Statement of Verification

BREG EN EPD No.: 000640

This is to verify that the

Environmental Product Declaration

provided by:

D Facades Ltd

is in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

1 m² of EVOX Cassette & Capping System with dimensions of 1.5mm (4.05 kg), 2mm (5.4 kg) and 3mm (8.1 kg).

Company Address

D. Facades Ltd Cornwell Business Park 43-45 Salthouse Road, Cornwell Business Park, Brackmills, Northampton, NN4 7EX

BRE/Global

EPD



FBaker

04 November 2024

Emma Baker Operator 04 November 2024 Date of this Issue

03 November 2029 Expiry Date

Issue 01



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BF1805-C-ECOP Rev 0.3

Page 1 of 32

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Environmental Product Declaration

EPD Number: 000640

General Information

EPD Programme Operator	Applicable Product Category Rules					
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2023 Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2 PN 514 Rev 3.1					
Commissioner of LCA study	LCA consultant/Tool					
D. Facades Ltd Cornwell Business Park 43-45 Salthouse Road, Cornwell Business Park, Brackmills, Northampton, NN4 7EX	LCA Consultant: Regina Poveda Tool: BRE LINA A2					
Declared/Functional Unit	Applicability/Coverage					
1 m ² of EVOX Cassette & Capping System with dimensions of 1.5mm (4.05 kg), 2mm (5.4 kg) and 3mm (8.1 kg).	Product Specific					
EPD Type	Background database					
Cradle to Gate with Modules C and D	Ecoinvent 3.8					
Demonstra	tion of Verification					
CEN standard EN 15	804 serves as the core PCR ^a					
Independent verification of the declara □Internal	tion and data according to EN ISO 14025:2010 ⊠ External					
(Where appropr Ro	iate ^b)Third party verifier: ger Connick					
a: Product category rules b: Optional for business-to-business communication; mandatory	for business-to-consumer communication (see EN ISO 14025:2010, 9.4)					
Comparability						
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A2:2019. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A2:2019 for further guidance						

Information modules covered

	Draduat		0		Use stage										Benefits and loads beyond	
	Produc	τ	Const	ruction	Rel	ated to	the bu	ilding fa	ıbric	Relat	ted to uilding		End-	ot-lite		the system boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, Recovery and/or Recycling potential
$\overline{\mathbf{A}}$	$\mathbf{\nabla}$	$\mathbf{\nabla}$										$\mathbf{\nabla}$	\checkmark	\checkmark	$\overline{\mathbf{A}}$	\square

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

D. Facades Ltd Cornwell Business Park 43-45 Salthouse Road, Cornwell Business Park, Brackmills, Northampton, NN4 7EX

Construction Product:

Product Description

The EVOX System consists of three types of cassette panels: the DF-DC Discrete Fix Cassette, the DF-HC Hook On Cassette, and the DF-IC Interlocking Cassette. Additionally, the D. Facades Capping system is available to complement the EVOX range of products.

Each of these products is manufactured from Grade 1050A-H14 Aluminium alloy sheets. The panels can be produced using either 3mm, 2mm, or 1.5mm thick material, while the capping is available in 2mm or 3mm thickness.

The products are manufactured using only notching and folding techniques. All the corners of each cassette are mechanically formed and remain unwelded, except for the corners of the capping system, which are TIG welded together.

The panels and capping are designed to form the outer face of a rear-ventilated and drained rainscreen cladding system. Once powder-coated, the panels are rated as A2-s1-d0 for Reaction to Fire in accordance with BS EN 13501-1. The EVOX Interlock and Discrete Cassette panels are designed to allow customers to install them onto most proprietary helping hand rainscreen support systems.

To install the Hook-On system, a more sophisticated vertical rail support is required. This rail will need to support a pressed Aluminium "hook" plate, which in turn supports the cassette panel. The capping is installed using a "snap-fit" application to a supporting bracket.

After fabrication, the cassettes and capping are sent to a polyester powder coater for painting, and thereafter, they are ready for site installation.

Hence, the Cassette and Capping Systems are made of the same materials and are manufactured using the same process. Therefore, the LCA analysis has been conducted for each system, and the individual results are enclosed in this EPD.

Technical Information

The EVOX System consists of three types of cassette panel and a capping system these are the DF-DC Discrete Fix Cassette: DF-HC Hook On Cassette and the DF-IC Interlocking Cassette. The capping system is a "snap fit" type product.

EVOX System has been tested for air permeability, watertightness, wind resistance and impact resistance in accordance with the CWCT Standard Method for Building Envelopes, 2005.

The raw material for EVOX System is Aluminium Alloy 1050A. This material is known for its resistance to corrosion, high ductility and highly reflective finish. And it follows the EN Standards for Chemical composition (BS EN 573-3:2009) and Mechanical properties (BS EN 485-2:2008).

