Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Woven vinyl flooring delivered as rolls

BOLON

Industrivägen 12, SE-523 90 Ulricehamn, Sweden

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-03839
Publication date:	2021-10-27
Valid until:	2026-10-27

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 and EN 16810 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 version 1.11 Construction products (EN 15804:2012+A2:2019) and Sub-PCR-F Resilient textile and laminate floor coverings (EN 16810)
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *Martyna Mikusinska, Sweco AB*
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Bolon AB

Contact: Michaela Ljungdahl

Description of the organisation: Bolon is a Swedish design company that makes innovative flooring solutions for public spaces. It is a third-generation family business run by sisters Annica and Marie Eklund. Under their leadership, Bolon has transformed from a traditional weaving mill into an international design brand with clients in different sectors all over the world. With a strong commitment to sustainability, Bolon designs and manufactures all its products at a facility in Ulricehamn in Sweden. The company is recognized worldwide for its award-winning flooring and its collaborations with some of the world's most acclaimed innovators and creatives.

Product-related related certifications*:
The product meets the requirement of EN 14041, CE- certified.
Emissions certificate, e.g M1 and Floorescore
Rawmaterial, Green star Best environmental practice PVC

*For updated information contact customer support or visit Bolon.com.

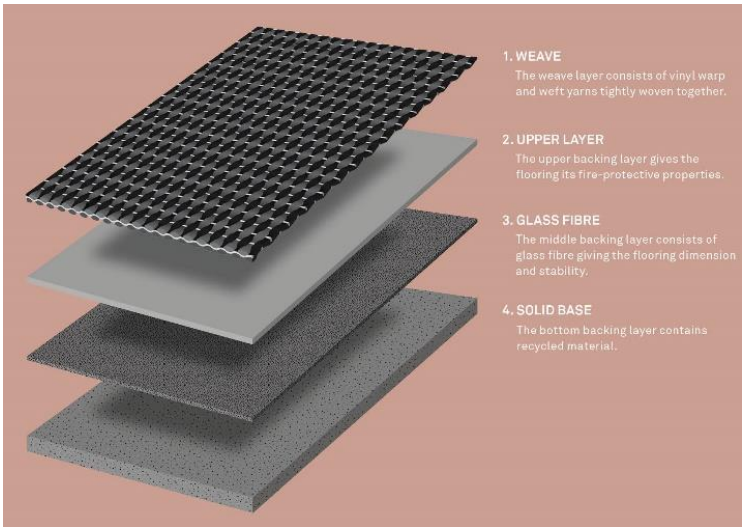
Name and location of production site(s): Bolon, Industrivägen 12, 523 90 Ulricehamn Sweden

Product information

Product name: Woven vinyl flooring delivered as rolls

Product identification:
Bolon flooring is tested to the EN 1307 standard for textile floor coverings and classified according to, textile and laminate floor coverings (ISO 10874).

Product description:
Bolon flooring in rolls is composed by four layers, one weave and three backing layers, giving the product its unique qualities. The weave layer is made of vinyl warp and weft yarn tightly woven together. The variations of the warp and weft yarn together with the different weaving techniques give~~s~~ Bolon flooring its vast design alternatives.
Floors are graded into different classes according to their resistance to wear. For example, they are suitable for hotels, shops, offices, and high traffic areas, such as public halls.



Expected service lifetime: 20-30 years

All floor manufacturing takes place in Ulricehamn, Sweden. Here we manufacture the thread and the backing, weave the designer surface, and combine all these elements into a high-quality floor. Recycling is an integral part of our production, the recycled material is self-declared according to ISO 14021.

The floor is than packed and shipped to customers. Installation is normally made with adhesives, alternative installations methods are possible within Bolon recommendations. The floor coverings are water resistant and are cleaned using wet methods. Most cleaning needs can be accomplished with a vacuum cleaner, scrubbing brush, water, and a minimal dose of stain remover.

At the end of its life the product is sent to either landfill or incineration with energy recovery.

LCA information

Functional unit / declared unit: 1 m² of floor covering with a reference service life (RSL) of 1 year for specified characteristics application and use areas according to declared use classification ISO 10874.

