

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Steel beams
BE Group Sverige AB



EPD HUB, HUB-3497

Published on 01.07.2025, last updated on 01.07.2025, valid until 30.06.2030

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.1 (5 Dec 2023) and JRC characterization factors EF 3.1.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	BE Group Sverige AB
Address	Barlastgatan 10, 603 85 Norrköping, Sweden
Contact details	info@begroup.se
Website	https://www.begroup.se/

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Scope of the EPD	Cradle to gate with options, A4 and modules C1-C4, D
EPD author	BE Group EPD
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Elma Avdyli, as an authorized verifier acting for EPD Hub Limited.

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	Steel beams
Additional labels	-
Product reference	-
Place of production	Norrköping, Sweden
Period for data	2024
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3 (%)	-

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of steel beam
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	0,410
GWP-total, A1-A3 (kgCO ₂ e)	0,410
Secondary material, inputs (%)	100
Secondary material, outputs (%)	95
Total energy use, A1-A3 (kWh)	2,09
Net freshwater use, A1-A3 (m ³)	0,00417

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

BE Group is a trading and service company, offering a broad range of steel, stainless steel and aluminium products. With extensive expertise and efficient processes in purchasing, logistics and production, we offer inventory sales, production service and direct deliveries to customers based on their specific needs for steel and metal products. The customers mainly operate in the manufacturing and construction industries in Sweden, Finland and the Baltic States. BE Group is certified according to ISO 9001, 14001 and 4500

PRODUCT DESCRIPTION

Standardized steel beams are produced with hot rolling of steel into different profiles, or cross-sections. The most common standardized profiles are the H-, I- and U-profiles with their different sub variants. The BE Group assortment of beams include HEB-, IPE-, UNP- and UPE-beams. Steel beams can be produced in different steel grades, with different mechanical properties, where the low-carbon and weldable constructional steel grades S235JR and S355J2 are the most common ones.

Further information can be found at <https://www.begroup.se/>.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	EU

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

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of steel beam
Mass per declared unit	1 kg
Reference service life	Not declared

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	MND	MND	MND	MND	MND	MND	MND	MND	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 = MND. Modules not relevant = MNR

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.

BE Group purchase beams from suppliers. The exact allocation of volume between suppliers varies over the years depending on supply and cost. The beams are delivered to the production site in Norrköping where they can be shot blasted, painted, cut and machined as requested by customer or delivered to customers in standard stock lengths. When sent to customers from BE Group site the products are either just bundled or also secured with steel strip with clips and if cut in short pieces EU pallets are used.

During loading and unloading or displacement of the product diesel powered trucks are used. Electricity used at the site is fossil free. Waste from production is mainly steel scrap from the production where 100% goes to recycling.

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.

BE Group delivers to all of Sweden. The transports from BE Group to the customer are done by lorry. An average distance to the production site is 160 km. Vehicle capacity is assumed to be 100%. Empty returns are not taken into account as it is assumed that return trips are used by the transportation company to serve the needs of other clients.

A5 is excluded in the scenario since BE Group do not have knowledge of how the installation is executed.

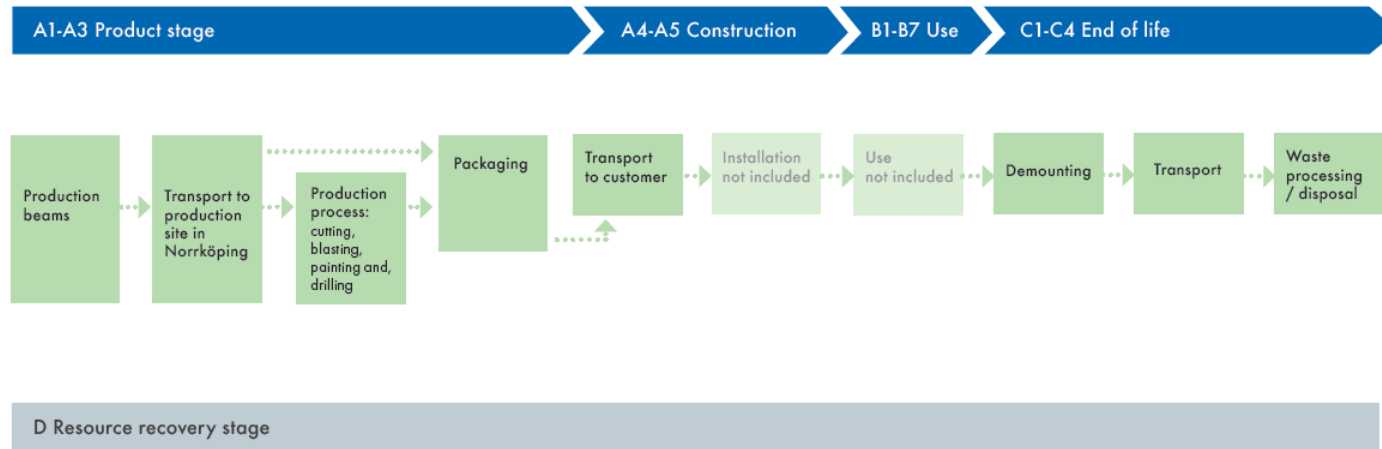
PRODUCT USE AND MAINTENANCE (B1-B7)