Mechanical Properties BS EN 485-2:2008	Value
Proof Stress	85 Min MPa
Tensile Strength	105—145 MPa
Hardness Brinell	34HB
Elongation A	12 Min %

Note: Mechanical properties sourced from aluminium alloy supplier datasheets. Please contact D Facades for more information +44 (0) 1604 326244.

Reaction to Fire EN 13501-1:2018	Classification
Reaction to fire behaviour	A2
Smoke production	S1
Flaming droplets/particles	d0

Note: Reaction to Fire available at Reaction to Fire Classification report. Report number: 546224. Version: 2. Please contact D Facades for more information +44 (0) 1604 326244.







Cassette panel. Discrete Fixed System A, Hook on system A, Interlock System A (from left to right).

EPD Number: 000640 BF1805-C-ECOP Rev 0.2 Date of Issue:04 November 2024 Page 4 of 32



Capping system A and B (from left to right).

Main Product Contents

EVOX Cassette & Capping System 1.5mm/ 2mm/ 3mm Aluminium Alloy 1050A - H14 (BS EN 573-3:2009)

Material composition	%
Aluminium Alloy 1050A	100

Manufacturing Process

The manufacture of the EVOX cassette panels and capping are carried out at the D Facades production plant in Northampton. After receiving customer confirmation of the panel and capping specification, quantity and individual sizes, the stock sheets of aluminium are procured from a UK based aluminium sheet distributor.

Whilst awaiting delivery of the raw material the customer's requirements are then digitally converted into a format for loading into the various CNC machines in the factory. When the sheets of aluminium have been received into the stores from the supplier these are quality assurance checked and taken into stock. Manufacturing the EVOX panels & Capping is a linear process, the aluminium sheets are fed into the start of the production line, and as these passes through each production stage the material is fabricated into the cassette panels. At the end of the production line a fully fabricated panel is complete ready for powder coating. The design of the corners and edge folds are standardised for each of the cassette systems, & capping so these fabrication details are pre-loaded into the CNC computer memory.

The first stage is to mark out the blanks on the aluminium sheet, this can be duplicated for similar sizes. Next the sheets are cut to size with a Laser Cutter, Guillotine, or CNC Router. Waste material is separated and placed into the recycling bins, and larger sheets are re-stored for future use.

Each blank will have a preprinted adhesive label attached with a unique reference.

This is to enable each individual item to be traced and tracked if required.

The panel & capping corners are notched and punched using the Laser Cutter or CNC Router. The final fabrication stage is to fold the edges with a Brake Press and then to complete any component assembly that is required.

For the Hook On and Discrete Fix cassettes this will involve attaching with a blind rivet/stud to the inside face of the cassette a folded aluminium "top hat" profile. For the Interlock Cassette this could also include both an aluminium "top hat" plus an aluminium horizontal interlock plate. The capping may be supplied in full lengths with preformed corners that are assembled using TIG welding.

When the cassette & capping fabrication is complete, the products are QA inspected, and the low tack adhesive protection covering removed. The panels & capping will then be packed onto recycled wooden pallets and shrink wrapped ready for shipment by road transport to the polyester powder coaters.

Process flow diagram.



Use Information

The panels & capping are designed to form the outer face of a rear ventilated and drained rainscreen cladding system.

End of Life

The building demolition can be done using different methods, which are linked to construction methodology and local geography. When the product reaches its End-of-Life, it will be manually dismantled.

EVOX System is a cladding panel which raw material is 100% Aluminium, therefore the industrial average End-of-Life scenario has been selected by referencing BRE 2023 PCR PN514 Rev 3.1. for the LCA modelling. i.e 95% recycling and 5% to landfill.

The energy used for removing the components from the final waste are considered to be negligible.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description.

1 m² of EVOX Cassette & Capping System with dimensions of 1.5mm (4.05 kg), 2mm (5.4 kg) and 3mm (8.1 kg).

System boundary

This is a Cradle-to-Gate with Module C & D, reporting all production life cycle stages of modules includes the Product Stage (A1 - A3) and End-of-life (C1 - C4), and Benefits and Loads beyond the System Boundary (D) in accordance with EN 15804:2012+A2:2019 and BRE 2023 Product Category Rules (PN 514 Rev 3.1). The intended purpose of this LCA is for the data and results to be used in a published third-party verified EPD.

Data sources, quality and allocation

Specific primary data derived from D Facades Ltd' production process in Cornwell Business Park, have been modelled using BRE LINA A2 and the ecoinvent 3.8 database. In accordance with the requirements of EN 15804:2012+A2:2019, the most current available data has been used. The manufacturer specific data from D Facades Ltd' covers a period of one year (01/01/2023 – 31/12/2023).

The LCA study includes EVOX Cassette & Capping 1.5mm, 2 mm and 3mm, which altogether accounts for the 65% of site's total production (4.89%, 39.14% and 20.96% accordingly). All energy, water and waste have been allocated to these products by kg according to the provisions of the BRE 2023 PCR PN514 Rev 3.1. and EN 15804:2012+A2:2019.

