



Statement of Verification

BREG EN EPD No: 000771

Issue: 01

This is to verify that the Environmental Product Declaration provided by:

Altro Limited

are in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

1 m² of Altro Stronghold 30 with a thickness of 3 mm and a weight of 4 kg/m².

Company Address

Altro Ltd,
Works Road,
Letchworth Garden City,
Hertfordshire,
SG6 1NW
United Kingdom



altro

Hayley Thomson
Signed for BRE Global Limited

Hayley Thomson
Operator

20 March 2026
Date of this Issue

20 March 2026
Date of First Issue

19 March 2031
Expiry Date



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To check the validity of this statement of verification please, visit www.greenbooklive.com/check or contact us.

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Environmental Product Declaration

EPD Number: 000771

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2025 Product Category Rules (PN 514 Rev 3.2) for Type III environmental product declaration of construction products to EN 15804:2012+A2:2019
Commissioner of LCA study	LCA consultant/Tool
Altro Limited Works Road Letchworth Garden City Hertfordshire SG6 1NW United Kingdom	Bala Subramanian/BRE LINA A2
Declared/Functional Unit	Applicability/Coverage
1 m ² of Altro Stronghold 30 with a thickness of 3 mm and a weight of 4 kg/m ² .	Product Specific.
EPD Type	Background database
Cradle to Gate with Module C and D	Ecoinvent 3.8

Demonstration of Verification

CEN standard EN 15804 serves as the core PCR ^a

Independent verification of the declaration and data according to EN ISO 14025:2010

Internal

External

(Where appropriate ^b)Third party verifier:
Kim Allbury

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

Product			Construction		Use stage							End-of-life				Benefits and loads beyond the system boundary
A1	A2	A3	A4	A5	Related to the building fabric					Related to the building		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
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Altro Limited,
Works Road,
Letchworth Garden City,
Herts,
SG6 1NW

Construction Product:

Product Description

Altro Stronghold 30 is a 3mm thick safety flooring which is designed to minimise risk in wet and greasy conditions for the lifetime of the flooring, As well as helping to keep staff safe from slips, it also helps reduce their fatigue, thanks to its 3mm thickness which provides noise reduction and comfort underfoot.

Technical Information

The below table covers the basic technical properties of the Altro Stronghold 30 product. For further properties, please see the products' pages on Altro's website: <https://www.altro.com/uk/technical-documents/altro-stronghold-30-technical-data-sheet>,

Property	Value, Unit
Thickness (EN428)	3 mm
Mass per area (EN ISO 23997)	4 kg/m ²
Slip resistance (TRRL) (EN 13845) (EN 13893) (DIN 51130)	≥ 55 ESf ≥ 0.30 / DS R12
Fire performance (EN 13501-1, EN ISO 9239-1, EN ISO 11925-2) CAN/ULC ASTM E648 ASTM E662	Class Bfl-s1, ≥8kW/m ² , pass S102.2 (Tested) Class 1 <450



Main Product Contents

The below table covers the main contents of the Altro Stronghold 30 product.