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)

At end of life the de-construction and demolition of the beams is assumed to be made by diesel powered machinery which consumes 0,01 kWh/kg of product. It is assumed that 100% of the waste is collected. Distance for transportation to treatment is assumed to be 50 km and the transportation method is assumed to be lorry. 95% of the product is assumed to be recycled, this assumption is based on World Steel Association, 2020. The rest (5%) is assumed to be taken to landfill. Due to the recycling process the end-of-life product is converted into recycled steel.

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.

All inventories specified and known have been included in the LCA, except for packaging material and ancillary materials. Packaging material for raw material supplies, packaging material for products delivered to customers and ancillary materials are omitted.

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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3 (%)	-

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

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

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2

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	3,53E-01	5,09E-02	6,17E-03	4,10E-01	1,83E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,61E-03	5,38E-03	2,15E-02	3,12E-04	0,00E+00
GWP – fossil	kg CO ₂ e	3,53E-01	5,08E-02	6,17E-03	4,10E-01	1,82E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,60E-03	5,38E-03	2,15E-02	3,12E-04	0,00E+00
GWP – biogenic	kg CO ₂ e	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWP – LULUC	kg CO ₂ e	4,11E-05	6,82E-05	1,72E-06	1,11E-04	1,07E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,69E-07	2,41E-06	2,65E-05	1,78E-07	0,00E+00
Ozone depletion pot.	kg CFC-11e	2,87E-13	7,35E-10	2,09E-10	9,44E-10	3,10E-10	MND	MND	MND	MND	MND	MND	MND	MND	5,52E-11	7,95E-11	2,89E-10	9,04E-12	0,00E+00
Acidification potential	mol H ⁺ e	1,23E-03	3,82E-04	4,07E-05	1,65E-03	1,29E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,25E-05	1,84E-05	2,55E-04	2,21E-06	0,00E+00
EP-freshwater ²⁾	kg Pe	1,05E-07	1,59E-05	1,72E-06	1,77E-05	2,53E-06	MND	MND	MND	MND	MND	MND	MND	MND	1,04E-07	4,19E-07	1,38E-05	2,57E-08	0,00E+00
EP-marine	kg Ne	2,67E-04	1,44E-04	6,95E-06	4,18E-04	6,83E-05	MND	MND	MND	MND	MND	MND	MND	MND	1,51E-05	6,03E-06	5,66E-05	8,44E-07	0,00E+00
EP-terrestrial	mol Ne	2,91E-03	1,55E-03	6,85E-05	4,53E-03	5,10E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,65E-04	6,56E-05	6,39E-04	9,21E-06	0,00E+00
POCP (“smog”) ³⁾	kg NMVOCe	7,98E-04	4,59E-04	3,93E-05	1,30E-03	1,20E-04	MND	MND	MND	MND	MND	MND	MND	MND	4,93E-05	2,70E-05	1,89E-04	3,30E-06	0,00E+00
ADP-minerals & metals ⁴⁾	kg Sbe	1,09E-07	1,53E-07	2,81E-08	2,90E-07	6,31E-08	MND	MND	MND	MND	MND	MND	MND	MND	1,29E-09	1,50E-08	1,52E-06	4,96E-10	0,00E+00
ADP-fossil resources	MJ	3,91E+00	7,39E-01	3,50E-01	5,00E+00	2,45E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,72E-02	7,81E-02	2,88E-01	7,66E-03	0,00E+00
Water use ⁵⁾	m ³ e depr.	5,61E-02	1,38E-02	2,32E-03	7,22E-02	4,57E-03	MND	MND	MND	MND	MND	MND	MND	MND	1,18E-04	3,86E-04	5,18E-03	2,21E-05	0,00E+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.

