Statement of Verification

BREG EN EPD No.: 000693 Issue 01

This is to verify that the

Environmental Product Declaration

provided by:

Altro Limited

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A2:2019

and

BRE Global Scheme Document SD207

This declaration is for:

1m² of Altro standard safety flooring products with PUR with a thickness of 2 to 2.5mm and a weight of 2.6 to 3.2 kg/m²

Company Address

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

altro

Signed for BRE Global Ltd	Hayley Thomson Operator	16 May 2025 Date of this Issue
16 May 2025 Date of First Issue		15 May 2030 Expiry Date

BRE Global Verified EPD

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ECO PLATFORM EPD VERIFIED

Environmental Product Declaration

EPD Number: **000693**

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE 2023 Product Category Rules (PN 514 Rev 3.1) 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 m² of Altro standard safety floor products with PUR, a thickness ranging from 2 to 2.5 mm, and a weight between 2.6 to 3.2 kg/m²	Other (please specify). 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: Roger 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

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
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
☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☑	☑	☑		☑

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

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

Construction Product:

Product Description

This product range covers 2.0 mm to 2.5 mm thick sheet PVC based standard safety flooring with PUR Lacquer, to EN 13845, for robust use in industrial and wet room environments. This product range representative EPD covers the products **Altro Walkway 20, Altro Reliance 25, Altro Aquarius, and Altro Pisces.**

Technical Information

The below table covers the basic technical properties of the four products within the 2.0 mm to 2.5 mm thick sheet PVC based standard safety flooring with PUR Lacquer range. For these and further properties, please see the product's page on Altro's website www.altro.com:

Property	Altro Reliance 25	Altro Aquarius	Altro Pisces	Altro Walkway 20
Thickness (EN ISO 24346)	2.5 mm	2.0 mm	2.0 mm	2.0 mm
Mass per area (EN ISO 23997)	3.2 kg/m^2	2.6 kg/m^2	2.6 kg/m^2	2.6 kg/m^2
Slip Resistance				
EN 16165 Annex C (PTV)	≥40	≥50 (Slider 96)	≥50 (Slider 96)	≥36
EN 13845 Annex C	ESf	ESf/ESb	ESf/ESb	ESf
EN 13893	DS	DS	DS	DS
EN 16165 Annex B	R10	R11	R11	R10
EN 16165 Annex A	-	B	B	-
Fire Performance				
EN 13501-1	Class Bfl s1	Class Bfl s1	Class Bfl s1	Class Bfl s1
CAN/ULC S102.2	Tested	Tested	Tested	Tested
ASTM E648	Class 1	Class 1	Class 1	Class 1
ASTM E662	≤ 450	≤ 450	≤ 450	≤ 450

Main Product Contents

The below table covers the product contents of the Altro standard safety flooring products with PUR - 2 to 2.5mm product covered in this EPD.

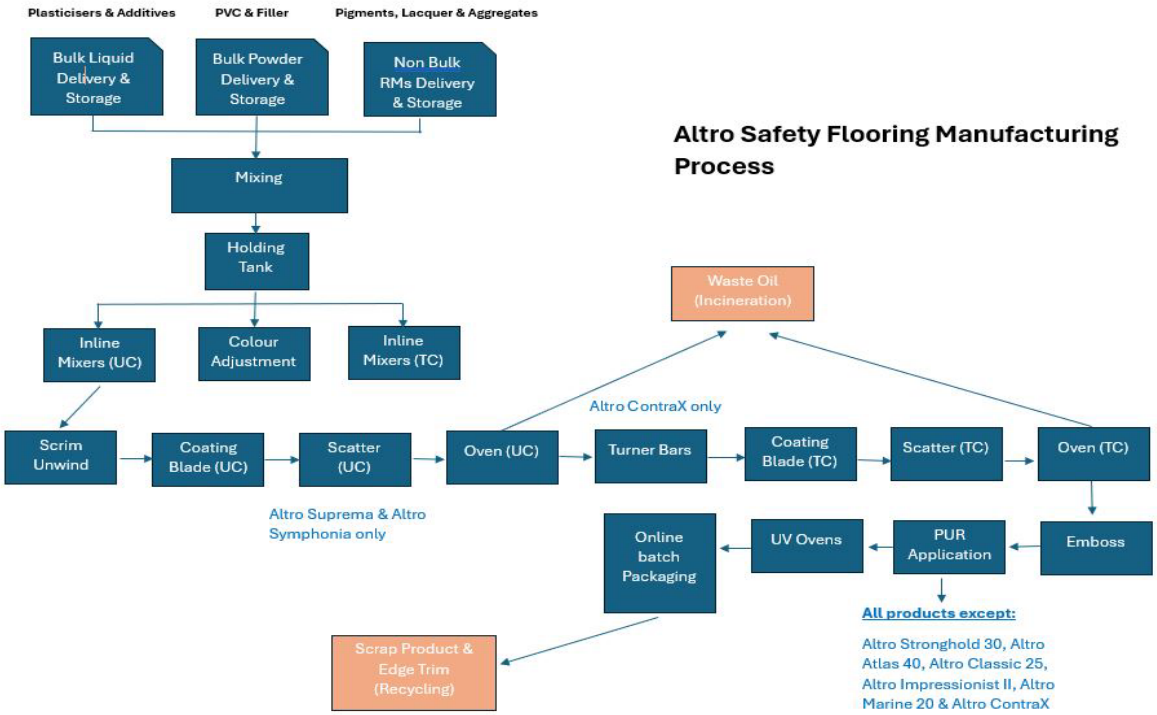
Material/Chemical Input	%
Plastisol	90-94
Scatter	4-8
Scrim	2