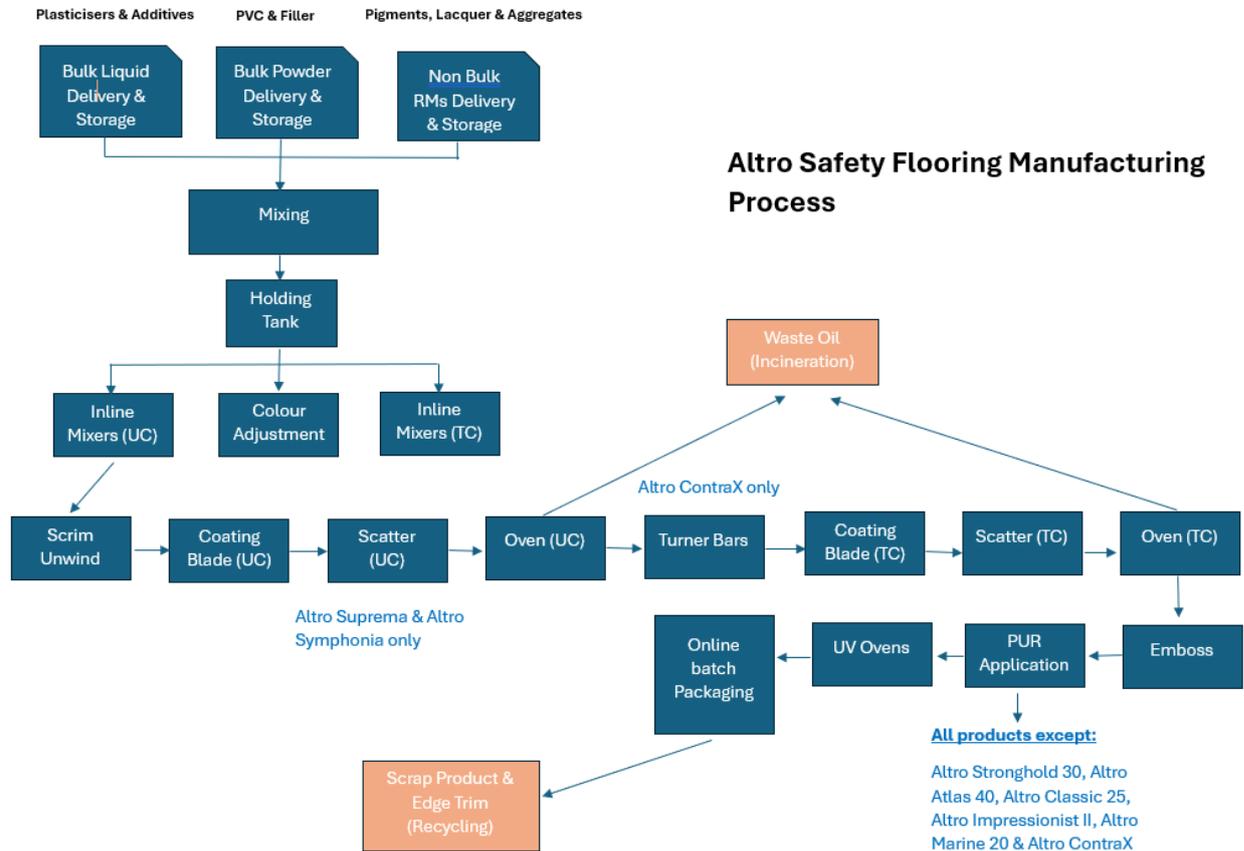
Material/Chemical Input	%
Plastisol	93
Scatter	6
Scrim	1

Manufacturing Process

Manufacturing Process - Bulk liquids, powders, aggregates and performance additives are mixed together into a plastisol and placed in a holding tank. The plastisol is then pigmented and passed into inline mixers. The pigmented plastisol is spread coated onto a scrim and gravure printed to give a range of designs. PUR is added for enhanced cleanability, and the product is then cured in an oven. The final product is then cut into rolls and packaged for dispatch.

Note: For manufacturing, the UK national grid electricity and the natural gas has been used, and any processing waste generated during production will be sent for recycling

Process flow diagram



Construction Installation

Standard adhesives and mastic are all it needs to secure the tile to a floor. Some cutting maybe needed with a simple cutting wheel around the border areas of the floor.

Use Information

Maintenance of the product is simple visual checks for signs of damage and wear. No specialised care is needed beyond the occasional use of a tile cleaning solution.

End of Life

Altro Stronghold 30 cannot be recovered at the end of life as it is bonded to the floor with an adhesive. Therefore, according to BRE PCR 3.2, 100% of Altro Stronghold 30 will end up in landfill.



Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1 m² of Altro Stronghold 30 with a thickness of 3 mm and a weight of 4 kg/m².

System boundary

In accordance with the modular approach as defined in EN15804:2012+A2:2019 and the BRE 2025 Product Category Rules (PN 514 Rev 3.2), this cradle-to-gate with Module C and D EPD includes the processes covered during the raw material extraction and manufacturing phase in modules A1 to A3. It also includes the end-of-life scenario in modules C1, C2, C3, C4 and module D.

Data sources, quality and allocation

The supporting LCA study was carried out using BRE LINA A2 software using manufacturer-specific data provided by Altro for the production period between August 2022 and July 2023 at the Letchworth production facility based in the United Kingdom which is produced at 7.7%.

The Letchworth site produces other PVC products in addition to the Stronghold 30 product, so allocation was applied to site wide values for packaging, energy, water, non-production waste, and wastewater, on a m² of production basis. Production waste was allocated on a percentage mass of production basis. No allocation of raw material inputs was required as total raw material usage for Altro Stronghold 30 made over the production period was used. Also, manufacturer has confirmed that 90% of water goes to sewer. Production and Non-production waste was allocated on a percentage mass of production basis. Secondary data has been drawn ecoinvent v3.8 and the dataset used for the LCA modelling is the EN15804+A2 production dataset. 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 EN15804+A2:2019. BRE LINA+A2 uses the characterisation factors that are specified in annex C of the 15804 A2 standard.

