF, TR69-83LSF.
Place(s) of raw material origin	Italy Germany China Taiwan
Place of production	Rillington, Malton, England, United Kingdom
Place(s) of installation and use	United Kingdom Europe Australasia Middle East
Period for data	1st March 2024 - 28th February 2025
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	NA
A1-A3 Specific data (%)	9.01

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. 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.

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
Mass of packaging	0.0396 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	7.28
GWP-total, A1-A3 ($kgCO_2e$)	7.25
Secondary material, inputs (%)	22.1
Secondary material, outputs (%)	274
Total energy use, A1-A3 (kWh)	24.9
Net freshwater use, A1-A3 (m^3)	0.14

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Ellis is widely recognised as a global leader in the design and manufacture of safety-critical electrical cable cleats, cable hangers, clips, and fixing solutions as well as bespoke solutions for individual project specifications.

Our products are installed across a broad spectrum of industries, from nuclear power plants to wind farms and oil rigs, city centre substations to major rail, road and air transport infrastructure projects.

Our headquarters in North Yorkshire, England is certified to the highest international standards, including ISO 9001, 14001, 45001 & BS EN 1090. Every Ellis cable cleat adheres to IEC 61914 and undergoes rigorous short-circuit testing before market launch.

PRODUCT DESCRIPTION

The Ellis Solus™ and Ellis Trident® cable cleats are both designed for secure cable management and manufactured in accordance with high industry standards. The Ellis Solus™ clamp has been designed, developed, tested and manufactured in accordance with IEC61914 (cable cleats for electrical installations). The Solus™ clamp is available in four sizes and can accommodate cables ranging from Ø 19 – Ø 90mm.

Solus™ can also be stacked to allow new cable runs to be added quickly and easily. Manufactured as standard in LSF, which is PFAS and halogen free, flame retardant and suitable for outdoor applications. For higher temperature applications, GFN is also available, which offers the same material properties as LSF but offers a higher operating temperature (-60ºC to +120ºC). This gives the product an extremely long lifespan and is suitable for indoor and outdoor applications.

Single or double-bolt fixing options are available depending on the installation. Available in the next presentations: SL25-38GFN, SL36-52GFN, SL49-75GFN, SL66-90GFN, SL25-38LSF, SL36-52LSF, SL49-75LSF and SL66-90LSF.

The Ellis Trident® Cleat has been designed, developed, tested and manufactured in accordance with IEC 61914 (cable cleats for electrical installations).

The cleat is available in a range of sizes with range taking ability to suit cables in trefoil formation. The cleat is manufactured as standard in LSF which is PFAS and halogen free, flame retardant and suitable for outdoor applications. For higher temperature applications GFN has the same material properties as LSF but offers a higher operating temperature. (+120˚C)

Trident® can be fixed to the supporting structure by either two M10 fixings or one M12 fixing. Fixings for the cleat can also be supplied.

Available in the next presentations: TR24-29GFN, TR27-32GFN, TR30-36GFN, TR34-41GFN, TR39-47GFN, TR45-54GFN, TR52-62GFN, TR60-72GFN, TR69-83GFN, TR24-29LSF, TR27-32LSF, TR30-36LSF, TR34-41LSF, TR39-47LSF, TR45-54LSF, TR52-62LSF, TR60-72LSF and TR69-83LSF.

The product designated for the Environmental Product Declaration (EPD) is the Solus SL49-75GFN model. This model has been selected based on an analysis of historical sales records and recent purchase orders, ensuring that it accurately represents the typical product used in the market. Its selection reflects both the prevalence of this model in commercial use and its relevance for environmental performance assessment.

Further information can be found at:
https://www.ellispatents.co.uk/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	39.15	Europe, Asia
Minerals	-	-
Fossil materials	60.85	Europe
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.18

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	35 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 grid electricity, while a location-based approach is applied to on-site generated solar power. Raw materials consist of a glass filled nylon polymer and a low smoke halogen-free polymer. The distance between the exact manufacturing location and the ELLIS Patents factory have been determined. Distances for the transportation of raw materials consist of lorry and sea freight. The GFN polymer and LSF polymer parts are formed through injection moulding.