Manufacturing Process

Bulk liquids, powders, performance additives and some aggregates 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 coatedonto a scrim and aggregates are scattered onto the surface to aid slip resistance and durability. The product is then cured in an oven and PUR added for enhanced cleanability. The product is then cut into rolls and packaged for dispatch.

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

Process flow diagram



End of Life

Altro standard PVC based safety flooring products 2.0 mm to 2.5 mm thick with PUR, cannot be recovered at the end of life as they are bonded to the floor with an adhesive. Therefore, according to BRE PCR 3.1, 100% of these products will end up in landfill.

Life Cycle Assessment Calculation Rules

Declared unit description.

1 m² of Altro standard safety floor products with PUR, a thickness ranging from 2 to 2.5 mm, and a weight between 2.6 to 3.2 kg/m².

System boundary

This is a cradle-to-gate with modules C and D LCA, reporting all production life cycle stages of modules A1 to A3 and end of life stages C1-C4, and D in accordance with EN 15804:2012+A2:2019 and BRE 2023 Product Category Rules (PN 514 Rev 3.1).

Data sources, quality and allocation

The supporting LCA study was carried out using BRE LINA A2 using manufacturer specific data provided by Altro for the production period of the 12 months (01/08/2022 - 31/07/2023) at the Letchworth site. The Letchworth site produces other PVC products in addition to the Altro standard safety floor products with PUR, so allocation was applied to site wide values for packaging and energy on a m^2 of production basis. The manufacturer has confirmed that the water consumption data has been sourced from utility bills (Castle Water) and allocated to product manufacturing on a per m² production basis, with 90% of the water discharged to the sewer as per the waste discharge bills. Production and non-production waste have been allocated based on the percentage mass of production.

No uplift to the raw material input, as the total raw material usage for all Altro standard safety floor products product made over the production period was used and an appropriate proxy chemical datasets have been used for the missing chemicals in the Ecoinvent 3.8 database. The composition of the Altro standard safety floor products such as Altro Walkway 20, Altro Reliance 25, Altro Aquarius, and Altro Pisces are similar therefore the results of all the individual products are listed in this EPD. 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 EN15804 A2.

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 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, therefore the national grid electricity dataset “Electricity – GB (kWh)” has been used for the LCA modelling (Ecoinvent 3.8). The GWP carbon footprint for using 1 kWh of Electricity – GB is 0.239 in kgCO2e/kWh and the GWP of 1kWh of Natural gas, at industrial furnace is 0.232 kgCO2e/kWh. 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

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 where appropriate, except for direct emissions to air, water, and soil, which are not measured.