Packaging production outputs and site values for energy and fuels, water and waste have been taken as a percentage of total site production from each material. Figures for the raw materials are from actual usages. The raw materials inputs of the LCA study have been uplifted for EVOX Cassette & Capping Systems – 1.5 mm by 0.02% and EVOX Cassette & Capping Systems - 3 mm by 0.01% for balancing the mass ratio.

Secondary data has been obtained for all other upstream and downstream processes that are beyond the control of the manufacturer (i.e. raw material production) from the ecoinvent 3.8 database. All ecoinvent datasets are complete within the context used and conform to the system boundary and the criteria for the exclusion of inputs and outputs, according to the requirements specified in EN 15804:2012+A2:2019.

ISO14044 guidance.	Geographical	Technical	Time representativeness
Quality Level	representativeness	representativeness	
Very Good	Data from area under study.	Data from processes and products under study. Same state of technology applied as defined in goal and scope (i.e., identical technology).	n/a
Very Good	n/a	n/a	There is approximately 1-2 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken.

Specific European datasets have been selected from the ecoinvent LCI for this LCA. Manufacturer uses the national grid electricity and natural gas for production, so therefore the national grid electricity dataset has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of electricity, GB kwh is 0.239 in kgCO2e/kWh and for the UK natural gas carbon footprint for using 1 kWh is 0.232 kgCO2eq. The quality level of time representativeness is also Very Good as the background LCI datasets are based on ecoinvent v3.8 which was compiled in 2021. Therefore, there is less than 5 years between the ecoinvent LCI reference year and the time period for which the LCA was undertaken.

EPD Number: 000640	Date of Issue:04 November 2024	Expiry Date 03 November 2029
BF1805-C-ECOP Rev 0.2	Page 7 of 32	© BRE Global Ltd, 2022

Cut-off criteria

All processes associated with the manufacturing process have been included. All inputs or outputs have been included and all raw materials, packaging, energy and fuels, water consumption and wastes, except ancillary materials and emissions to air, water and soil which are not measured. Upstream extraction and/or processing of inputs are included within the use of background datasets within LINA.

LCA Results

The LCA results are provided for the three different EVOX Cassette & Capping Systems considering its dimensions and weights.

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated) Parameters describing environmental impacts

			GWP- total	GWP- fossil	GWP- biogenic	GWP- luluc	ODP	AP	EP- freshwat er
		kg CO ₂ eq	kg CO ₂ eq	kg CO ₂ eq	kg CO₂ eq	kg CFC11 eq	mol H⁺ eq	kg (PO ₄) ³⁻ eq	
	Raw material supply	A1	8.72E+01	8.72E+01	-1.89E-02	2.33E-02	4.49E-06	8.08E-01	5.13E-02
Product stage	Transport	A2	6.11E-02	6.11E-02	5.20E-05	2.40E-05	1.41E-08	2.48E-04	3.93E-06
T Toduct stage	Manufacturing	A3	-2.69E+00	1.60E+00	- 4.30E+00	5.01E-03	1.37E-07	7.90E-03	4.98E-04
	Total	A1- A3	8.46E+01	8.88E+01	- 4.32E+00	2.84E-02	4.64E-06	8.17E-01	5.18E-02
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	6.74E-02	6.73E-02	5.74E-05	2.64E-05	1.56E-08	2.73E-04	4.34E-06
End of life	Waste processing	C3	-1.15E+00	- 1.14E+00	-6.89E-03	-1.45E-03	-7.32E-08	-4.84E-03	-3.03E-04
	Disposal	C4	7.99E-03	7.90E-03	7.14E-05	8.83E-06	8.63E-10	5.25E-05	2.33E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-8.47E+01	- 8.48E+01	2.49E-01	-1.13E-01	-2.50E-06	-5.43E-01	-2.53E-02

GWP-total = Global warming potential, total;

GWP-fossil = Global warming potential, fossil;

GWP-biogenic = Global warming potential, biogenic; GWP-luluc = Global warming potential, land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, accumulated exceedance; and EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts										
			EP- marine	EP- terrestrial	POCP	ADP- mineral &metal	ADP- fossil	WDP	PM	
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m ³ world eq deprived	disease incidence	
	Raw material supply	A1	1.06E-01	1.08E+00	3.25E-01	1.70E-03	9.08E+02	1.53E+01	5.15E-06	
Product stage	Transport	A2	7.46E-05	8.16E-04	2.50E-04	2.12E-07	9.23E-01	4.15E-03	5.27E-09	
T Toduct stage	Manufacturing	A3	2.23E-03	2.24E-02	8.68E-03	8.00E-06	3.90E+01	1.28E+00	1.45E-07	
	Total	A1- A3	1.08E-01	1.10E+00	3.34E-01	1.70E-03	9.48E+02	1.66E+01	5.30E-06	
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+0 0	0.00E+00	0.00E+00	0.00E+00	
End of life	Transport	C2	8.23E-05	8.99E-04	2.75E-04	2.34E-07	1.02E+00	4.58E-03	5.81E-09	
	Waste processing	C3	-8.52E-04	-9.34E-03	-2.67E-03	-4.74E- 05	-8.52E+00	-1.94E-01	-7.55E-08	
	Disposal	C4	1.30E-05	1.40E-04	4.15E-05	1.75E-08	1.12E-01	3.56E-03	7.85E-10	
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-9.07E-02	-9.47E-01	-2.72E-01	-7.32E- 05	-7.63E+02	-1.01E+01	-7.00E-06	

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, accumulated

exceedance;

POCP = Formation potential of tropospheric ozone;

ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer; WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and PM = Particulate matter.