All distances from the gate of a company to the end of waste facilities is assumed to equal 50 km. Solar power generates some of the electricity required for injection moulding and assembly of the clamps. The assembled cable clamps are packaged in fully recyclable cardboard boxes with cardboard layer cards. The boxes are typically loaded onto a wooden pallet and wrapped in PE film.

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 average distance from the Ellis Patents factory to the installation site is assumed to equal 4,486.65 km by lorry and 80.91 km by sea freight based on 1 year of sales data. Transportation does not cause losses as the clamps are packaged properly.

The cable clamps can easily by assembled by hand with a ratchet. However, for completeness, it is assumed that a small electric power tool is used. The electricity required to assemble 1 kg cable clamps is included. This is an incredibly small value due to the products having a single set of easy to assemble fixings. All the packaging materials are fully recyclable. Based on the collected data, the average sales distribution is as follows: United Kingdom – 10%, Australasia – 3%, and Middle East – 87%. Given this distribution, we will use Saudi Arabia's waste disposal statistics as the worst-case scenario for our analysis. According to research by Thabit et al. (2022), in Saudi Arabia, approximately 15% of waste is recycled while 85% is sent to landfill.

Source: Thabit et al. (2022). Waste Management in Saudi Arabia. https://doi.org/10.3390/waste1010005

PRODUCT USE AND MAINTENANCE (B1-B7)

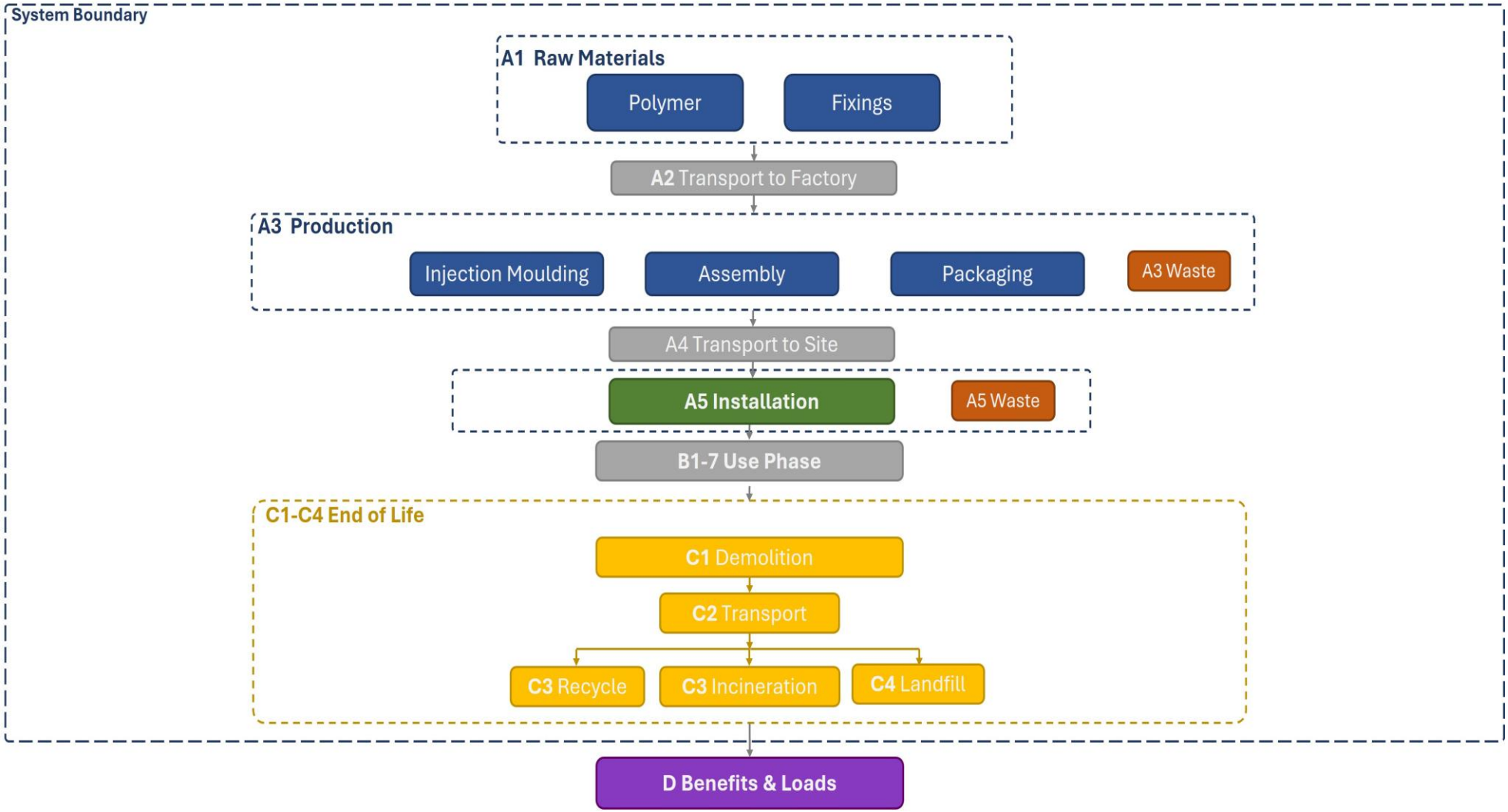
This EPD does not cover the use phase. Once installed, the cable clamps remain in place until their end of life and require no maintenance.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