LCA Results - 1 m² of Altro Walkway 20, a 2 mm thick standard safety flooring with PUR lacquer, with the weight of 2.6 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 CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	4.19E+00	4.81E+00	-6.34E-01	9.71E-03	1.60E-06	3.19E-02	2.11E-03
	Transport	A2	4.01E-01	4.01E-01	3.42E-04	1.58E-04	9.28E-08	1.63E-03	2.58E-05
	Manufacturing	A3	8.83E-01	8.14E-01	6.80E-02	5.91E-04	6.10E-08	1.19E-03	7.77E-05
	Total (Consumption grid)	A1-3	5.47E+00	6.03E+00	-5.66E-01	1.05E-02	1.76E-06	3.47E-02	2.21E-03
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.16E-02	2.16E-02	1.84E-05	8.48E-06	5.00E-09	8.77E-05	1.39E-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	2.19E-01	2.19E-01	2.75E-04	2.87E-05	8.34E-09	2.39E-04	4.01E-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	5.76E-03	5.85E-02	1.35E-02	5.76E-05	1.03E+02	4.76E+00	2.12E-07
	Transport	A2	4.92E-04	5.37E-03	1.64E-03	1.39E-06	6.06E+00	2.73E-02	3.46E-08
	Manufacturing	A3	4.72E-04	4.10E-03	1.04E-03	2.13E-06	1.44E+01	8.22E-02	1.19E-08
	Total (Consumption grid)	A1-3	6.73E-03	6.79E-02	1.62E-02	6.12E-05	1.23E+02	4.87E+00	2.59E-07
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.64E-05	2.89E-04	8.84E-05	7.51E-08	3.27E-01	1.47E-03	1.86E-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	1.03E-03	8.75E-04	2.98E-04	9.12E-08	6.49E-01	2.91E-02	4.72E-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	8.53E-01	1.06E+02	4.75E-09	9.38E-08	2.31E+01
	Transport	A2	3.12E-02	4.73E+00	1.53E-10	4.96E-09	4.16E+00
	Manufacturing	A3	2.45E-01	5.88E+00	2.27E-10	4.19E-09	5.30E+00
	Total (Consumption grid)	A1-3	1.13E+00	1.17E+02	5.13E-09	1.03E-07	3.25E+01
100% - Landfill							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.68E-03	2.55E-01	8.26E-12	2.67E-10	2.24E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.07E-03	1.00E+01	2.21E-11	1.95E-09	1.54E+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	4.54E+00	0.00E+00	4.54E+00	5.70E+01	2.79E+01	8.49E+01
	Transport	A2	8.54E-02	0.00E+00	8.54E-02	5.95E+00	0.00E+00	5.95E+00
	Manufacturing	A3	6.06E-01	1.54E+00	2.15E+00	1.05E+01	6.04E+00	1.66E+01
	Total (Consumption grid)	A1-3	5.23E+00	1.54E+00	6.77E+00	7.35E+01	3.39E+01	1.07E+02
100% - Landfill								
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	4.60E-03	0.00E+00	4.60E-03	3.21E-01	0.00E+00	3.21E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.16E-02	0.00E+00	1.16E-02	-5.53E+01	5.59E+01	6.38E-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	3.25E-01	0.00E+00	0.00E+00	1.13E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	6.75E-04
	Manufacturing	A3	4.32E-02	6.06E-06	0.00E+00	3.10E-03
	Total (Consumption grid)	A1-3	3.68E-01	6.06E-06	0.00E+00	1.17E-01
100% - Landfill						
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	3.64E-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	6.83E-04
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	1.96E-01	5.97E+00	1.99E-04
	Transport	A2	6.68E-03	1.19E-01	4.10E-05
	Manufacturing	A3	1.88E-02	4.07E-01	7.93E-05
	Total (Consumption grid)	A1-3	2.22E-01	6.49E+00	3.19E-04
100% - Landfill					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.60E-04	6.40E-03	2.21E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.29E-03	2.63E+00	3.85E-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	6.21E-08	5.17E-03	2.81E-02	-1.21E-02
	Total (Consumption grid)	A1-3	0.00E+00	1.30E-01	6.21E-08	5.17E-03	2.81E-02	-1.21E-02
100% - Landfill								
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	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 - 1 m² of Altro Reliance 25, a 2.5 mm thick standard safety flooring with PUR lacquer, with the weight of 3.2 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 CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	5.20E+00	5.99E+00	-8.10E-01	1.22E-02	2.03E-06	3.99E-02	2.64E-03