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			IRP	ETP-fw	HTP-c	HTP-nc	SQP		
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless		
	Raw material supply	A1	5.37E+00	2.17E+03	1.57E-07	2.45E-06	2.12E+02		
Product stage	Transport	A2	4.75E-03	7.20E-01	2.33E-11	7.55E-10	6.34E-01		
	Manufacturing	A3	3.74E-01	3.20E+01	6.01E-09	2.46E-08	3.86E+02		
	Total	A1- 3	5.74E+00	2.21E+03	1.63E-07	2.47E-06	5.99E+02		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	5.23E-03	7.94E-01	2.57E-11	8.33E-10	6.99E-01		
End of life	Waste processing	C3	-8.08E-02	-2.44E+01	-7.55E-10	-3.13E-08	-7.89E+00		
	Disposal	C4	6.56E-04	1.25E+02	7.34E-12	1.94E-10	1.44E-01		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.00E+00	-2.18E+03	-8.75E-08	-1.86E-06	-1.58E+02		

IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; and SQP = Potential soil quality index.

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

Parameters describing resource use, primary energy										
		PERE	PERM	PERT	PENRE	PENRM	PENRT			
			MJ	MJ	MJ	MJ	MJ	MJ		
	Raw material supply	A1	3.03E+01	0.00E+00	3.03E+01	8.97E+02	8.11E+00	9.05E+02		
Product stage	Transport	A2	1.30E-02	0.00E+00	1.30E-02	9.06E-01	0.00E+00	9.06E-01		
Flouuci stage	Manufacturing	A3	2.85E+01	4.50E+01	7.35E+01	3.12E+01	1.07E+01	4.19E+01		
	Total	A1- A3	5.88E+01	4.50E+01	1.04E+02	9.29E+02	1.89E+01	9.48E+02		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	1.43E-02	0.00E+00	1.43E-02	9.99E-01	0.00E+00	9.99E-01		
End of life	Waste processing	C3	7.21E-01	0.00E+00	7.21E-01	4.96E+00	0.00E+00	4.96E+00		
	Disposal	C4	7.27E-03	0.00E+00	7.27E-03	1.11E-01	0.00E+00	1.11E-01		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-4.65E+01	0.00E+00	-4.65E+01	-7.57E+02	0.00E+00	-7.57E+02		

PERE = Use of renewable primary energy excluding renewable primary energy 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 nonrenewable 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 resource

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

Parameters describing resource use, secondary materials and fuels, use of water								
			SM	RSF	NRSF	FW		
			kg	MJ net calorific value	MJ net calorific value	m ³		
	Raw material supply	A1	1.33E-01	0.00E+00	0.00E+00	3.69E-01		
Product stage	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.03E-04		
	Manufacturing	A3	1.56E-01	5.51E-06	0.00E+00	3.14E-02		
	Total	A1- A3	2.89E-01	5.51E-06	0.00E+00	4.00E-01		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.13E-04		
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	-4.78E-03		
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	8.61E-05		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-2.71E-01		

SM = Use of secondary material;

RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

Other environmental information describing waste categories									
			HWD	NHWD	RWD				
			kg	kg	kg				
	Raw material supply	A1	1.51E+01	2.50E+02	2.06E-03				
Product stage	Transport	A2	1.02E-03	1.81E-02	6.25E-06				
Product stage Manufacturing		A3	1.10E-01	2.44E+00	1.29E-04				
	Total	A1-A3	1.52E+01	2.52E+02	2.20E-03				
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	1.12E-03	1.99E-02	6.88E-06				
	Waste processing	C3	7.77E-02	1.79E+00	1.98E-05				
	Disposal	C4	3.08E-03	2.21E-01	4.46E-07				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.68E+01	-1.05E+02	-8.70E-04				

HWD = Hazardous waste disposed;

NHWD = Non-hazardous waste disposed;

RWD = Radioactive waste disposed

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 1.5mm with weight of 4.05 per m².