Disassembly of the clamps, with a small electric power tool, is assumed to consume the same amount of electricity required to assemble the clamps in module A5. Transportation distances from product disassembly to waste processing / landfill is assumed to equal 50 km by lorry. Based on the collected data, the average sales distribution is as follows: United Kingdom – 10%, Australasia – 3%, and Middle East – 87%. Given this distribution, we will use Saudi Arabia's waste disposal statistics as the worst-case scenario for our analysis. According to research by Thabit et al. (2022), in Saudi Arabia, approximately 15% of waste is recycled while 85% is sent to landfill.

Source: Thabit et al. (2022). Waste Management in Saudi Arabia. https://doi.org/10.3390/waste1010005

SYSTEM BOUNDARY



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.

No cut-off applied in the study as everything was included.

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	Allocated by mass or volume
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, %	NA

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. 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‘.

Thabit et al. (2022). Waste Management in Saudi Arabia. https://doi.org/10.3390/waste1010005

https://www.crownoil.co.uk/guides/heating-oil-guide/

https://www.crownoil.co.uk/guides/heating-oil-guide/#:~:text=10.35%20kWh%20energy%20output%20per%20litre%20of%20kerosene
https://jcb-tools.co.uk/jcb-18v-cordless-drill-driver-4-0ah-li-ion-battery-2-4a-charger-13mm-1-2-keyless-chuck-jcb-18dd-4xb/#:~:text=Powerful%20Battery%20and%20Fast%20Charging&text=The%20charger's%20input%20power%20of,complete%20your%20tasks%20without%20interruptions.

