



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Wavy recycling bin TreCe AB



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Created with One Click LCA





GENERAL INFORMATION

MANUFACTURER

Manufacturer	TreCe AB
Address	Importgatan 39, Box 6063, SE-600 06, Norrköping, Sweden
Contact details	info@trece.se
Website	www.trece.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	Manufactured product
Category of EPD	Design phase EPD
Parent EPD number	HUB-1647
Scope of the EPD	Cradle to gate with options, A5, and modules C1-C4, D
EPD author	Sara Shakespeare, TreCe AB
EPD verification	Independent verification of this EPD and data, according to ISO 14025: □ Internal verification ☑ External verification
EPD verifier	Silvia Vilčeková, 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.

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PRODUCT

Product name	Wavy recycling bin
Additional labels	-
Product reference	36105101 + 36106301 + 36700103
Place of production	Tranås, Sweden
Period for data	September 2024
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	0 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 unit, recycling bin with lid in powder-coated steel and an inside container in plastic.
Declared unit mass	21.66 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	7,70E+01
GWP-total, A1-A3 (kgCO ₂ e)	7,29E+01
Secondary material, inputs (%)	4.74
Secondary material, outputs (%)	83
Total energy use, A1-A3 (kWh)	390
Net freshwater use, A1-A3 (m ³)	2.34



PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

We are experts in storage and recycling solutions for offices and public spaces. Since 1973, we have been dedicated to creating furniture that combines great flexibility and function with a strong commitment to sustainability. We design solutions for modern and activity-based offices, emphasizing flexibility, user-friendliness, and aesthetic appeal, while prioritizing environmentally responsible practices.

PRODUCT DESCRIPTION

Wavy is an elegant and spacious waste bin designed for public space recycling. Wavy's shape makes it flexible and easy to place – free-standing in a room, against a wall, around a pillar, or in a corner, either alone or in a group. The curved top creates a beautiful play of shadows, and when placed in groups, it forms a dynamic wave pattern.

The product features a 1,5 mm steel sheet frame and a swing lid made of 2 mm steel, all powder-coated for durability. Inside, it includes a container crafted from 100% recycled pre-consumer ABS plastic and a steel bag holder. Wavy is made in Sweden and all components are 100% recyclable.

Dimensions: Width 360 mm, Height 895 mm, Depth 360 mm. Holds: 85 L

Further information can be found at www.trece.se.





PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	88	Sweden/EU
Minerals	0	-
Fossil materials	12	EU
Bio-based materials	0	-

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	1.17818

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 unit, recycling bin with lid in powder-coated steel and an inside container in plastic.
Mass per declared unit	21.66 kg
Functional unit	-
Reference service life	-

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.

Pro	duct si	tage		mbly ige			U	ise sta _l	ge			E	nd of l	ife staį	ge	Beyond the system boundaries				
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	СЗ	C4		D			
*	*	*	MND	×	MND	MND	MND	MND	MND	MND	MND	*	*	×	×		×			
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.

Raw Materials:

The raw materials for the manufacturing process are procured from reliable suppliers, ensuring the availability and quality required for production. The materials

include:

- Cold Rolled Steel Sheet: Used for the frame and lid. They contain 20% recycled steel from scrap, as per the supplier's information.

- Powder Coating: Applied to the frame and lid to provide a protective finish.
- Stainless Steel Coil: Used for the bag holder, ensuring durability and resistance to corrosion.

- ABS Plastic: The inside container is made from hot moulded ABS plastic, which consists of 100% pre-consumer recycled plastic.

Cutting:

To make the lid and frame, the sheet metal is either stamped or laser cut according to the required specifications.

Processing:

The sheet metal, once cut, is subjected to a series of processing steps including bending and welding. Initially, the sheet metal is bent into the necessary shapes using advanced, specialised equipment. This bending process is crucial to forming the structural components essential for the final products design and functionality. Following the bending process, welding is conducted to join various metal parts together. This welding step is vital to ensure the structural integrity and durability of the product, providing the necessary strength and stability for its intended use.

Coating:

After the lid and frame are shaped, they undergo a powder-coating process. This process involves applying a protective layer of powder coating to the frame and lid, that not only enhances the visual appeal but also serves as a robust barrier against corrosion. The powder-coating process is integral to protecting the metal from environmental factors, thereby significantly extending the products lifespan and maintaining its structural integrity over time.