ISO14044 guidance. Quality Level	Geographical representativeness	Technical representativeness	Time 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).	There is approximately less than 3 years between the Ecoinvent LCI reference year, and the time period for which the LCA was undertaken

The data quality assessment presented above has been carried out in accordance with Table E.1 in the Annex section of the BRE PCR EN 15804+A2 V3.2. Specific UK and European datasets have been selected from the ecoinvent LCI for this LCA and the dataset used for the LCA modelling is the EN15804+A2 production dataset. Manufacturer uses the national grid electricity and natural gas for production, therefore the national grid electricity dataset "Electricity – GB (kWh)" has been used for the LCA modelling (Ecoinvent 3.8). For the LCA analysis, the location-based approach has been used, the GWP carbon footprint for using 1 kWh of electricity, GB kWh is 0.239 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.

Cut-off criteria

The inventory process in this LCA includes all data related to raw materials, packaging material and consumable items. Process energy, water use and discharge, and waste are also included. No inputs or outputs have been excluded. All raw materials and packaging inputs, plus their transport, process and general energy and water use, production and non-production waste, have been included, except for direct emissions to air, water and soil, which are not measured.



LCA Results - 1 m² of Altro Stronghold 30 with a thickness of 3 mm and a weight of 4 kg/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-freshwater
			kg CO ₂ eq	kg CFC11 eq	mol H ⁺ eq	kg (PO ₄) ³⁻ eq			
Product stage	Raw material supply	A1	7.15E+00	7.07E+00	6.84E-02	6.06E-03	7.46E-06	4.05E-02	2.78E-03
	Transport	A2	5.77E-01	5.76E-01	4.91E-04	2.26E-04	1.33E-07	2.35E-03	3.71E-05
	Manufacturing	A3	9.11E-01	8.64E-01	4.60E-02	7.23E-04	9.14E-08	1.44E-03	1.07E-04
	Total (Consumption grid)	A1-3	8.64E+00	8.51E+00	1.15E-01	7.01E-03	7.68E-06	4.42E-02	2.92E-03
End of life	Deconstruction, demolition	C1	4.77E-03	4.73E-03	4.30E-05	4.97E-06	3.60E-10	1.05E-05	6.46E-07
	Transport	C2	3.33E-02	3.32E-02	2.83E-05	1.31E-05	7.69E-09	1.35E-04	2.14E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.38E-01	3.37E-01	4.23E-04	4.42E-05	1.28E-08	3.68E-04	6.16E-06
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	0.00E+00

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)

(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&metals	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
Product stage	Raw material supply	A1	5.97E-03	6.46E-02	2.04E-02	9.62E-05	1.66E+02	5.33E+00	2.81E-07
	Transport	A2	7.06E-04	7.72E-03	2.36E-03	2.00E-06	8.71E+00	3.92E-02	4.97E-08
	Manufacturing	A3	5.41E-04	4.64E-03	1.26E-03	2.21E-06	1.50E+01	9.46E-02	1.38E-08
	Total (Consumption grid)	A1-3	7.22E-03	7.70E-02	2.41E-02	1.00E-04	1.90E+02	5.46E+00	3.45E-07
End of life	Deconstruction, demolition	C1	3.14E-06	3.50E-05	8.57E-06	2.94E-08	1.25E-01	2.88E-04	7.28E-11
	Transport	C2	4.06E-05	4.44E-04	1.36E-04	1.16E-07	5.03E-01	2.26E-03	2.87E-09
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.58E-03	1.35E-03	4.58E-04	1.40E-07	9.98E-01	4.47E-02	7.26E-09
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	0.00E+00

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)

(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
Product stage	Raw material supply	A1	1.05E+00	1.32E+02	7.29E-09	1.31E-07	1.81E+01
	Transport	A2	4.48E-02	6.80E+00	2.20E-10	7.13E-09	5.98E+00
	Manufacturing	A3	2.35E-01	5.90E+00	2.42E-10	4.37E-09	9.79E+00
	Total (Consumption grid)	A1-3	1.33E+00	1.45E+02	7.75E-09	1.42E-07	3.39E+01
End of life	Deconstruction, demolition	C1	4.15E-03	5.45E-02	1.54E-12	3.62E-11	4.68E-02
	Transport	C2	2.58E-03	3.92E-01	1.27E-11	4.11E-10	3.45E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	4.72E-03	1.54E+01	3.41E-11	3.00E-09	2.37E+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