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	6.60E+00	3.16E-01	3.34E-01	7.25E+00	9.03E-01	7.73E-02	ND	ND	ND	ND	ND	ND	ND	5.32E-05	8.05E-03	1.09E-01	5.03E-02	-2.29E-01
GWP – fossil	kg CO_2e	6.57E+00	3.16E-01	3.95E-01	7.28E+00	9.03E-01	1.85E-03	ND	ND	ND	ND	ND	ND	ND	5.30E-05	8.04E-03	1.09E-01	5.03E-02	-2.29E-01
GWP – biogenic	kg CO_2e	2.55E-02	6.21E-05	-6.22E-02	-3.67E-02	1.79E-04	7.54E-02	ND	ND	ND	ND	ND	ND	ND	8.00E-08	1.76E-06	1.56E-05	-3.34E-05	6.70E-04
GWP – LULUC	kg CO_2e	2.12E-03	1.14E-04	9.92E-04	3.22E-03	3.19E-04	1.38E-06	ND	ND	ND	ND	ND	ND	ND	1.05E-07	3.49E-06	1.88E-06	5.16E-06	-2.62E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	1.94E-08	6.21E-09	1.52E-08	4.07E-08	1.80E-08	2.46E-11	ND	ND	ND	ND	ND	ND	ND	3.68E-13	1.19E-10	-8.88E-11	2.11E-10	-1.73E-09
Acidification potential	mol H^+e	3.00E-02	1.27E-03	9.40E-04	3.23E-02	2.85E-03	9.01E-06	ND	ND	ND	ND	ND	ND	ND	2.75E-07	2.68E-05	1.55E-05	5.85E-05	-1.34E-03
EP-freshwater[2)]	kg Pe	8.27E-04	2.06E-05	4.21E-05	8.90E-04	5.98E-05	5.15E-07	ND	ND	ND	ND	ND	ND	ND	2.41E-08	6.15E-07	-2.11E-02	8.18E-07	-6.32E-05
EP-marine	kg Ne	8.44E-03	4.00E-04	2.35E-04	9.08E-03	9.57E-04	4.38E-05	ND	ND	ND	ND	ND	ND	ND	5.21E-08	8.75E-06	3.15E-05	1.09E-03	-2.20E-04
EP-terrestrial	mol Ne	5.11E-02	4.37E-03	2.23E-03	5.77E-02	1.04E-02	2.90E-05	ND	ND	ND	ND	ND	ND	ND	5.28E-07	9.52E-05	3.43E-04	2.37E-04	-2.53E-03
POCP ("smog")[3)]	kg NMVOCe	1.71E-02	1.73E-03	8.93E-04	1.98E-02	4.44E-03	1.63E-05	ND	ND	ND	ND	ND	ND	ND	1.58E-07	3.84E-05	5.94E-05	9.19E-05	-7.85E-04
ADP-minerals & metals[4)]	kg Sbe	6.08E-05	1.01E-06	2.07E-06	6.38E-05	2.95E-06	4.49E-09	ND	ND	ND	ND	ND	ND	ND	3.03E-10	2.54E-08	8.98E-08	1.65E-08	-7.16E-06
ADP-fossil resources	MJ	8.98E+01	4.42E+00	6.96E+00	1.01E+02	1.27E+01	2.29E-02	ND	ND	ND	ND	ND	ND	ND	6.86E-04	1.14E-01	-1.47E+00	1.81E-01	-2.58E+00
Water use[5)]	m^3e depr.	5.53E+00	2.14E-02	8.54E-02	5.63E+00	6.23E-02	2.18E-04	ND	ND	ND	ND	ND	ND	ND	1.34E-05	5.41E-04	2.98E-04	8.13E-04	-5.28E-02