Assembly:

Following the coating process, the various parts undergo final assembly. During this stage, additional components such as the inside plastic container and bag holder, which are not processed in-house, are incorporated. These components are sourced externally and integrated into the product. The assembly stage ensures that all parts

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come together to form a finished product, ready for its intended use.

Packaging:

The final product is carefully packed to ensure its protection during transportation. This process involves using a combination of packaging materials including a protective plastic cover and a sturdy cardboard box, sealed with durable paper tape to secure the contents. The packaged product is then placed on a wooden pallet for shipment. These materials and techniques are carefully selected to prevent damage and ensure the product arrives at its destination in optimal condition, safeguarding its integrity throughout the distribution process.

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.

No resources (materials or energy) are needed for the installation process of the product, so they are not considered in the EPD. The Wavy bin is very easy to assemble with the click-function and comes with a manual for assembly.

Several markets are considered in this EPD and transportation and distances are calculated as a weighted average from detailed information for all markets.

A5 packaging treatment is based on predefined packaging scenario specific to the EU region.

Waste treatment of plastic packaging materials is 32.5% recycled, 42.5% incinerated with ER*, and 25% landfilled (EuroParl 2023).

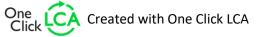
Waste treatment of cardboard packaging materials is 82% recycled, 9% incinerated with ER*, and 9% landfilled (Eurostat & PSR-0014 v2 2023).

Wooden pallets are considered for multiple reuses, and when discarded, 31% are recycled, 31% incinerated with ER*, and 38% landfilled (Eurostat & PSR-0014 v2, 2023).

*ER = Energy Recovery.

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.

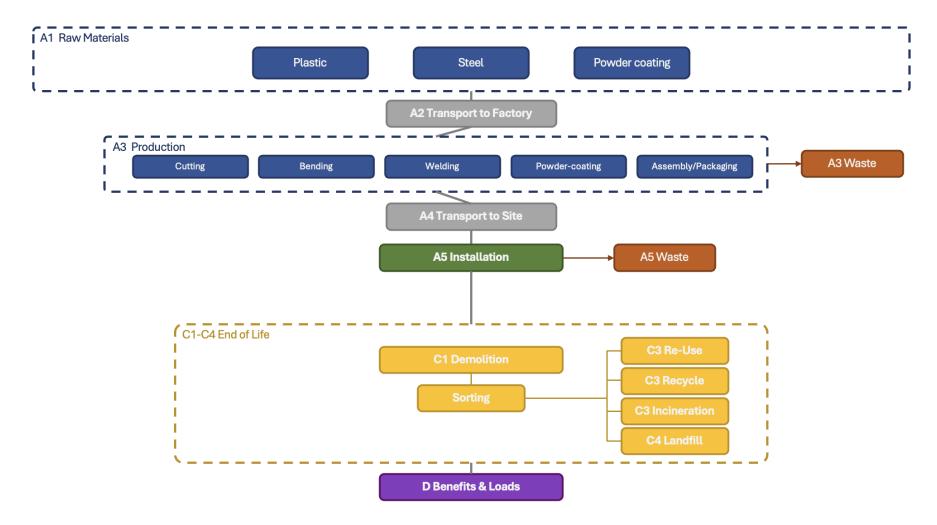
PRODUCT END OF LIFE (C1-C4, D)

The average disposal methods for the Wavy bin are as follows: Recycling: 76% Landfill: 17% Energy Recovery: 7%

In this study we have adopted a more conservative approach and excluded the reuse stage. Ideally the product should be restored as Wavy is designed with a circular approach in mind, allowing for parts to easily be disassembled, replaced, repaired and recycled. Product service life is estimated for 10-15 years.



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.

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

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1- A3	0 %

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 v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.



ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS - EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
GWP – total ¹⁾	kg CO2e	6,98E+01	6,94E-01	2,37E+00	7,29E+01	MND	4,47E+00	MND	MNR	1,01E-01	4,06E+00	1,13E-01	-2,71E+01						
GWP – fossil	kg CO₂e	6,98E+01	6,94E-01	6,52E+00	7,70E+01	MND	1,46E-01	MND	MNR	1,01E-01	4,05E+00	1,13E-01	-2,50E+01						
GWP – biogenic	kg CO₂e	0,00E+00	0,00E+00	-4,32E+00	-4,32E+00	MND	4,32E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	-2,08E+00						
GWP – LULUC	kg CO₂e	1,87E-02	2,56E-04	1,69E-01	1,88E-01	MND	4,71E-05	MND	MNR	3,72E-05	5,42E-04	2,16E-05	-3,13E-03						
Ozone depletion pot.	kg CFC-11e	4,28E-06	1,60E-07	4,42E-07	4,88E-06	MND	8,01E-09	MND	MNR	2,32E-08	4,89E-08	8,20E-09	-7,40E-07						
Acidification potential	mol H⁺e	1,61E-01	2,94E-03	4,39E-02	2,08E-01	MND	3,81E-04	MND	MNR	4,27E-04	5,14E-03	2,02E-04	-1,08E-01						
EP-freshwater ²⁾	kg Pe	1,00E-03	5,68E-06	3,15E-04	1,32E-03	MND	1,68E-06	MND	MNR	8,26E-07	2,08E-05	2,74E-07	-2,77E-04						
EP-marine	kg Ne	3,87E-02	8,73E-04	8,63E-03	4,82E-02	MND	3,34E-04	MND	MNR	1,27E-04	1,22E-03	8,62E-05	-2,03E-02						
EP-terrestrial	mol Ne	4,17E-01	9,63E-03	8,88E-02	5,15E-01	MND	1,37E-03	MND	MNR	1,40E-03	1,39E-02	7,61E-04	-2,34E-01						
POCP ("smog") ³)	kg NMVOCe	1,22E-01	3,08E-03	2,35E-02	1,48E-01	MND	4,25E-04	MND	MNR	4,48E-04	3,76E-03	2,42E-04	-1,12E-01						
ADP-minerals & metals ⁴)	kg Sbe	3,10E-04	1,63E-06	6,75E-05	3,80E-04	MND	4,02E-07	MND	MNR	2,36E-07	4,84E-05	5,86E-08	-3,35E-04						
ADP-fossil resources	MJ	9,05E+02	1,04E+01	3,61E+02	1,28E+03	MND	7,97E-01	MND	MNR	1,52E+00	5,45E+00	5,75E-01	-2,14E+02						
Water use ⁵⁾	m³e depr.	7,65E+01	4,66E-02	1,30E+01	8,95E+01	MND	6,04E-02	MND	MNR	6,78E-03	2,11E-01	2,29E-03	-4,80E+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, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	С3	C4	D
Particulate matter	Incidence	2,38E-07	7,99E-08	5,30E-07	8,48E-07	MND	5,78E-09	MND	MNR	1,16E-08	6,56E-08	4,05E-09	-1,60E-06						
Ionizing radiation ⁶⁾	kBq U235e	2,80E+00	4,96E-02	2,24E+01	2,52E+01	MND	7,34E-03	MND	MNR	7,22E-03	5,76E-02	2,65E-03	-1,19E+00						
Ecotoxicity (freshwater)	CTUe	1,90E+02	9,37E+00	2,16E+02	4,16E+02	MND	2,11E+00	MND	MNR	1,36E+00	2,35E+01	4,43E-01	-8,28E+02						
Human toxicity, cancer	CTUh	3,16E-09	2,30E-10	7,89E-09	1,13E-08	MND	1,00E-10	MND	MNR	3,35E-11	9,40E-10	1,21E-11	-5,59E-08						
Human tox. non-cancer	CTUh	8,80E-08	9,28E-09	1,16E-07	2,13E-07	MND	2,97E-09	MND	MNR	1,35E-09	3,58E-08	2,79E-10	3,29E-06						
SQP ⁷⁾	-	2,60E+01	1,20E+01	3,74E+02	4,12E+02	MND	9,37E-01	MND	MNR	1,75E+00	1,04E+01	1,27E+00	-2,97E+02						