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	2,51E+00	9,03E-02	6,97E-03	2,61E+00	-9,05E-02	MND	MND	MND	MND	MND	MND	MND	MND	2,99E-04	1,07E-03	5,37E-02	7,39E-05	0,00E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	2,51E+00	9,03E-02	6,97E-03	2,61E+00	-9,05E-02	MND	MND	MND	MND	MND	MND	MND	MND	2,99E-04	1,07E-03	5,37E-02	7,39E-05	0,00E+00
Non-re. PER as energy	MJ	3,91E+00	7,39E-01	2,60E-01	4,91E+00	2,45E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,72E-02	7,81E-02	2,88E-01	7,66E-03	0,00E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	3,91E+00	7,39E-01	2,60E-01	4,91E+00	2,45E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,72E-02	7,81E-02	2,88E-01	7,66E-03	0,00E+00
Secondary materials	kg	1,12E+00	1,04E-03	2,23E-05	1,12E+00	1,24E-04	MND	MND	MND	MND	MND	MND	MND	MND	1,96E-05	3,32E-05	3,52E-04	1,93E-06	0,00E+00
Renew. secondary fuels	MJ	0,00E+00	2,71E-06	3,15E-07	3,02E-06	2,47E-06	MND	MND	MND	MND	MND	MND	MND	MND	5,12E-08	4,22E-07	1,63E-05	3,99E-08	0,00E+00
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	3,71E-03	3,82E-04	7,12E-05	4,17E-03	1,15E-04	MND	MND	MND	MND	MND	MND	MND	MND	3,12E-06	1,15E-05	1,53E-04	7,97E-06	0,00E+00

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	5,68E-10	3,54E-03	4,28E-04	3,97E-03	7,75E-04	MND	MND	MND	MND	MND	MND	MND	MND	5,25E-05	1,32E-04	1,88E-03	8,46E-06	0,00E+00
Non-hazardous waste	kg	3,87E-03	8,80E-02	8,87E-03	1,01E-01	1,23E-02	MND	MND	MND	MND	MND	MND	MND	MND	7,15E-04	2,45E-03	6,80E-02	1,93E-04	0,00E+00
Radioactive waste	kg	3,47E-05	2,09E-06	3,44E-06	4,03E-05	8,25E-08	MND	MND	MND	MND	MND	MND	MND	MND	5,12E-09	1,67E-08	6,26E-07	1,17E-09	0,00E+00

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	MND	MND	MND	MND	MND	MND	MND	MND	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	1,50E-02	1,50E-02	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	9,50E-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	MND	MND	MND	MND	MND	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	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	0,00E+00	5,07E-02	6,10E-03	5,68E-02	1,87E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,59E-03	5,35E-03	2,14E-02	3,09E-04	0,00E+00
Ozone depletion Pot.	kg CFC ₁₁ e	0,00E+00	5,95E-10	1,68E-10	7,63E-10	2,63E-10	MND	MND	MND	MND	MND	MND	MND	MND	4,37E-11	6,34E-11	2,38E-10	7,18E-12	0,00E+00
Acidification	kg SO ₂ e	0,00E+00	2,85E-04	3,42E-05	3,19E-04	8,86E-05	MND	MND	MND	MND	MND	MND	MND	MND	2,29E-05	1,40E-05	2,05E-04	1,64E-06	0,00E+00
Eutrophication	kg PO ₄ ³ e	0,00E+00	6,03E-05	3,43E-06	6,37E-05	1,01E-04	MND	MND	MND	MND	MND	MND	MND	MND	5,34E-06	3,41E-06	2,98E-05	5,21E-07	0,00E+00
POCP (“smog”)	kg C ₂ H ₄ e	0,00E+00	2,14E-05	2,37E-06	2,38E-05	8,43E-06	MND	MND	MND	MND	MND	MND	MND	MND	1,71E-06	1,25E-06	1,22E-05	1,55E-07	0,00E+00
ADP-elements	kg Sbe	0,00E+00	1,50E-07	2,84E-08	1,78E-07	6,30E-08	MND	MND	MND	MND	MND	MND	MND	MND	1,26E-09	1,46E-08	1,52E-06	4,86E-10	0,00E+00
ADP-fossil	MJ	0,00E+00	5,96E-01	1,53E-01	7,49E-01	2,40E-01	MND	MND	MND	MND	MND	MND	MND	MND	4,68E-02	7,70E-02	2,46E-01	7,58E-03	0,00E+00

ENVIRONMENTAL IMPACTS – 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	3,53E-01	5,09E-02	6,17E-03	4,10E-01	1,83E-02	MND	MND	MND	MND	MND	MND	MND	MND	3,61E-03	5,38E-03	2,15E-02	3,12E-04	0,00E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? [Read more online](#)

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elma Avdyli, as an authorized verifier acting for EPD Hub Limited.
01.07.2025