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	4.36E-07	2.44E-08	6.45E-09	4.67E-07	7.09E-08	1.53E-10	ND	ND	ND	ND	ND	ND	ND	2.36E-12	6.81E-10	-5.07E-10	1.28E-09	-1.70E-08
Ionizing radiation[6]	kBq U235e	1.99E-01	5.50E-03	1.42E-01	3.46E-01	1.62E-02	5.75E-05	ND	ND	ND	ND	ND	ND	ND	7.23E-06	9.98E-05	-5.42E-04	1.71E-04	-1.50E-02
Ecotoxicity (freshwater)	CTUe	1.09E+01	5.73E-01	7.11E-01	1.22E+01	1.66E+00	1.99E-01	ND	ND	ND	ND	ND	ND	ND	1.41E-04	1.72E-02	1.09E-02	1.80E+00	-1.31E-01
Human toxicity, cancer	CTUh	2.94E-09	5.42E-11	8.13E-11	3.08E-09	1.54E-10	7.54E-13	ND	ND	ND	ND	ND	ND	ND	9.42E-15	1.36E-12	-4.15E-11	6.14E-12	-2.22E-10
Human tox. non-cancer	CTUh	4.42E-08	2.73E-09	2.24E-09	4.92E-08	7.96E-09	1.14E-10	ND	ND	ND	ND	ND	ND	ND	5.09E-13	7.19E-11	3.89E-11	1.17E-09	-6.31E-10
SQP[7]	-	1.29E+01	2.59E+00	3.65E+00	1.92E+01	7.54E+00	2.99E-02	ND	ND	ND	ND	ND	ND	ND	1.24E-04	8.05E-02	3.14E-02	4.00E-01	-1.40E+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	6.75E+00	7.49E-02	1.27E+00	8.09E+00	2.19E-01	-6.20E-01	ND	ND	ND	ND	ND	ND	ND	1.04E-04	1.61E-03	-5.34E-03	2.65E-03	-7.24E-01
Renew. PER as material	MJ	0.00E+00	0.00E+00	5.39E-01	5.39E-01	0.00E+00	-5.39E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.51E-02
Total use of renew. PER	MJ	6.75E+00	7.49E-02	1.81E+00	8.63E+00	2.19E-01	-1.16E+00	ND	ND	ND	ND	ND	ND	ND	1.04E-04	1.61E-03	-5.34E-03	2.65E-03	-7.09E-01
Non-re. PER as energy	MJ	7.06E+01	4.42E+00	6.48E+00	8.15E+01	1.27E+01	-4.57E-03	ND	ND	ND	ND	ND	ND	ND	6.86E-04	1.14E-01	-1.47E+00	-1.86E+01	-2.58E+00
Non-re. PER as material	MJ	1.92E+01	0.00E+00	-3.28E-01	1.89E+01	0.00E+00	-4.80E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	-2.82E+00	-1.60E+01	3.92E+00
Total use of non-re. PER	MJ	8.98E+01	4.42E+00	6.15E+00	1.00E+02	1.27E+01	-5.26E-02	ND	ND	ND	ND	ND	ND	ND	6.86E-04	1.14E-01	-4.30E+00	-3.46E+01	1.34E+00
Secondary materials	kg	2.21E-01	2.02E-03	2.31E-02	2.46E-01	5.81E-03	1.06E-05	ND	ND	ND	ND	ND	ND	ND	9.83E-08	5.05E-05	3.93E-05	5.96E-05	2.58E-02
Renew. secondary fuels	MJ	8.89E-04	2.49E-05	1.09E-02	1.18E-02	7.33E-05	1.35E-07	ND	ND	ND	ND	ND	ND	ND	6.22E-10	6.42E-07	1.61E-06	1.14E-06	-4.08E-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	1.34E-01	5.87E-04	2.02E-03	1.36E-01	1.71E-03	-1.23E-04	ND	ND	ND	ND	ND	ND	ND	3.75E-07	1.56E-05	8.22E-06	-1.86E-03	-3.97E-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	2.01E+00	6.33E-03	1.04E-02	2.03E+00	1.82E-02	6.48E-05	ND	ND	ND	ND	ND	ND	ND	4.61E-06	1.93E-04	1.47E-04	2.90E-04	-2.73E-01
Non-hazardous waste	kg	8.90E+00	1.32E-01	2.90E-01	9.32E+00	3.84E-01	1.73E-01	ND	ND	ND	ND	ND	ND	ND	1.16E-04	3.65E-03	4.13E-03	2.57E+00	4.81E-01
Radioactive waste	kg	5.05E-05	1.37E-06	2.99E-05	8.18E-05	4.02E-06	1.42E-08	ND	ND	ND	ND	ND	ND	ND	1.77E-09	2.45E-08	1.66E-08	4.19E-08	-3.74E-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	5.86E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	5.87E-02	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	1.20E-02	1.20E-02	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	2.68E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	1.52E-01	1.52E-01	0.00E+00	1.25E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	2.59E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	6.40E-02	6.40E-02	0.00E+00	5.30E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	1.09E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	8.80E-02	8.80E-02	0.00E+00	7.20E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	1.50E+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	6.55E+00	3.14E-01	3.95E-01	7.26E+00	8.97E-01	2.17E-02	ND	ND	ND	ND	ND	ND	ND	5.29E-05	8.00E-03	1.10E-01	4.83E-02	-2.29E-01
Ozone depletion Pot.	kg CFC_{-11}e	1.62E-08	4.94E-09	1.23E-08	3.35E-08	1.43E-08	1.97E-11	ND	ND	ND	ND	ND	ND	ND	3.14E-13	9.52E-11	-1.85E-10	1.68E-10	-1.45E-09
Acidification	kg SO_2e	2.53E-02	9.73E-04	7.59E-04	2.70E-02	2.16E-03	6.85E-06	ND	ND	ND	ND	ND	ND	ND	2.29E-07	2.05E-05	-4.56E-08	4.34E-05	-1.12E-03
Eutrophication	kg PO_4^3e	4.20E-03	2.12E-04	4.05E-04	4.82E-03	5.47E-04	2.90E-05	ND	ND	ND	ND	ND	ND	ND	2.67E-08	5.01E-06	1.07E-05	5.83E-05	-9.09E-05
POCP (“smog”)	kg C_2H_4e	1.49E-03	8.14E-05	6.11E-05	1.63E-03	2.05E-04	4.77E-06	ND	ND	ND	ND	ND	ND	ND	1.25E-08	1.84E-06	-8.26E-06	1.03E-05	-6.26E-05
ADP-elements	kg Sbe	5.21E-05	9.84E-07	2.05E-06	5.51E-05	2.88E-06	4.39E-09	ND	ND	ND	ND	ND	ND	ND	3.02E-10	2.47E-08	8.95E-08	1.61E-08	-7.15E-06

