Environmental Product Declaration

In accordance with ISO 14025:2006 and ISO 21930:2017

Environmental Product Declaration for Dense-Pack Cellulose Insulation manufactured by Advanced Fiber Technology (AFT) at their facility in Bucyrus, Ohio

ADMINISTRATIVE INFORMATION

Declaration Owner:	Advanced Fiber Technology
	100 Crossroads Blvd. Bucyrus, OH 44820, USA
	(419) 562-1337
	https://www.advanced-fiber.com
EPD Declaration Information:	Declared product: dense-pack cellulose insulation
	Functional unit: 1 m² dense-pack cellulose insulation
	Declaration number: AFTDP-1471111
	Date of issue: 10.03.2026
	Date of expiration: 5 years: valid until 10.03.2031
	Market of applicability: North America
	EPD type: Manufacturer-specific
	EPD scope: cradle-to-grave (A1-C4)
	Year of reported manufacturer primary data: 2023
LCA/LCI Information:	LCA software & version: lca.tools version EPD2022.03
	LCI databases & version: Ecoinvent 3.10.1
	LCIA method & version: TRACI 2.1 and EF v3.1 EN15804
EPD Program Operator:	Labeling Sustainability
	200 S. Rosemary Ave., West Palm Beach, FL 33401
	(561) 312-2664
	https://www.labelingsustainability.com
Product Category Rule:	Product Category Rules for Building Related Products and Services, Part A: Life Cycle Assessment Calculation Rules and Report Requirements, UL 10010 v4.0, March 2022
	Product Category Rules Guidance for Building Related Products and Services Part B: Building Envelope Thermal Insulation EPD Requirements, UL 10010-1, November 2025
	PCR Program Operator: UL Solutions
Independent LCA Reviewer and EPD Verifier:	The life cycle assessment was independently verified in accordance with ISO 14040/44 and ISO 14071. This EPD was independently verified in accordance with ISO 14025, ISO 21930 and the reference PCR
	Internal: ☐ External: ☒
	Third Party Verification: Lucas Pedro Berman, Senda - Consultoria Ambiental & Energetica (info@sendaconsultorias.com)

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ORGANIZATION DESCRIPTION

Advanced Fiber Technology (AFT) is a U.S.-based manufacturer of cellulose insulation and specialty fiber products headquartered in Bucyrus, Ohio. AFT produces cellulose insulation and specialty fibers using high-quality recycled paper materials for industrial applications such as roof coatings, structural steel fireproofing, sealants, and related products. AFT supplies products throughout the United States and serves international markets, supporting the demand for sustainable and high-performance fiber-based building materials.

STUDY GOAL

The intended application of the background life cycle assessment (LCA) study was to comply with the procedures for creating a Type III environmental product declaration (EPD) and publish the EPD for public review on the website, https://www.labelingsustainability.com/. This level of study is in accordance with the Product Category Rule (PCR) Part B: Building Envelope Thermal Insulation EPD Requirements, UL 10010–1, Nov 2025, ISO 21930:2017 Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services, ISO 14044:2006 Environmental management, Life cycle assessment – Requirements and guidelines, and ISO 14040:2006 Environmental management, Life cycle assessment – Principles and framework. The performance of this study and its subsequent publishing is in alignment with the business-to-business (B2B) communication requirements for the environmental assessment of building products. This study does not intend to support comparative assertions and is intended to be disclosed to the public.

The project report was commissioned to differentiate AFT members from their competition for the following reasons: generate an advantage for the organization, offer customers information to help them make informed product decisions, and identify and quantify the environmental impacts associated with dense-pack cellulose insulation products to support future strategies for impact reduction based on measurable data. The intended audience for this EPD report is AFT members, their customers, their suppliers, project specifiers of dense-pack insulation products, architects, and engineers. The EPD report is also available for policymakers, government officials interested in sustainability, academic professors, and LCA professionals.

Limitations

Environmental declarations from different programs (ISO 14025) may not be comparable. Comparison of the environmental performance of building envelope thermal insulation using EPD information shall be based on the product's use and impacts at the building level, and therefore, EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR. Caution must be used when comparing EPDs, as variations and deviations are possible, e.g., different LCA software and background LCI datasets may lead to differences in calculated and reported results.