	Transport	A2	5.05E-01	5.05E-01	4.30E-04	1.98E-04	1.17E-07	2.06E-03	3.25E-05
	Manufacturing	A3	9.35E-01	8.48E-01	8.66E-02	5.98E-04	6.19E-08	1.23E-03	8.08E-05
	Total (Consumption grid)	A1-3	6.64E+00	7.35E+00	-7.23E-01	1.30E-02	2.21E-06	4.32E-02	2.75E-03
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.66E-02	2.66E-02	2.27E-05	1.04E-05	6.15E-09	1.08E-04	1.71E-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	2.70E-01	2.70E-01	3.39E-04	3.53E-05	1.03E-08	2.94E-04	4.93E-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	7.25E-03	7.30E-02	1.69E-02	7.35E-05	1.28E+02	6.02E+00	2.67E-07
	Transport	A2	6.19E-04	6.76E-03	2.07E-03	1.75E-06	7.63E+00	3.43E-02	4.35E-08
	Manufacturing	A3	4.89E-04	4.23E-03	1.08E-03	2.19E-06	1.45E+01	8.63E-02	1.27E-08
	Total (Consumption grid)	A1-3	8.35E-03	8.40E-02	2.01E-02	7.74E-05	1.51E+02	6.14E+00	3.23E-07
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.25E-05	3.55E-04	1.09E-04	9.25E-08	4.02E-01	1.81E-03	2.29E-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	1.26E-03	1.08E-03	3.66E-04	1.12E-07	7.98E-01	3.58E-02	5.81E-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	1.04E+00	1.35E+02	5.93E-09	1.19E-07	2.89E+01
	Transport	A2	3.92E-02	5.95E+00	1.93E-10	6.24E-09	5.24E+00
	Manufacturing	A3	2.45E-01	6.06E+00	2.45E-10	4.46E-09	5.39E+00
	Total (Consumption grid)	A1-3	1.32E+00	1.47E+02	6.37E-09	1.30E-07	3.95E+01
100% - Landfill							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.07E-03	3.14E-01	1.02E-11	3.29E-10	2.76E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.77E-03	1.23E+01	2.73E-11	2.40E-09	1.90E+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	5.55E+00	0.00E+00	5.55E+00	7.03E+01	3.55E+01	1.06E+02
	Transport	A2	1.07E-01	0.00E+00	1.07E-01	7.49E+00	0.00E+00	7.49E+00
	Manufacturing	A3	4.31E-01	1.72E+00	2.15E+00	9.15E+00	7.43E+00	1.66E+01
	Total (Consumption grid)	A1-3	6.08E+00	1.72E+00	7.80E+00	8.69E+01	4.30E+01	1.30E+02
100% - Landfill								
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	5.66E-03	0.00E+00	5.66E-03	3.95E-01	0.00E+00	3.95E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.43E-02	0.00E+00	1.43E-02	-6.80E+01	6.88E+01	7.85E-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	4.05E-01	0.00E+00	0.00E+00	1.43E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	8.50E-04
	Manufacturing	A3	4.31E-02	6.06E-06	0.00E+00	3.19E-03
	Total (Consumption grid)	A1-3	4.49E-01	6.06E-06	0.00E+00	1.47E-01
100% - Landfill						
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	4.48E-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	8.40E-04
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	2.47E-01	7.28E+00	2.41E-04
	Transport	A2	8.41E-03	1.49E-01	5.16E-05
	Manufacturing	A3	2.04E-02	4.43E-01	7.94E-05
	Total (Consumption grid)	A1-3	2.75E-01	7.87E+00	3.72E-04
100% - Landfill					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	4.43E-04	7.87E-03	2.72E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.59E-03	3.23E+00	4.74E-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	1.60E-01	6.26E-08	5.17E-03	3.46E-02	-1.20E-02
	Total (Consumption grid)	A1-3	0.00E+00	1.60E-01	6.26E-08	5.17E-03	3.46E-02	-1.20E-02
100% - Landfill								
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	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 - 1 m² of Altro Aquarius, a 2 mm thick standard safety flooring with PUR lacquer, with the weight of 2.6 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 CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	3.66E+00	4.31E+00	-6.61E-01	8.91E-03	1.55E-06	2.91E-02	1.83E-03
	Transport	A2	3.94E-01	3.94E-01	3.36E-04	1.55E-04	9.11E-08	1.60E-03	2.54E-05
	Manufacturing	A3	8.86E-01	8.14E-01	7.03E-02	5.91E-04	6.10E-08	1.19E-03	7.78E-05