Other environmental information describing output flows – at end of life										
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)		
	Pour motorial		kg	kg	kg	MJ per energy carrier	kg C	kg C		
	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
Product stage	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
Floudel stage	Manufacturing	A3	0.00E+00	4.96E-01	5.18E-08	4.46E-03	0.00E+00	-1.19E+00		
	Total	A1-A3	0.00E+00	4.96E-01	5.18E-08	4.46E-03	0.00E+00	-1.19E+00		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		

CRU = Components for reuse; MFR = Materials for recycling MER = Materials for energy recovery; EE = Exported Energy

LCA Results

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated) Parameters describing environmental impacts

			GWP- total	GWP- fossil	GWP- biogenic	GWP- luluc	ODP	AP	EP- freshwat er
			kg CO₂ eq	kg CO ₂ eq	kg CO ₂ eq	kg CO₂ eq	kg CFC11 eq	mol H⁺ eq	kg (PO ₄) ³⁻ eq
	Raw material supply	A1	1.16E+02	1.16E+02	-2.52E-02	3.11E-02	5.99E-06	1.08E+00	6.85E-02
Product stage	Transport	A2	8.15E-02	8.14E-02	6.94E-05	3.20E-05	1.88E-08	3.30E-04	5.24E-06
FIDUUCI Stage	Manufacturing	A3	- 3.59E+00	2.13E+00	- 5.73E+00	6.68E-03	1.83E-07	1.05E-02	6.64E-04
	Total	A1- A3	1.13E+02	1.18E+02	- 5.76E+00	3.78E-02	6.19E-06	1.09E+00	6.91E-02
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	8.99E-02	8.97E-02	7.65E-05	3.52E-05	2.08E-08	3.64E-04	5.78E-06
	Waste processing	C3	- 1.53E+00	- 1.52E+00	-9.18E-03	-1.93E-03	-9.76E-08	-6.45E-03	-4.04E-04
Disposal C4		C4	1.07E-02	1.05E-02	9.53E-05	1.18E-05	1.15E-09	6.99E-05	3.11E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	- 1.13E+02	- 1.13E+02	3.32E-01	-1.51E-01	-3.33E-06	-7.24E-01	-3.37E-02

GWP-total = Global warming potential, total;

GWP-fossil = Global warming potential, fossil;

GWP-biogenic = Global warming potential, biogenic;

GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, accumulated exceedance; and EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts											
			EP- marine	EP- terrestrial	POCP	ADP- mineral &metal	ADP- fossil	WDP	PM		
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m ³ world eq deprived	disease incidence		
	Raw material supply	A1	1.41E-01	1.44E+00	4.33E-01	2.26E-03	1.21E+03	2.04E+01	6.87E-06		
Product stage	Transport	A2	9.95E-05	1.09E-03	3.33E-04	2.83E-07	1.23E+00	5.54E-03	7.03E-09		
Floudel stage	Manufacturing	A3	2.98E-03	2.99E-02	1.16E-02	1.07E-05	5.19E+01	1.70E+00	1.93E-07		
	Total	A1- A3	1.44E-01	1.47E+00	4.45E-01	2.27E-03	1.26E+03	2.21E+01	7.07E-06		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+0 0	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	1.10E-04	1.20E-03	3.67E-04	3.12E-07	1.36E+00	6.11E-03	7.75E-09		
	Waste processing	C3	-1.14E-03	-1.25E-02	-3.56E-03	-6.32E- 05	-1.14E+01	-2.59E-01	-1.01E-07		
Disposal C4			1.73E-05	1.86E-04	5.53E-05	2.33E-08	1.50E-01	4.74E-03	1.05E-09		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.21E-01	-1.26E+00	-3.63E-01	-9.76E- 05	-1.02E+03	-1.34E+01	-9.33E-06		

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, accumulated

exceedance;

POCP = Formation potential of tropospheric ozone;

ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer; WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and PM = Particulate matter.

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters de	scribing envi	ronm	ental impacts				
			IRP	ETP-fw	HTP-c	HTP-nc	SQP
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless
	Raw material supply	A1	7.15E+00	2.90E+03	2.10E-07	3.26E-06	2.83E+02
Product stage	Transport	A2	6.33E-03	9.61E-01	3.11E-11	1.01E-09	8.46E-01
Product stage	Manufacturing	A3	4.98E-01	4.27E+01	8.01E-09	3.29E-08	5.15E+02
	Total	A1- A3	7.66E+00	2.94E+03	2.18E-07	3.29E-06	7.99E+02
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	6.98E-03	1.06E+00	3.43E-11	1.11E-09	9.32E-01
End of life	Waste processing	C3	-1.08E-01	-3.26E+01	-1.01E-09	-4.17E-08	-1.05E+01
	Disposal	C4	8.74E-04	1.67E+02	9.79E-12	2.58E-10	1.92E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.34E+00	-2.91E+03	-1.17E-07	-2.49E-06	-2.11E+02

IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; and SQP = Potential soil quality index.