PRODUCT DESCRIPTION

Cellulose insulation is a natural thermal/acoustical insulation material made from 85% or more recovered post-consumer paper fibers. Recycled newsprint and cardboard are the principal ingredients, but other paper fibers can be, and often are, used. Cellulose insulation can be blown loose into attics and open cavities, as well as dense-packed into walls and closed cavities.

The function of insulation is to help keep your home's interior at the desired temperature while reducing energy use. In addition, cellulose insulation offers noise reduction and, due to the fire retardants in the product, is also mold- and pest-resistant.

Cellulose insulation sold in North America must meet the requirements of ASTM C739 [1] in the United States and CAN/ULC 703 [2] in Canada.

DECLARED PRODUCT

Functional unit

One square meter (1 m^2) of installed cellulose insulation material with a thickness that gives an average thermal resistance of RSI = 1 m^2-K/W over a period of 75 years.

DESIGN COMPOSITION

The following table provides a breakdown of the product composition.

Materials	Value	Unit
Waste/recovered papers (cellulose fibers)	85 - 87	%
Boric acid	5 - 7	%
Mineral oil	0.1 – 0.5	%
Magnesium sulfate	7 - 10	%

Table 1: **Material composition – all declared products per 1 m² of installed cellulose insulation**

Technical data

The following table highlights the mass and thickness required to achieve the functional unit properties.

Name	Value	Unit
Functional unit (FU)	1 m^2 of insulation material with a thickness that gives an average thermal resistance of RSI = 1 m^2 K/W over a period of 75 years	-
Mass	2.19	kg
Thickness to achieve FU	0.03898	m

Table 2: **Mass and thickness**

Reference service life, product

75 years [3]

Reference service life, building, or construction works

75 years [3]

SYSTEM BOUNDARIES

The following figure depicts the cradle-to-grave system boundary considered in this study.

Product stage			Construction 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
Raw material supply	Transport	Manufacturing	Transport to site	Installation of product	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction and demolition	Waste transport	Waste processing	Disposal	Reuse recovery - recycling potential
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

Figure 1: **General life cycle phases for consideration in a construction works system. (X = declared module, MND = module not declared).**

This is a cradle-to-grave study, and the following life-cycle stages were included (as applicable) [3]:

1. Product stage (A1-A3)
2. Construction stage (A4-A5)
3. Use stage (B1-B7)
4. End-of-life stage (C1-C4)

The following figure illustrates the process flow diagram of the cellulose insulation production system.