6) EN 15804+A2 disclaimer for lonizing 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	СЗ	C4	D
Renew. PER as energy ⁸⁾	MJ	5,18E+01	1,17E-01	1,59E+02	2,10E+02	MND	4,69E-02	MND	MNR	1,71E-02	8,96E-01	6,62E-03	-4,10E+01						
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,77E+01	3,77E+01	MND	-3,77E+01	MND	MNR	0,00E+00	0,00E+00	0,00E+00	1,75E+01						
Total use of renew. PER	MJ	5,18E+01	1,17E-01	1,96E+02	2,48E+02	MND	-3,76E+01	MND	MNR	1,71E-02	8,96E-01	6,62E-03	-2,35E+01						
Non-re. PER as energy	MJ	8,26E+02	1,04E+01	3,56E+02	1,19E+03	MND	7,97E-01	MND	MNR	1,52E+00	5,45E+00	5,75E-01	-2,13E+02						
Non-re. PER as material	MJ	8,89E+01	0,00E+00	4,41E+00	9,34E+01	MND	-4,41E+00	MND	MNR	0,00E+00	-6,54E+01	-2,36E+01	7,10E-01						
Total use of non-re. PER	MJ	9,15E+02	1,04E+01	3,60E+02	1,29E+03	MND	-3,61E+00	MND	MNR	1,52E+00	-5,99E+01	-2,30E+01	-2,12E+02						
Secondary materials	kg	1,03E+00	2,89E-03	1,02E+00	2,05E+00	MND	8,74E-04	MND	MNR	4,21E-04	8,00E-03	1,45E-04	9,49E+00						
Renew. secondary fuels	MJ	1,23E-02	2,92E-05	9,47E-01	9,59E-01	MND	6,44E-06	MND	MNR	4,24E-06	2,97E-04	4,50E-06	-4,56E-03						
Non-ren. secondary fuels	MJ	2,28E-20	0,00E+00	0,00E+00	2,28E-20	MND	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Use of net fresh water	m ³	2,00E+00	1,35E-03	3,41E-01	2,34E+00	MND	3,71E-04	MND	MNR	1,96E-04	3,49E-03	6,25E-04	-1,55E-01						

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	1,32E+00	1,38E-02	5,53E-01	1,89E+00	MND	5,79E-03	MND	MNR	2,01E-03	3,96E-02	0,00E+00	-1,06E+01						
Non-hazardous waste	kg	7,44E+00	2,27E-01	1,77E+01	2,54E+01	MND	1,55E+00	MND	MNR	3,30E-02	2,33E+00	3,51E+00	-4,37E+01						
Radioactive waste	kg	1,16E-02	6,97E-05	4,90E-03	1,66E-02	MND	3,08E-06	MND	MNR	1,01E-05	2,96E-05	0,00E+00	-2,19E-04						

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	СЗ	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00						
Materials for recycling	kg	6,30E-03	0,00E+00	5,55E+00	5,56E+00	MND	1,40E+00	MND	MNR	0,00E+00	1,68E+01	0,00E+00	0,00E+00						
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	7,48E-01	MND	MNR	0,00E+00	1,19E+00	0,00E+00	0,00E+00						
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	8,25E+00	MND	MNR	0,00E+00	3,68E+01	0,00E+00	0,00E+00						

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	СЗ	C4	D
Global Warming Pot.	kg CO₂e	6,85E+01	6,87E-01	6,62E+00	7,58E+01	MND	2,86E-01	MND	MNR	9,99E-02	4,05E+00	9,45E-02	-2,39E+01						
Ozone depletion Pot.	kg CFC-11e	2,73E-07	1,26E-07	3,72E-07	7,72E-07	MND	6,49E-09	MND	MNR	1,84E-08	3,98E-08	6,49E-09	-7,81E-07						
Acidification	kg SO₂e	1,39E-01	2,28E-03	3,57E-02	1,77E-01	MND	2,89E-04	MND	MNR	3,32E-04	4,09E-03	1,53E-04	-9,13E-02						
Eutrophication	kg PO₄³e	2,26E-02	5,20E-04	1,34E-02	3,65E-02	MND	3,30E-03	MND	MNR	7,56E-05	1,85E-03	3,72E-03	-4,41E-02						
POCP ("smog")	kg C₂H₄e	1,36E-02	8,91E-05	1,93E-03	1,56E-02	MND	4,55E-05	MND	MNR	1,30E-05	1,53E-04	1,89E-05	-1,23E-02						
ADP-elements	kg Sbe	9,92E-05	1,57E-06	6,70E-05	1,68E-04	MND	3,93E-07	MND	MNR	2,29E-07	4,83E-05	5,73E-08	-3,33E-04						
ADP-fossil	MJ	8,83E+02	1,04E+01	3,60E+02	1,25E+03	MND	7,97E-01	MND	MNR	1,52E+00	5,45E+00	5,75E-01	-2,14E+02						



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.

Silvia Vilčeková, as an authorized verifier acting for EPD Hub Limited 24.11.2024