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

Parameters describing resource use, primary energy										
			PERE	PERM	PERT	PENRE	PENRM	PENRT		
			MJ	MJ	MJ	MJ	MJ	MJ		
	Raw material supply	A1	4.04E+01	0.00E+00	4.04E+01	1.20E+03	1.08E+01	1.21E+03		
Product	Transport	A2	1.73E-02	0.00E+00	1.73E-02	1.21E+00	0.00E+00	1.21E+00		
stage	Manufacturing	A3	3.80E+01	6.01E+01	9.81E+01	4.16E+01	1.43E+01	5.59E+01		
	Total	A1-A3	7.84E+01	6.01E+01	1.38E+02	1.24E+03	2.51E+01	1.26E+03		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	1.91E-02	0.00E+00	1.91E-02	1.33E+00	0.00E+00	1.33E+00		
End of life	Waste processing	C3	9.62E-01	0.00E+00	9.62E-01	6.61E+00	0.00E+00	6.61E+00		
	Disposal	C4	9.69E-03	0.00E+00	9.69E-03	1.48E-01	0.00E+00	1.48E-01		
Potential benefits and loads beyond the	Reuse, recovery, recycling potential	D	-6.20E+01	0.00E+00	-6.20E+01	-1.01E+03	0.00E+00	-1.01E+03		

PERE = Use of renewable primary energy excluding renewable primary energy 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 nonrenewable 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 resource

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

Parameters describing resource use, secondary materials and fuels, use of water										
			SM	RSF	NRSF	FW				
			kg	MJ net calorific value	MJ net calorific value	m³				
	Raw material supply	A1	1.78E-01	0.00E+00	0.00E+00	4.92E-01				
Product stage	Transport	A2	0.00E+00	0.00E+00	0.00E+00	1.37E-04				
Product stage	Manufacturing	A3	2.08E-01	7.35E-06	0.00E+00	4.17E-02				
	Total	A1-A3	3.85E-01	7.35E-06	0.00E+00	5.34E-01				
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	1.51E-04				
End of life	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	-6.38E-03				
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.15E-04				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-3.61E-01				

SM = Use of secondary material;

RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

Other environmental information describing waste categories									
			HWD	NHWD	RWD				
			kg	kg	kg				
	Raw material supply	A1	2.01E+01	3.33E+02	2.75E-03				
Product stage	Transport	A2	1.36E-03	2.41E-02	8.33E-06				
Product stage Manufacturing		A3	1.47E-01	3.26E+00	1.72E-04				
	Total	A1-A3	2.02E+01	3.36E+02	2.93E-03				
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	1.50E-03	2.66E-02	9.18E-06				
End of life	Waste processing	C3	1.04E-01	2.39E+00	2.64E-05				
	Disposal	C4	4.10E-03	2.94E-01	5.94E-07				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.23E+01	-1.40E+02	-1.16E-03				

HWD = Hazardous waste disposed;

NHWD = Non-hazardous waste disposed;

RWD = Radioactive waste disposed

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 2mm with weight of 5.4 per m².

Other env	vironmental inf	formation	describi	ng output flo	ows – at end	of life		
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Product	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
stage	Manufacturing	A3	0.00E+00	6.61E-01	6.91E-08	5.95E-03	0.00E+00	-1.59E+00
	Total	A1-A3	0.00E+00	6.61E-01	6.91E-08	5.95E-03	0.00E+00	-1.59E+00
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of me	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse; MFR = Materials for recycling MER = Materials for energy recovery; EE = Exported Energy

LCA Results

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated) Parameters describing environmental impacts

			GWP- total	GWP- fossil	GWP- biogenic	GWP- luluc	ODP	AP	EP- freshwat er kg
			eq	eq	eq	eq	eq	morri oq	(PO ₄) ³⁻ eq
	Raw material supply	A1	1.74E+02	1.74E+02	-3.79E-02	4.67E-02	8.98E-06	1.62E+00	1.03E-01
Product stage	Transport	A2	1.22E-01	1.22E-01	1.04E-04	4.80E-05	2.83E-08	4.96E-04	7.87E-06
F TOULUCE Stage	Manufacturing	A3	- 5.39E+00	3.20E+00	- 8.60E+00	1.00E-02	2.74E-07	1.58E-02	9.96E-04
	Total	A1- A3	1.69E+02	1.78E+02	- 8.64E+00	5.67E-02	9.29E-06	1.63E+00	1.04E-01
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	1.35E-01	1.35E-01	1.15E-04	5.29E-05	3.12E-08	5.46E-04	8.67E-06
	Waste processing	C3	- 2.29E+00	- 2.27E+00	-1.38E-02	-2.89E-03	-1.46E-07	-9.68E-03	-6.06E-04
Disposal C4		C4	1.60E-02	1.58E-02	1.43E-04	1.77E-05	1.73E-09	1.05E-04	4.66E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	- 1.69E+02	- 1.70E+02	4.97E-01	-2.26E-01	-5.00E-06	-1.09E+00	-5.06E-02

GWP-total = Global warming potential, total;

GWP-fossil = Global warming potential, fossil;

GWP-biogenic = Global warming potential, biogenic;

GWP-luluc = Global warming potential, land use and land use change;

ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, accumulated exceedance; and EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts											
			EP- marine	EP- terrestrial	POCP	ADP- mineral &metal	ADP- fossil	WDP	PM		
			kg N eq	mol N eq	kg NMVOC eq	kg Sb eq	MJ, net calorific value	m ³ world eq deprived	disease incidence		
	Raw material supply	A1	2.11E-01	2.15E+00	6.50E-01	3.39E-03	1.82E+03	3.05E+01	1.03E-05		
Product stage	Transport	A2	1.49E-04	1.63E-03	5.00E-04	4.25E-07	1.85E+00	8.31E-03	1.05E-08		
Product stage	Manufacturing	A3	4.47E-03	4.48E-02	1.73E-02	1.60E-05	7.79E+01	2.54E+00	2.90E-07		
	Total	A1-3	2.16E-01	2.20E+00	6.67E-01	3.41E-03	1.90E+03	3.31E+01	1.06E-05		
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+0 0	0.00E+00	0.00E+00	0.00E+00		
End of life	Transport	C2	1.65E-04	1.80E-03	5.51E-04	4.68E-07	2.04E+00	9.16E-03	1.16E-08		
	Waste processing	C3	-1.70E-03	-1.87E-02	-5.34E-03	-9.48E- 05	-1.70E+01	-3.88E-01	-1.51E-07		
Disposal C4			2.60E-05	2.79E-04	8.30E-05	3.50E-08	2.25E-01	7.12E-03	1.57E-09		
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-1.81E-01	-1.89E+00	-5.44E-01	-1.46E- 04	-1.53E+03	-2.01E+01	-1.40E-05		

EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, accumulated

exceedance;

POCP = Formation potential of tropospheric ozone;

ADP-mineral&metals = Abiotic depletion potential for non-fossil resources;

ADP-fossil = Depletion potential of the stratospheric ozone layer; WDP = Water (user) deprivation potential, deprivation-weighted water consumption; and PM = Particulate matter.

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters des	Parameters describing environmental impacts										
			IRP	ETP-fw	HTP-c	HTP-nc	SQP				
			kBq U ²³⁵ eq	CTUe	CTUh	CTUh	dimensionless				
	Raw material supply	A1	1.07E+01	4.35E+03	3.15E-07	4.89E-06	4.25E+02				
Product stage	Transport	A2	9.49E-03	1.44E+00	4.67E-11	1.51E-09	1.27E+00				
Product stage	Manufacturing	A3	7.47E-01	6.41E+01	1.20E-08	4.93E-08	7.72E+02				
	Total	A1- A3	1.15E+01	4.41E+03	3.27E-07	4.94E-06	1.20E+03				
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00				
End of life	Transport	C2	1.05E-02	1.59E+00	5.14E-11	1.67E-09	1.40E+00				
	Waste processing	C3	-1.62E-01	-4.88E+01	-1.51E-09	-6.25E-08	-1.58E+01				
	Disposal	C4	1.31E-03	2.51E+02	1.47E-11	3.87E-10	2.88E-01				
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-2.00E+00	-4.36E+03	-1.75E-07	-3.73E-06	-3.16E+02				

IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; and SQP = Potential soil quality index.

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	6.06E+01	0.00E+00	6.06E+01	1.79E+03	1.62E+01	1.81E+03
	Transport	A2	2.60E-02	0.00E+00	2.60E-02	1.81E+00	0.00E+00	1.81E+00
	Manufacturing	A3	5.70E+01	9.01E+01	1.47E+02	6.24E+01	2.15E+01	8.38E+01
	Total	A1- A3	1.18E+02	9.01E+01	2.08E+02	1.86E+03	3.77E+01	1.90E+03
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.87E-02	0.00E+00	2.87E-02	2.00E+00	0.00E+00	2.00E+00
	Waste processing	C3	1.44E+00	0.00E+00	1.44E+00	9.91E+00	0.00E+00	9.91E+00
	Disposal	C4	1.45E-02	0.00E+00	1.45E-02	2.23E-01	0.00E+00	2.23E-01
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-9.31E+01	0.00E+00	-9.31E+01	-1.51E+03	0.00E+00	-1.51E+03

PERE = Use of renewable primary energy excluding renewable primary energy 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 nonrenewable 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 resource

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m³
Product stage	Raw material supply	A1	2.67E-01	0.00E+00	0.00E+00	7.38E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	2.06E-04
	Manufacturing	A3	3.11E-01	1.10E-05	0.00E+00	6.25E-02
	Total	A1- A3	5.78E-01	1.10E-05	0.00E+00	8.00E-01
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	2.27E-04
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	-9.57E-03
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.72E-04
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	-5.42E-01

SM = Use of secondary material;

RSF = Use of renewable secondary fuels;

NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

Other environmental information describing waste categories						
			HWD NHWD		RWD	
			kg	kg	kg	
Product stage	Raw material supply	A1	3.01E+01	4.99E+02	4.12E-03	
	Transport	A2	2.04E-03	3.62E-02	1.25E-05	
	Manufacturing	A3	2.20E-01	4.89E+00	2.58E-04	
	Total	A1- A3	3.03E+01	5.04E+02	4.39E-03	
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	
End of life	Transport	C2	2.24E-03	3.99E-02	1.38E-05	
End of life	Waste processing	C3	1.55E-01	3.58E+00	3.96E-05	
	Disposal	C4	6.16E-03	4.41E-01	8.91E-07	
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	-3.35E+01	-2.10E+02	-1.74E-03	

HWD = Hazardous waste disposed;

NHWD = Non-hazardous waste disposed;

RWD = Radioactive waste disposed

LCA Results (continued)

LCA results for 1m² of EVOX Cassette & Capping System 3mm with weight of 8.1 per m².