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)

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

Parameters describing resource use, primary energy			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	7.09E+00	0.00E+00	7.09E+00	9.71E+01	4.96E+01	1.47E+02
	Transport	A2	1.23E-01	0.00E+00	1.23E-01	8.55E+00	0.00E+00	8.55E+00
	Manufacturing	A3	1.11E+00	1.80E+00	2.91E+00	1.07E+01	6.04E+00	1.67E+01
	Total (Consumption grid)	A1-3	8.33E+00	1.80E+00	1.01E+01	1.16E+02	5.56E+01	1.72E+02
End of life	Deconstruction, demolition	C1	3.01E-02	0.00E+00	3.01E-02	1.66E-01	0.00E+00	1.66E-01
	Transport	C2	7.08E-03	0.00E+00	7.08E-03	4.93E-01	0.00E+00	4.93E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.78E-02	0.00E+00	1.78E-02	-8.51E+01	8.60E+01	9.81E-01
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

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 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 resource



LCA Results (continued)

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

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
Product stage	Raw material supply	A1	4.74E-01	0.00E+00	0.00E+00	1.27E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	9.71E-04
	Manufacturing	A3	5.73E-02	5.78E-06	0.00E+00	3.35E-03
	Total (Consumption grid)	A1-3	5.31E-01	5.78E-06	0.00E+00	1.32E-01
End of life	Deconstruction, demolition	C1	1.41E-05	1.09E-07	0.00E+00	2.75E-05
	Transport	C2	0.00E+00	0.00E+00	0.00E+00	5.60E-05
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.05E-03
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

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)

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

Other environmental information describing waste categories				HWD	NHWD	RWD
				kg	kg	kg
Product stage	Raw material supply	A1		3.35E-01	9.12E+00	2.99E-04
	Transport	A2		9.60E-03	1.71E-01	5.89E-05
	Manufacturing	A3		2.07E-02	4.47E-01	6.47E-05
	Total (Consumption grid)	A1-3		3.65E-01	9.74E+00	4.23E-04
End of life	Deconstruction, demolition	C1		1.69E-04	2.91E-03	1.07E-06
	Transport	C2		5.54E-04	9.84E-03	3.40E-06
	Waste processing	C3		0.00E+00	0.00E+00	0.00E+00
	Disposal	C4		1.98E-03	4.04E+00	5.92E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D		0.00E+00	0.00E+00	0.00E+00

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



LCA Results (continued)

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

			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	1.30E-01	4.51E-08	4.61E-03	0.00E+00	1.59E-02
	Total (Consumption grid)	A1-3	0.00E+00	1.30E-01	4.51E-08	4.61E-03	0.00E+00	1.59E-02
End of life	Deconstruction, demolition	C1	0.00E+00	1.89E-06	8.08E-10	8.72E-05	0.00E+00	0.00E+00
	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