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	7.96E+01	4.33E+00	5.17E+00	8.91E+01	1.24E+01	2.20E-02	ND	ND	ND	ND	ND	ND	ND	5.71E-04	1.12E-01	-1.46E+00	1.78E-01	-2.35E+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_2e	6.57E+00	3.16E-01	3.96E-01	7.28E+00	9.03E-01	1.86E-03	ND	ND	ND	ND	ND	ND	ND	5.31E-05	8.04E-03	1.09E-01	5.03E-02	-2.30E-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

Scenario parameter	Value
Electricity data source and quality	Electricity, medium voltage, residual mix, United Kingdom, Ecoinvent
Electricity	0.44 $kgCO_2e/kWh$
Electricity production data source and quality	Electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted, United Kingdom, Ecoinvent
Electricity	0.0806 $kgCO_2e/kWh$
District heating data source and quality	Heat production, light fuel oil, at boiler 100kW, non-modulating, United Kingdom, Ecoinvent
Heating	0.10 $kgCO_2e/MJ$

Transport scenario documentation

Scenario parameter	Value
Transport type	• EURO5, lorry 16-32 metric ton • Container ship, sea
Average transport distance	• Lorry 4,486.65 km • Container ship 80.91 km
Capacity utilization (including empty return)	50%
Bulk density of transported products	1.49E+03
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

Scenario parameter	Value
Quantitative description of energy type and consumption during the installation process	Market group for electricity, low voltage, Ecoinvent, 7.3E-5 kWh

Installation scenario documentation - A5 (Installation waste)