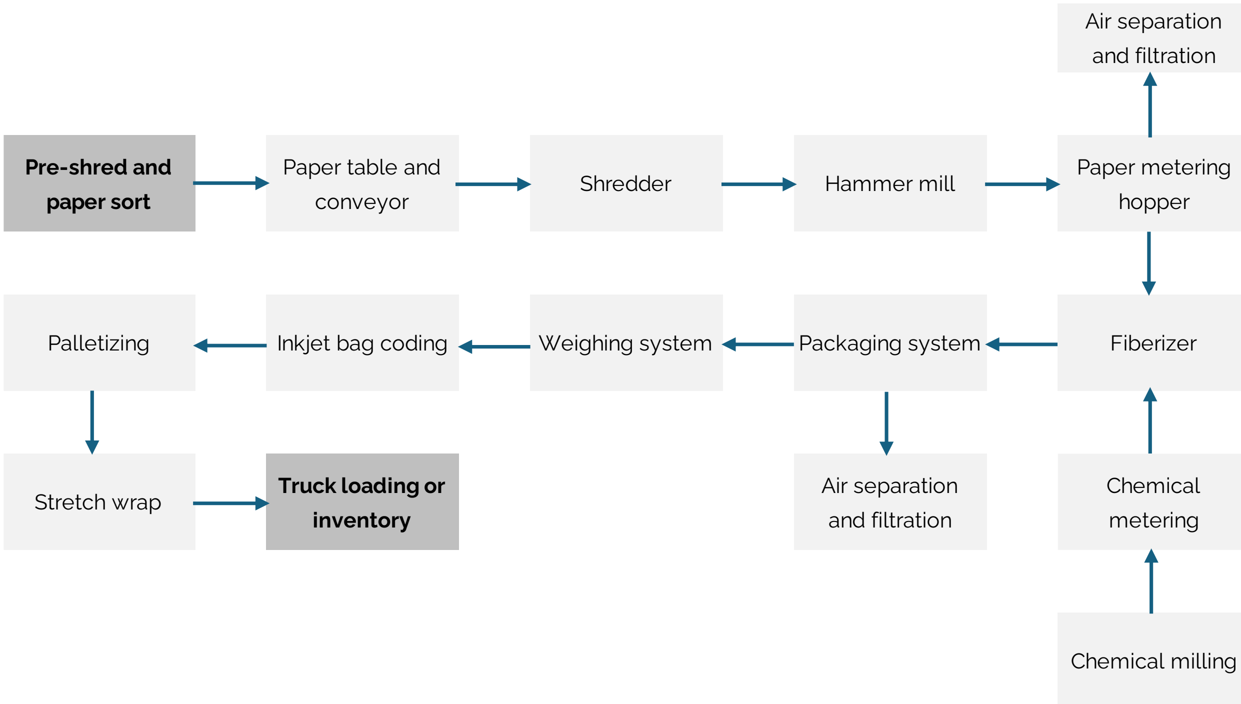

Figure 2: **Product flow diagram.**

Additional technical information

This section outlines different scenarios and assumptions within the study for the life cycle stages beyond the factory gate (A4-C4).

Delivery to job site (A4)

The manufacturer reported its delivery-to-jobsite scenarios, including transportation modes and distances. The products are transported from the plant's gate to the installation sites via truck freight under different scenarios, as described in the table below.

Delivery to job site (A4)	Scenario 1 - Manufacturer ships to distributor	Scenario 2 - Manufacturer ships to distributor/installer or direct delivery to jobsite	Scenario 3 -Customer picks up from the manufacturer
Product share	13%	77%	10%
Mass transported	0.285 kg/FU	1.686 kg/FU	0.219 kg/FU
Mode of transport	53-foot tractor-trailer	53-foot tractor-trailer	Passenger vehicle
Distance	320 km	600 km	n/a

Table 3: **Product delivery to job site scenario**

Installation (A5)

The default assumptions for dense-pack insulation, specified in the reference PCR [3, Table 4c] were applied. Packaging waste generated during installation was assumed to be 100% landfilled, representing a worst-case scenario.

Name	Value	Unit
Electricity	0.012	kWh
Diesel for onboard generators	0.37	MJ
Ancillary materials	Adhesive (0.0012) Fastener (0.0012)	kg
Product loss	2	%
Direct emissions to ambient air, water and soil	0	kg
VOC emissions	no data available	$\mu g/m^3$
Landfill-related biogenic carbon emissions (pallets)	1.76E-03	kg CO_2/FU
Landfill-related biogenic methane emissions (pallets)	2.82E-04	kg CH_4/FU

Table 4: **Product installation scenario**

Use (B1-B7)

No emissions are associated with the use stage of the cellulose insulation product. The service life of the insulation product is set at 75 years, aligning with the building's lifespan. Consequently, no maintenance, repair, or replacement is required during the use phase (B2-B7); therefore, these modules are reported as zero.

End-of-life (C1-C4)

The end-of-life phase for the cellulose insulation is included in the study. Energy use during the deconstruction process is negligible. Transport to the disposal site is modeled assuming an average distance of 11 km by truck. As per the PCR, and in the absence of primary data, all insulation material is considered to be landfilled [3].

Name		Value	Unit
Deconstruction (C1)		0	kWh
Transport (C2)		11	km
Collection process	Collected with mixed construction waste	2.19	kg/FU
Waste processing (C3)	Reuse	-	kg
	Recycling	-	kg
	Incineration	-	kg
	Incineration with energy recovery	-	kg
	Energy conversion (efficiency rate)	-	kg
Disposal (C4)	Product for final disposal (landfill)	2.19	kg

Landfill-related biogenic carbon emissions (excluding packaging)	1.61E-01	kg CO_2/FU
Landfill-related biogenic methane emissions (excluding packaging)	2.48E-02	kg CH_4/FU

Table 5: **Product end-of-life scenario**

The following information describes the scenarios in the different modules of the EPD.