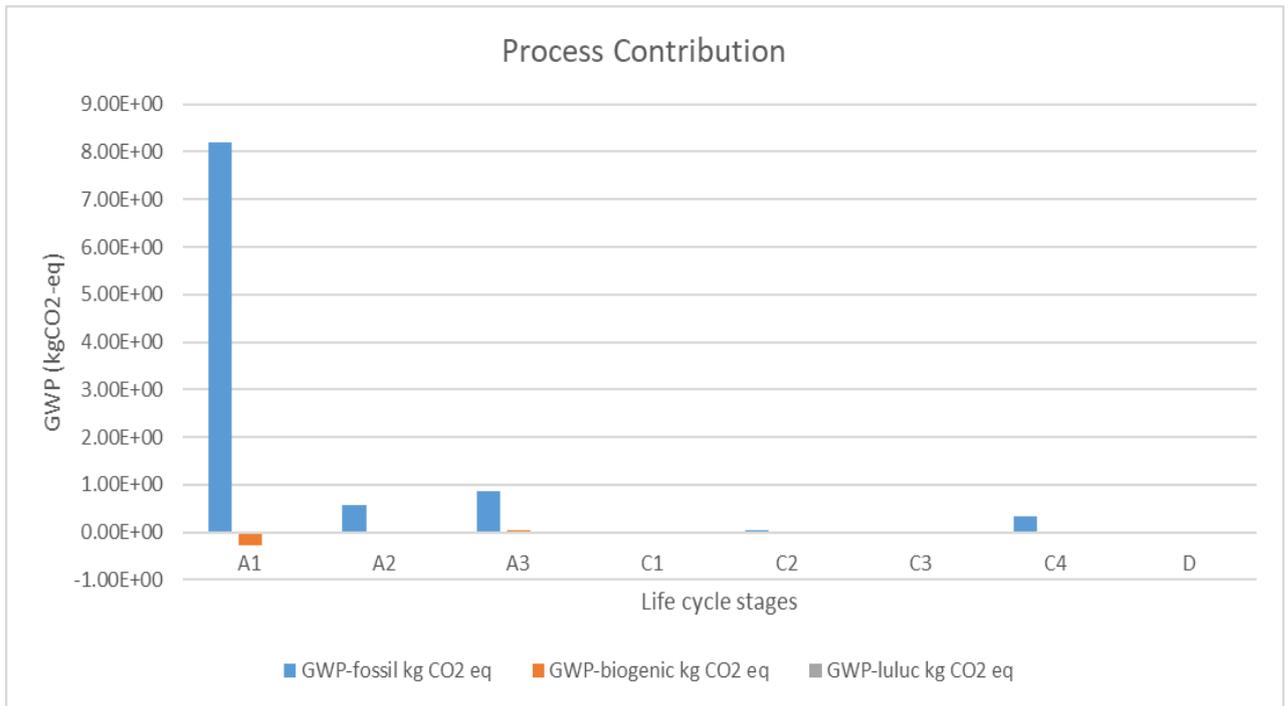


Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
C1 - Deconstruction	When the product reaches the end of its life, it will be extracted from the building using power tools and sent to landfill. Unfortunately, the waste product cannot be recovered because it is contaminated with other materials such as the subfloor and adhesive. Therefore, according to BRE PCR 3.1, 100% of the Altro Ensemble flooring product will end up in landfill. The deconstruction will involve the use of an electric stripping machine to remove the tile from the floor.		
	Electricity	kWh	0.02
C2 - Transport	Altro Ltd sells products to customers all over Germany. Altro Ltd do not know where the tile will be sent/ go for their end-of-life destination i.e. landfill site. Therefore, 50km by road (16–32-ton lorry) has been modelled for module C2 as a typical distance from the demolition site to the disposal unit. However, end-users of the EPD can use this information to calculate the impacts of a bespoke transport distance for module C2 if required.		
	Distance	km	50
C3 – Waste Processing	There are no pre-processing activities that the product undergoes before being sent to a landfill site.		
C4 – Disposal	According to Altro Ltd, 100% of the product is sent to the landfill at the end of life.		
	PVC Plastic waste to landfill	kg	4.00
Module D	As 100% of the product is landfilled, there are no environmental benefits.		

Summary, comments and additional information

The bulk of the environmental impacts are attributed to the manufacturing of Altro Ensemble covered by information modules A1-A3 of EN15804:2012+A2:2019. Figure1 below breaks down the GWP of Altro Stronghold 30 into clear categories to understand the modules which cause the largest environmental impact. It's clear that the majority of the environmental impact stems from the product modules (A1 – A3). Stage A1 (raw material) accounts for nearly all emissions, with a minor contribution from A2 (transportation). Stage A3 (manufacturing) shows the minimum value. The product is landfilled at the end-of-life stage, leading to GWP emissions in the C4 – Disposal stage.





References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A2:2019. London, BSI, 2019.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.

CEN. Resilient Floor Coverings - Determination Of Overall Thickness. EN 428 : 1993 Brussels, CEN. 1993.
ISO 1183-1:2019 Plastics -- Methods for determining the density of non-cellular plastics -- Part 1: Immersion method, liquid pycnometer method and titration method

ISO 527-1:2012 Plastics -- Determination of tensile properties -- Part 1: General principles.

ISO 179-1:2010 Plastics -- Determination of Charpy impact properties -- Part 1: Non-instrumented impact test.

ISO 178:2019 Plastics -- Determination of flexural properties.

ISO 868:2003 Plastics and ebonite -- Determination of indentation hardness by means of a durometer (Shore hardness).

DIN 53752 Testing of plastics; determination of the coefficient of linear thermal expansion.

DIN 53421 Testing of rigid cellular plastics; compression test.

ISO 306:2004 Plastics -- Thermoplastic materials -- Determination of Vicat softening temperature (VST).

ISO 75-2:2013 Plastics -- Determination of temperature of deflection under load -- Part 2: Plastics and ebonite.

ISO 62:2008 Plastics -- Determination of water absorption.