	Total (Consumption grid)	A1-3	4.94E+00	5.52E+00	-5.90E-01	9.65E-03	1.70E-06	3.19E-02	1.93E-03
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.16E-02	2.16E-02	1.84E-05	8.48E-06	5.00E-09	8.77E-05	1.39E-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	2.19E-01	2.19E-01	2.75E-04	2.87E-05	8.34E-09	2.39E-04	4.01E-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	5.47E-03	5.55E-02	1.26E-02	5.83E-05	9.31E+01	4.63E+00	2.04E-07
	Transport	A2	4.82E-04	5.27E-03	1.61E-03	1.37E-06	5.95E+00	2.68E-02	3.40E-08
	Manufacturing	A3	4.73E-04	4.10E-03	1.04E-03	2.13E-06	1.44E+01	8.23E-02	1.19E-08
	Total (Consumption grid)	A1-3	6.43E-03	6.49E-02	1.53E-02	6.18E-05	1.13E+02	4.74E+00	2.50E-07
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.64E-05	2.89E-04	8.84E-05	7.51E-08	3.27E-01	1.47E-03	1.86E-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	1.03E-03	8.75E-04	2.98E-04	9.12E-08	6.49E-01	2.91E-02	4.72E-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	6.21E-01	1.06E+02	5.32E-09	1.00E-07	2.11E+01
	Transport	A2	3.06E-02	4.65E+00	1.51E-10	4.87E-09	4.09E+00
	Manufacturing	A3	2.45E-01	5.88E+00	2.27E-10	4.19E-09	5.30E+00
	Total (Consumption grid)	A1-3	8.96E-01	1.17E+02	5.70E-09	1.09E-07	3.05E+01
100% - Landfill							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.68E-03	2.55E-01	8.26E-12	2.67E-10	2.24E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.07E-03	1.00E+01	2.21E-11	1.95E-09	1.54E+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	3.58E+00	0.00E+00	3.58E+00	4.95E+01	2.76E+01	7.71E+01
	Transport	A2	8.39E-02	0.00E+00	8.39E-02	5.85E+00	0.00E+00	5.85E+00
	Manufacturing	A3	5.88E-01	1.56E+00	2.15E+00	1.05E+01	6.04E+00	1.66E+01
	Total (Consumption grid)	A1-3	4.26E+00	1.56E+00	5.82E+00	6.59E+01	3.36E+01	9.95E+01
100% - Landfill								
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	4.60E-03	0.00E+00	4.60E-03	3.21E-01	0.00E+00	3.21E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.16E-02	0.00E+00	1.16E-02	-5.53E+01	5.59E+01	6.38E-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	3.31E-01	0.00E+00	0.00E+00	1.10E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	6.64E-04
	Manufacturing	A3	4.32E-02	6.06E-06	0.00E+00	3.10E-03
	Total (Consumption grid)	A1-3	3.74E-01	6.06E-06	0.00E+00	1.13E-01
100% - Landfill						
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	3.64E-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	6.83E-04
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	3.10E-01	4.92E+00	1.47E-04
	Transport	A2	6.56E-03	1.17E-01	4.03E-05
	Manufacturing	A3	1.89E-02	4.07E-01	7.93E-05
	Total (Consumption grid)	A1-3	3.35E-01	5.45E+00	2.66E-04
100% - Landfill					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.60E-04	6.40E-03	2.21E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.29E-03	2.63E+00	3.85E-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	6.21E-08	5.17E-03	2.81E-02	-1.20E-02
	Total (Consumption grid)	A1-3	0.00E+00	1.30E-01	6.21E-08	5.17E-03	2.81E-02	-1.20E-02
100% - Landfill								
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	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 - 1 m² of Altro Pisces, a 2 mm thick standard safety flooring with PUR lacquer, with the weight of 2.6 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 CO_2 eq	kg CO_2 eq	kg CO_2 eq	kg CFC11 eq	mol H^+ eq	kg $(PO_4)^{3-}$ eq
Product stage	Raw material supply	A1	3.71E+00	4.37E+00	-6.69E-01	9.02E-03	1.57E-06	2.95E-02	1.85E-03
	Transport	A2	3.99E-01	3.99E-01	3.40E-04	1.57E-04	9.23E-08	1.62E-03	2.57E-05
	Manufacturing	A3	8.83E-01	8.14E-01	6.80E-02	5.91E-04	6.10E-08	1.19E-03	7.78E-05
	Total (Consumption grid)	A1-3	4.99E+00	5.58E+00	-6.01E-01	9.77E-03	1.72E-06	3.23E-02	1.96E-03