Transport from production place to user (A4)	**Capacity utilization (incl. return) %**	**Distance (km)**	**Fuel/Energy Consumption**	**Unit**	**Value (Liter/tonne)**
Transport, freight, lorry 16-32 metric ton, EURO4/RoW/kgkm	38.8 %	920	0.045	l/tkm	41.40

Installation (A5)	**Value**	**Unit**
Treatment of waste plastic, mixture, sanitary landfill/waste plastic, mixture/RoW	0.00856	kg
Treatment of waste wood, untreated, sanitary landfill/waste wood, untreated/RoW/kg	0.04776	kg
Polyurethane adhesive production/polyurethane adhesive/GLO/kg	0.0012	kg
Market for steel, chromium steel 18/8, hot rolled/steel, chromium steel 18/8, hot rolled/GLO/kg	0.0012	kg
Product loss during installation	2	%
Market group for electricity, low voltage/electricity, low voltage/US	0.012	kWh
Diesel, burned in building machine, GLO	0.37	MJ

Transport to waste processing (C2)	**Capacity utilization (incl.return) %**	**Distance (km)**	**Fuel/Energy Consumption**	**Unit**	**Value (Liter/tonne)**
Transport, freight, lorry 16-32 metric ton, EURO3 (kg*km) - RoW	38.8 %	11	0.045	l/tkm	0.50

Disposal (C4)	**Value**	**Unit**
Process-specific burdens, residual material landfill/RoW	2.19	kg

Table 6: **Scenarios and additional technical information**

REPORTING PERIOD

This study represents the production data for 12 months from January 1, 2023, to December 31, 2023, for the AFT manufacturing facility located in Bucyrus, Ohio.

CUT-OFF CRITERIA

ISO 14044:2006 and the PCR require the LCA model to contain a minimum of 95% of the total inflows (mass and energy) to the upstream and core modules be included in this study. The cut-off criteria were applied to all other processes unless otherwise noted above as follows. A 1% cutoff is considered for all renewable and non-renewable primary energy consumption and the total mass of inputs within a unit process where the total of the neglected inputs does not exceed 5% [4].

ALLOCATION

This EPD follows the allocation guidelines of ISO 14044 [5] and ISO 21930 [4]. As cellulose insulation is the sole product manufactured at the assessed facilities, no co-products are generated. Thus, no allocation principles and procedures were applied in this study. Manufacturing inputs and outputs were allocated based on physical characteristics, i.e., area basis. Secondary material inputs adhere to the polluter pays principle. Accordingly, the environmental impacts attributed to these materials are limited to the treatment and transportation required to use them as a material input [4]. As a default, secondary Ecoinvent datasets apply allocation on a physical mass basis. The system boundary of this study is determined in accordance with the modularity principle as outlined in ISO 21930 [4]. All environmental impacts are assigned to the life cycle stages in which they occur, without allocation to other stages.

DATA SOURCES AND DATA QUALITY ASSESSMENT

The manufacturers provided specific data on the product composition, representing the production of the declared product. This data was collected for the development of the EPD during the study year. Background data was sourced from the Ecoinvent database [14]. The quality of the raw material data in stage A1 is presented in the table below. There are no data gaps in the study; should any data gaps be identified, they are handled on an individual case basis.

Materials	Source	Data Quality	Year
Chemical	Ecoinvent 3.10.1	Database	2023
Emissions and waste streams	LCA.no	Database	2024
Fuels, fossil	Ecoinvent 3.10.1	Database	2023

Table 7: **LCI inputs assumed**

Data quality/variability requirements, as specified in the PCR, and relative to ISO 14044:2006 requirements, are applied [5]. Data quality is judged based on its precision (measured, calculated or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied within a study serving as a data source) and representativeness (geographical, temporal, and technological).

LCA: SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

The following scenarios were developed to model the landfilling of cellulose insulation and wooden pallets. The landfill scenarios are based on the EPA WARM model and assume the following:

i) As material-specific data for cellulose is not available in the WARM model, newspaper is applied as a proxy material for the estimation of carbon storage in landfill [6].

The following scenarios related to landfill gas capture rates are based on the landfill gas Monte Carlo model documentation and results [7].

- The emission from landfill gases is 50% methane and 50% carbon dioxide, a 50:50 ratio (Table 10).
- All carbon dioxide is released directly into the atmosphere.
- 64% of the methane is captured. Of this captured fraction, 4.5% is flared and 59.3% is used for energy recovery (Table 39).
- Of the 36% methane that is not captured, 9.6% is oxidized and 26.7% is released to the atmosphere (Table 39).
- In summary, for every kilogram of carbon converted to landfill gas, 86.7% is released as carbon dioxide and 13.3% is released as methane.

ii) Similarly, for wooden pallets, the values for dimensional lumber are used as a proxy [8].