Scenario parameter	Value
Waste materials generated by the product's installation (specified by type)	• Wood (recycling) - 0.0026 kg • Wood (landfill) - 0.015 kg • Plastic (recycling) - 6.3E-5 kg • Plastic (incineration) - 8.4E-5 kg • Plastic (landfill) - 5.5E-4 kg • Cardboard (recycling) - 0.0032 kg • Cardboard (landfill) - 0.0183 kg

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

Scenario parameter	Value
Waste materials generated by the product's end-of-life	Nylons, Polyamides • Incineration - 0.0913 kg • Landfill - 0.5173 kg Metal scrap • Recycling - 0.0587 kg • Landfill - 0.3327 kg
Quantitative description of energy type and consumption during the uninstallation process	Market group for electricity, low voltage, Ecoinvent, 7.3E-5 kWh
Scenario assumptions e.g. transportation	Transportation to recycle centre or landfill 50 km

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 is 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

HaiHa Nguyen, as an authorized verifier acting for EPD Hub Limited

16.03.2026

ANNEX 1

This section applies to the A1-A3 module. The GWP results were described in table 1 and table 2.

Table 1. This table presents the non-linearly scaling options caused by different components weight. The reported A1-A3 GWP have been calculated separately for Solus.

SOLUS

Part No.	*Weight (kg)*	*A1 - A3*			
		EN 15804+A1	*EN 15804+A2*		
		GWP	*GWP total*	*GWP fossil*	*GWP biogenic*
Reference	1	7.26	7.25	7.28	-0.04
SL25-38GFN	0.285	7.00	7.00	7.01	-0.02
SL36-52GFN	0.356	7.11	7.10	7.12	-0.02
SL49-75GFN	0.485	7.26	7.25	7.28	-0.04
SL66-90GFN	0.655	7.39	7.38	7.42	-0.04
SL25-38LSF	0.232	7.59	7.62	7.64	-0.02
SL36-52LSF	0.287	7.79	7.82	7.84	-0.03
SL49-75LSF	0.395	8.08	8.11	8.15	-0.04
SL66-90LSF	0.548	8.35	8.40	8.44	-0.04

Table 2. This table presents the non-linearly scaling options caused by different components weight. The reported A1-A3 GWP have been calculated separately for Trident.

TRIDENT

Part No.	Weight (kg)	A1 - A3			
		EN 15804+A1	EN 15804+A2		
		GWP	GWP total	GWP fossil	GWP biogenic
Reference	1	7.26	7.25	7.28	-0.04
TR24-29GFN	0.360	7.12	7.12	7.14	-0.02
TR27-32GFN	0.370	7.13	7.12	7.15	-0.03
TR30-36GFN	0.383	7.15	7.12	7.17	-0.05
TR34-41GFN	0.485	7.26	7.24	7.29	-0.05
TR39-47GFN	0.568	7.34	7.31	7.36	-0.06
TR45-54GFN	0.666	7.41	7.38	7.44	-0.07
TR52-62GFN	0.793	7.48	7.46	7.51	-0.06
TR60-72GFN	1.100	7.61	7.56	7.64	-0.09
TR69-83GFN	1.300	7.65	7.61	7.69	-0.07
TR24-29LSF	0.288	7.79	7.82	7.85	-0.03
TR27-32LSF	0.296	7.82	7.84	7.88	-0.04
TR30-36LSF	0.306	7.85	7.85	7.91	-0.06
TR34-41LSF	0.388	8.06	8.08	8.13	-0.05
TR39-47LSF	0.454	8.21	8.23	8.29	-0.06
TR45-54LSF	0.533	8.35	8.36	8.43	-0.08
TR52-62LSF	0.634	8.48	8.51	8.57	-0.07
TR60-72LSF	0.880	8.73	8.73	8.84	-0.10
TR69-83LSF	1.040	8.84	8.86	8.95	-0.09