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.16E-02	2.16E-02	1.84E-05	8.48E-06	5.00E-09	8.77E-05	1.39E-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	2.19E-01	2.19E-01	2.75E-04	2.87E-05	8.34E-09	2.39E-04	4.01E-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	5.54E-03	5.62E-02	1.28E-02	5.91E-05	9.43E+01	4.68E+00	2.06E-07
	Transport	A2	4.88E-04	5.34E-03	1.63E-03	1.39E-06	6.03E+00	2.71E-02	3.44E-08
	Manufacturing	A3	4.73E-04	4.10E-03	1.04E-03	2.13E-06	1.44E+01	8.24E-02	1.19E-08
	Total (Consumption grid)	A1-3	6.50E-03	6.56E-02	1.55E-02	6.26E-05	1.15E+02	4.79E+00	2.53E-07
100% - Landfill									
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	2.64E-05	2.89E-04	8.84E-05	7.51E-08	3.27E-01	1.47E-03	1.86E-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	1.03E-03	8.75E-04	2.98E-04	9.12E-08	6.49E-01	2.91E-02	4.72E-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	6.29E-01	1.08E+02	5.39E-09	1.01E-07	2.14E+01
	Transport	A2	3.10E-02	4.70E+00	1.52E-10	4.93E-09	4.14E+00
	Manufacturing	A3	2.45E-01	5.88E+00	2.27E-10	4.19E-09	5.30E+00
	Total (Consumption grid)	A1-3	9.05E-01	1.18E+02	5.77E-09	1.10E-07	3.09E+01
100% - Landfill							
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	1.68E-03	2.55E-01	8.26E-12	2.67E-10	2.24E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	3.07E-03	1.00E+01	2.21E-11	1.95E-09	1.54E+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	3.63E+00	0.00E+00	3.63E+00	5.02E+01	2.80E+01	7.81E+01
	Transport	A2	8.49E-02	0.00E+00	8.49E-02	5.92E+00	0.00E+00	5.92E+00
	Manufacturing	A3	6.05E-01	1.55E+00	2.15E+00	1.05E+01	6.04E+00	1.66E+01
	Total (Consumption grid)	A1-3	4.32E+00	1.55E+00	5.86E+00	6.66E+01	3.40E+01	1.01E+02
100% - Landfill								
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	4.60E-03	0.00E+00	4.60E-03	3.21E-01	0.00E+00	3.21E-01
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.16E-02	0.00E+00	1.16E-02	-5.53E+01	5.59E+01	6.38E-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	3.35E-01	0.00E+00	0.00E+00	1.11E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	6.72E-04
	Manufacturing	A3	4.32E-02	6.06E-06	0.00E+00	3.10E-03
	Total (Consumption grid)	A1-3	3.78E-01	6.06E-06	0.00E+00	1.15E-01
100% - Landfill						
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	3.64E-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	6.83E-04
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	3.14E-01	4.99E+00	1.48E-04
	Transport	A2	6.65E-03	1.18E-01	4.08E-05
	Manufacturing	A3	1.89E-02	4.07E-01	7.93E-05
	Total (Consumption grid)	A1-3	3.39E-01	5.51E+00	2.69E-04
100% - Landfill					
End of life	Deconstruction, demolition	C1	0.00E+00	0.00E+00	0.00E+00
	Transport	C2	3.60E-04	6.40E-03	2.21E-06
	Waste processing	C3	0.00E+00	0.00E+00	0.00E+00
	Disposal	C4	1.29E-03	2.63E+00	3.85E-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	6.21E-08	5.17E-03	2.81E-02	-1.20E-02
	Total (Consumption grid)	A1-3	0.00E+00	1.30E-01	6.21E-08	5.17E-03	2.81E-02	-1.20E-02
100% - Landfill								
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	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 standard safety floor products with PUR will end up in landfill. Note: The energy used for product removal is not accounted for in the LCA analysis. It can reasonably be assumed that the energy associated with deconstructing the Altro standard safety floor products with PUR is negligible compared to the overall demolition process.		
C2 – Transportation	50km by road 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.	Litres per km	0.227
	Fuel type / Vehicle type	Road transport	16–32-ton lorry
	Deconstruction site to the disposal unit	km	50
C3 – Preprocessing	No preprocessing as the product is 100% sent to landfill.		
C4 – Disposal	The recovered waste is landfilled therefore no module D benefits.		
	Altro Walkway 20	kg/m^2	2.6
	Altro Reliance 25	kg/m^2	3.2
	Altro Aquarius	kg/m^2	2.6
	Altro Pisces	kg/m^2	2.6