The following scenarios related to landfill gas capture rates are based on the landfill gas Monte Carlo model documentation and results [7].

- The emission from landfill gases is 50% methane and 50% carbon dioxide, a 50:50 ratio (Table 39).
- All carbon dioxide is released directly into the atmosphere.
- 65% of the methane is captured. Of this captured fraction, 7.1% is flared and 57.7% is used for energy recovery (Table 39).
- Of the 35% methane that is not captured, 7.6% is oxidized, and 27.6% is released to the atmosphere (Table 39).
- In summary, for every kilogram of carbon converted to landfill gas, 86.2% is released as carbon dioxide and 13.8% is released as methane.

The table on the next page summarizes the carbon storage and landfill gas capture rates [6,7,8].

Parameter	Cellulose insulation	Pallet	Unit
Carbon storage	1.19	1.09	metric tCO_2-eq/short ton
	88.6	81.9	%
Humidity rate	10	16.7	%
Flaring	4.5	7.1	%
Energy recovery	59.3	57.7	%
Oxidation	9.6	7.6	%
Direct emissions	26.7	27.6	%

Table 8: **Carbon storage and landfill gas capture scenario**

TOTAL IMPACT SUMMARY

The following tables report the total LCIA results per functional unit. The results were calculated using the TRACI 2.1 [9] impact assessment method and are reported for each declared life cycle module. In addition, some indicators are reported using the EF v3.1 EN15804 [11] impact assessment method.

Midpoint Impact Categories												
Indicator	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
GWP-total	kg CO_2 -eq	-3.00E+00	9.47E-02	7.74E-02	2.11E-01	1.60E-02	0	0	4.64E-03	0	8.62E-01	-1.74E+00
GWP-fossil	kg CO_2 -eq	2.35E-01	9.46E-02	1.43E-01	2.11E-01	6.94E-02	0	0	4.64E-03	0	7.52E-03	7.65E-01
GWP-biogenic	kg CO_2 -eq	-3.24E+00	3.98E-05	-6.60E-02	4.27E-05	-5.34E-02	0	0	9.05E-07	0	8.54E-01	-2.50E+00
ODP	kg CFC11 -eq	3.11E-09	1.80E-09	1.69E-09	3.31E-09	1.13E-09	0	0	7.20E-11	0	9.90E-11	1.12E-08
AP	kg SO_2 -eq	2.28E-03	4.17E-04	5.24E-04	8.02E-04	4.52E-04	0	0	2.43E-05	0	5.70E-05	4.56E-03
EP	kg N -eq	1.02E-03	1.19E-04	8.84E-04	2.33E-04	1.86E-03	0	0	5.57E-06	0	1.01E-05	4.14E-03
MIR	kg O_3 -eq	2.41E-02	1.15E-02	7.77E-03	2.18E-02	1.22E-02	0	0	7.18E-04	0	1.69E-03	7.97E-02
ADP-fossil	MJ	3.48E+00	1.37E+00	2.77E+00	3.02E+00	9.73E-01	0	0	6.65E-02	0	9.18E-02	1.18E+01

GWP-total = Global Warming Potential total; GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; ODP = Ozone Depletion Potential; AP = Acidification Potential; EP = Eutrophication potential, MIR = Photochemical oxidant formation, maximum incremental reactivity; ADP-fossil = Abiotic depletion for fossil resources potential.

*Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

Inventory Metrics												
Indicator	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
PERE	MJ	3.05E-01	2.52E-02	6.68E-01	4.14E-02	5.36E-02	0	0	9.07E-04	0	1.46E-03	1.10E+00
PERM	MJ	0.00E+00	0.00E+00	5.80E-01	0.00E+00	1.16E-02	0	0	0.00E+00	0	0.00E+00	5.91E-01
PERT	MJ	3.05E-01	2.52E-02	1.25E+00	4.14E-02	6.52E-02	0	0	9.07E-04	0	1.46E-03	1.69E+00
PENRE	MJ	3.04E+00	1.37E+00	2.30E+00	3.02E+00	9.18E-01	0	0	6.65E-02	0	9.18E-02	1.08E+01
PENRM	MJ	4.35E-01	0.00E+00	4.70E-01	0.00E+00	5.49E-02	0	0	0.00E+00	0	0.00E+00	9.60E-01
PENRT	MJ	3.48E+00	1.37E+00	2.77E+00	3.02E+00	9.73E-01	0	0	6.65E-02	0	9.18E-02	1.18E+01
SM	kg	1.94E+00	0.00E+00	5.20E-03	0.00E+00	3.96E-02	0	0	0.00E+00	0	0.00E+00	1.98E+00
RE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
RSF	MJ	1.25E-05	7.38E-06	1.56E-02	1.73E-05	3.16E-04	0	0	3.78E-07	0	1.04E-07	1.60E-02
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0.00E+00	0	0.00E+00	0.00E+00
FW	m3	2.89E-03	2.28E-04	1.06E-03	4.08E-04	2.76E-04	0	0	8.77E-06	0	6.78E-06	4.88E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary materials; RE = Recovered Energy; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water.

* Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

End of life - Waste												
Indicator	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
HWD	kg	1.83E-02	2.86E-03	1.21E-02	5.23E-03	8.33E-03	0	0	1.15E-04	0	2.12E-04	4.71E-02
NHWD	kg	9.45E-01	5.17E-02	3.08E-01	9.82E-02	1.31E-01	0	0	2.16E-03	0	3.96E-03	1.54E+00
RWD	kg	1.23E-06	1.13E-07	2.31E-06	1.78E-07	7.98E-07	0	0	3.90E-09	0	0.00E+00	4.64E-06

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

* Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

End of life - Outputflow												
Indicator	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0.00E+00	0.00E+00
MFR	kg	9.08E-07	0.00E+00	0.00E+00	0.00E+00	1.82E-08	0	0	0	0	3.79E-07	1.30E-06
MER	kg	3.69E-09	0.00E+00	0.00E+00	0.00E+00	7.40E-11	0	0	0	0	1.90E-09	5.66E-09
EEE	MJ	7.35E-06	0.00E+00	0.00E+00	0.00E+00	1.47E-06	0	0	0	0	4.42E-06	1.32E-05
EET	MJ	3.81E-06	0.00E+00	0.00E+00	0.00E+00	1.68E-06	0	0	0	0	2.77E-06	8.25E-06

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

* Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

Carbon Emissions and Removals Inventory Indicators												
Indicator	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	Total
BCRP	kg CO_2 -eq	-3.24E+00	0.00E+00	0.00E+00	0.00E+00	-6.47E-02	0	0	0	0	0.00E+00	-3.30E+00
BCEP	kg CO_2 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	8.54E-01	8.54E-01
BCRK	kg CO_2 -eq	0.00E+00	0.00E+00	-6.62E-02	0.00E+00	-1.32E-03	0	0	0	0	0.00E+00	-6.75E-02
BCEK	kg CO_2 -eq	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.66E-03	0	0	0	0	0.00E+00	9.66E-03
BCEW	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0.00E+00	0.00E+00
CCE	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0.00E+00	0.00E+00
CCR	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0.00E+00	0.00E+00
CWNR	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0	0	0.00E+00	0.00E+00

BCRP = Biogenic carbon removal from product; BCEP = Biogenic emission from product; BCRK = Biogenic carbon removal from packaging; BCEK = Biogenic carbon emission from packaging; BCEW = Biogenic carbon emissions from combustion of waste from renewable sources used in production processes; CCE = Calcination carbon emissions; CCR = Carbonation carbon removals; CWNR = Biogenic carbon emissions from combustion of waste from non-renewable sources used in production processes.

* Reading example: 9.0 E-03 = 9.0*10-3 = 0.009

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	8.83E-01
Biogenic carbon content in accompanying packaging	kg C	1.81E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2

ADDITIONAL ENVIRONMENTAL INFORMATION

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Source	Amount	Unit
Market for electricity, medium voltage (kWh) – US-RFC	Ecoinvent 3.10.1	508.52	g CO_2-eq/kWh

Dangerous substances

- The product contains no substances given by the REACH Candidate list [13].

Indoor environment

- The product is free from indoor air emissions, gamma or ionization radiation and the release of chemicals into air, water, or soil.
- Delayed emissions were not considered in this study.

REFERENCES

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