Other environmental information describing output flows – at end of life								
			CRU	MFR	MER	EE	Biogenic carbon (product)	Biogenic carbon (packaging)
			kg	kg	kg	MJ per energy carrier	kg C	kg C
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Manufacturing	A3	0.00E+00	9.91E-01	1.04E-07	8.92E-03	0.00E+00	-2.38E+00
	Total	A1- 3	0.00E+00	9.91E-01	1.04E-07	8.92E-03	0.00E+00	-2.38E+00
	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Transport	C2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
End of life	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

CRU = Components for reuse; MFR = Materials for recycling MER = Materials for energy recovery; EE = Exported Energy

Scenarios and additional technical information

Scenarios and additional technical information								
Scenario	Parameter	Units	Results					
C1 - Deconstruction	The building demolition can be done using different methods, which are linked to construction methodology and local geography. When the product reaches its End-of-Life, it will be manually dismantled. After this EVOX Cassette's raw material, Aluminium Alloy 1050A will be 5% sent to landfill and 95% sent to recycling facilities based on the End-of Life scenario according to BRE 2023 PCR PN514 Rev 3.1. The energy used for removing the components from the final waste are considered to be negligible							
C2 - Transport	On average, a 100 km distance was considered, as the dismantling companies would be hired in the area 100 km from the site.	Road transport, Lorry	16-32 metric ton					
	Transport distance	km	100					
C3 - Waste Processing	EVOX System is made up of 100% Aluminium Alloy 1050A End-of-Life scenario has been selected by referencing BRE	. Therefore, the most 2023 PCR PN514 R	appropriate ev 3.1.					
	EVOX Cassette & Capping Systems - 1.5mm with the weight of 4.05 per m2	kg	3.8475					
95% recycling	EVOX Cassette & Capping Systems - 2mm with the weight of 5.4 per m2	kg	5.13					
	EVOX Cassette & Capping Systems - 3mm with the weight of 8.1 per m2	kg	7.695					
C4 - Disposal	5% of the aluminium waste will be considered as a natural loss during the recycling process therefore they will be end up in landfilling.							
	EVOX Cassette & Capping Systems - 1.5mm with the weight of 4.05 per m2 will be landfilled	kg	0.2025					
5% landfill	EVOX Cassette & Capping Systems - 2mm with the weight of 5.4 per m2 to Landfill	kg	0.27					
	EVOX Cassette & Capping Systems - 3mm with the weight of 8.1 per m2 to Landfill	kg	0.405					
Module D	Denents and loads beyond the system boundary accounts for the environmental benefits and loads resulting from Aluminium Alloy 1050A that is used as raw material in Evox Cassette & Capping Systems and that is recycled at the End of Life. The recycled content of the Aluminium Alloy 1050A was calculated for each chemical that composed the specific supplier's product (Aalco, 2024). The total of the recycled content of each chemical generates the recycled content of Aluminium Alloy 1050A, which accounts for 2.14%. By extracting the 2.14% of the 95% recycled content of Aluminium Alloy 1050A from each Evox Cassette & Capping Systems, only the virgin Aluminium benefits are considered. EVOX Cassette & Capping Systems - 1.5mm with the							
	 Aluminium Alloy 1050A = 3.8475 - 0.0823 EVOX Cassette & Capping Systems - 2mm with the 	ĸy	5.705					
	weight of 5.4 per m2 to Landfill Aluminium Alloy 1050A = 5.13 - 0.1098	kg	5.02					
	EVOX Cassette & Capping Systems - 3mm with the weight of 8.1 per m2 to Landfill Aluminium Alloy 1050A = 7.695 - 0.1647	kg	7.53					

Interpretation of results

The results presented in this LCA belongs to the 1m² of EVOX Cassette & Capping System with three different dimensions and weights per dimension.

Since the composition of EVOX Cassette & Capping System 1.5mm, 2 mm and 3mm are the same, the average will be used in this interpretation section. As an average, the bulk of environmental impacts are attributed to the extraction and processing of Aluminium Alloy 1050A, covered by information modules A1 – A3 of EN15804:2012+A2:2019. During the raw material supply (i.e, A1), the environmental impacts are highest for GWP Global Warming Potential in all cases.

End of life impacts during the end-of-life are considerably lower due to recycling. Recycling benefits can provide environmental benefits, offsetting some of the impacts from production phases.



Environmental Indicators Results for Aluminium Alloy 1050A.

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