Interpretation of results

The bulk of the environmental impacts are attributed to the manufacturing of Altro standard safety flooring with PUR lacquer product covered by information modules A1-A3 of EN15804:2012+A2:2019.

The figure below breaks down the GWP of Altro's Walkway 20 standard safety flooring with PUR lacquer 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 a significant negative value, indicating a reduction in CO_2 equivalent emissions from biogenic sources due to the use of cardboard for packaging. The product is landfilled at the end-of-life stage which leads to GWP emission at the C4 – Disposal stage.

Figure 2 provides a detailed breakdown of the processes contributing to the impact in the A1–A3 stages. PVC production and chemical production have the highest impact in Stage A1, followed by transportation (A2). In Stage A3 (manufacturing), factors such as natural gas consumption, electricity usage, waste treatment, and other processes contribute to the overall environmental impacts of the product

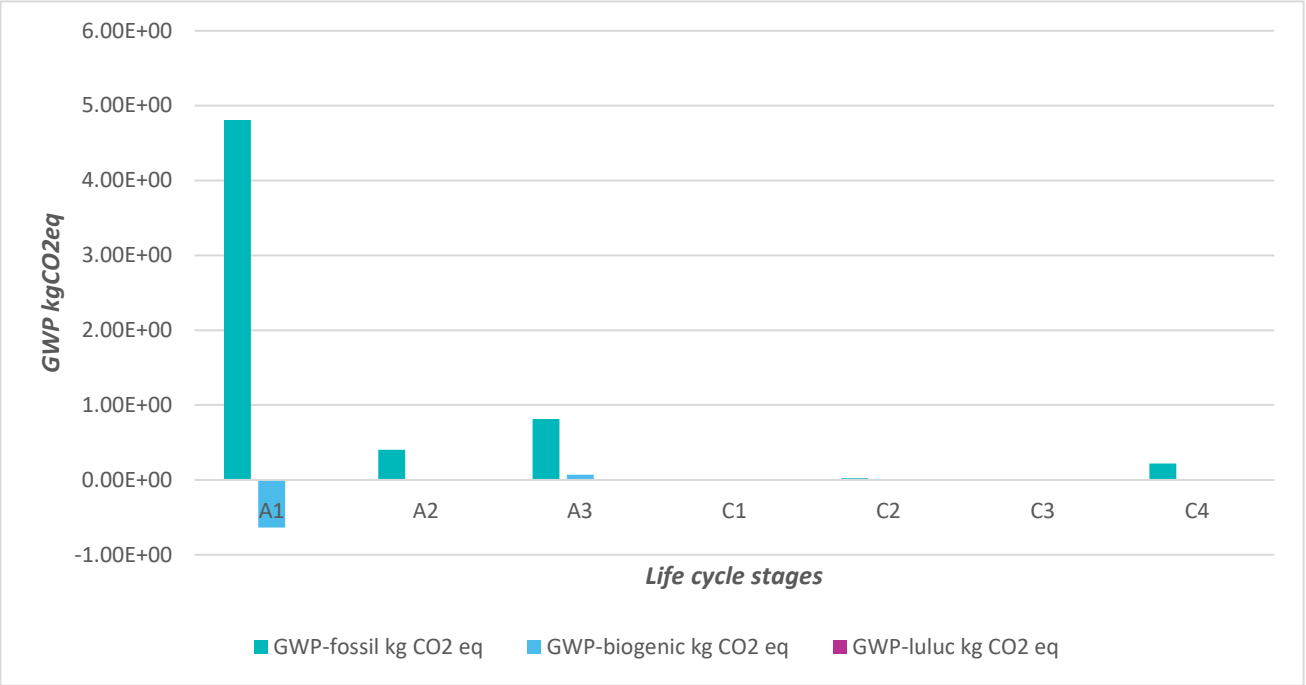


Figure 2 GWP Contribution

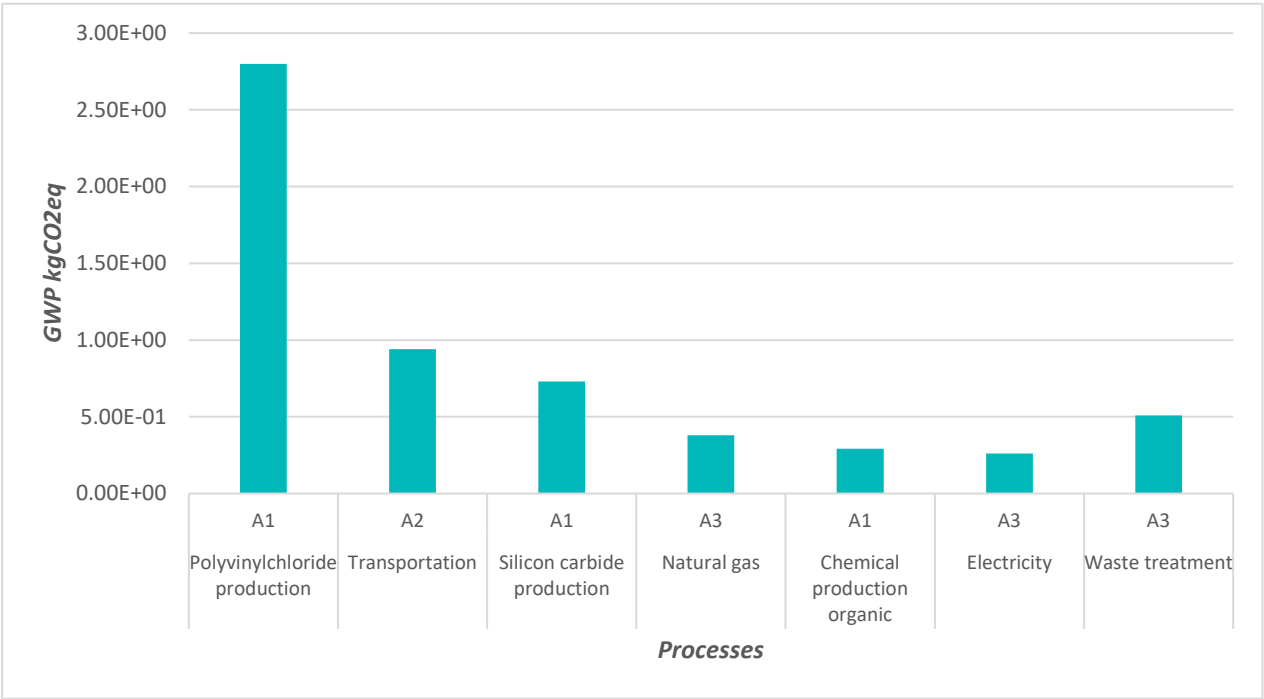


Figure 1 Process contribution

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.

Altro Sustainability - www.altro.com/uk/sustainability/our-sustainability-journey.

ISO 24346:2006 Resilient floor coverings — Determination of overall thickness

ISO 23997:2007 Resilient floor coverings — Determination of mass per unit area

EN 16165:2021 Determination of slip resistance of pedestrian surfaces - Methods of evaluation

EN 13845:2017 Resilient floor coverings - Polyvinyl chloride floor coverings with particle based enhanced slip resistance – Specification

EN 13893:2002 Resilient, laminate and textile floor coverings - Measurement of dynamic coefficient of friction on dry floor surfaces

EN 13501-1 - Fire classification of construction products and building elements - Classification using data from reaction to fire tests

CAN/ULC-S102.2, Standard Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings and Miscellaneous Materials and Assemblies.

ASTM E648, Test for Surface Burning Characteristics of Building Materials

ASTM E662 - Standard test method for specific optical density of smoke generated by solid materials