Reference service life: 1 year

Type of EPD: average

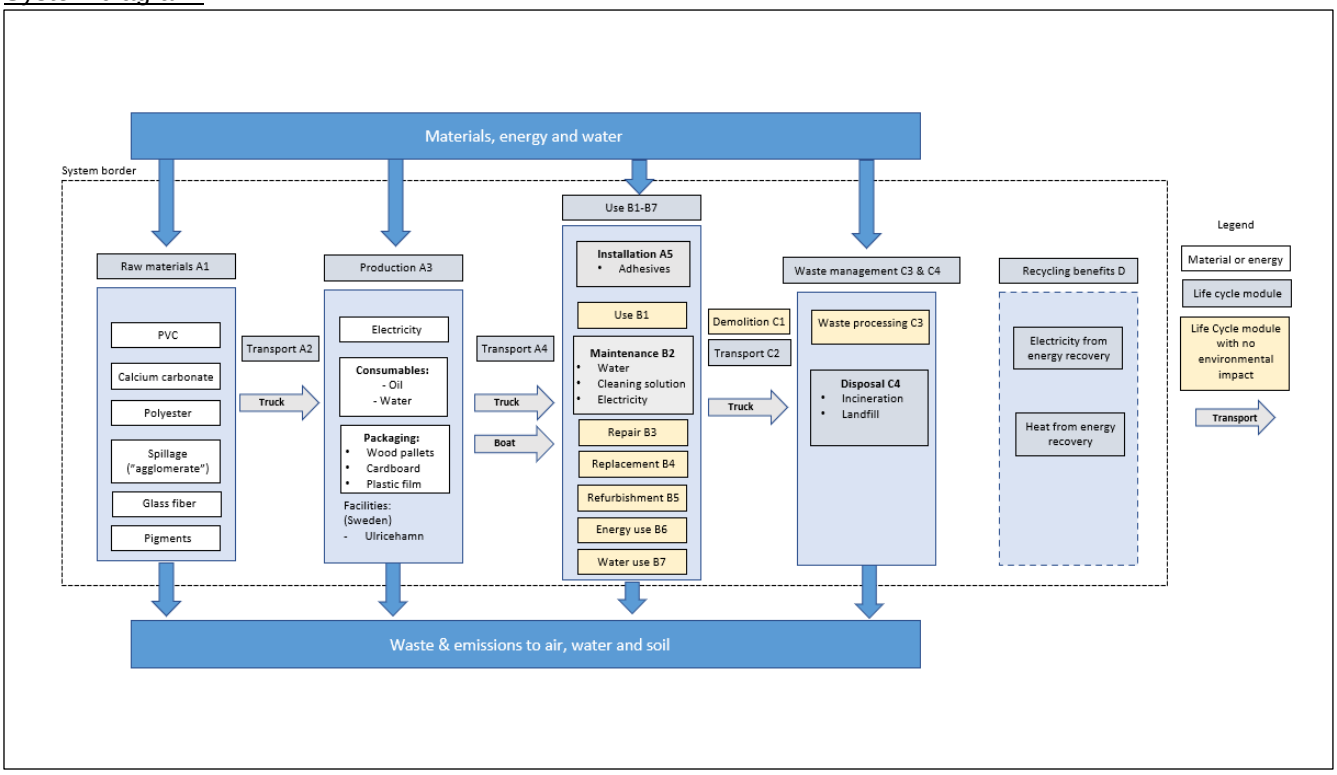
The EPD covers all products of Woven vinyl flooring that are delivered as rolls produced in Ulricehamn. The difference between the products is a variation of product weight and pigmentation which can be seen under product information. The sensitivity analysis of the LCA shows that all environmental impact indicators results are within +/-10% of the presented environmental information.

Time representativeness: 2020

Database(s) and LCA software used: SimaPro 9.2.0.1, LCI database: Ecoinvent 3.7

Description of system boundaries:
Cradle to grave and module D (A + B + C + D)

System diagram:



Modules declared

	Product stage		Construction process stage			Use stage*							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	EU	EU	SE	GLO	GLO	MND	GLO	MND	MND	MND	MND	MND	GLO	GLO	GLO	GLO	GLO

Data quality

Data for upstream processes (A1) has been collected directly from suppliers. Raw material and energy use as well as transports are included.

All data for the production (A3) has been collected from Bolon and is representative of the production practices under 2019. In the cases where no specific data could be used, available generic data was used mainly provided by Ecoinvent 3.7 (2021).

Generic data was also used for the transportation of raw material (A2), however, distance and information regarding the type of transportation was collected from Bolon.

Downstream waste management data is based on regional average treatment of PVC waste (Europe, Asia, and USA).

General information

LCA & EPD author	Viktor Hakkarainen, Miljögiraff AB
Cut-off rules	<1% for specific process, <5% for sum of all processes
Cut-off applications	- Impact from different pigmentations (<0,2 w% of total weight) - Materials with presence <0,1 w%
Excluded parts	- Production of capital goods for manufacturing (machines and facilities) - Potential transports from retailer to installation site - Maintenance products packaging and transport
Electricity source	Hydropower (3,96 g CO2 eq/kWh)
Assumptions	- All road transports are assumed to be made with 16-32t EURO 5 trucks - All sea transports are assumed to be made with container ships - All product packaging is assumed to go to incineration with heat recovery - At the end of life, the product is assumed to be transported 200 km to a waste treatment facility. - 80% global average energy efficiency is assumed for district heating plants (CHP).
Data quality	
Geographical coverage	Upstream data: Good (Country specific) Core module (A3): Very good (site-specific) Downstream data: Medium (continent specific)
Technological representativeness	Upstream data: Good (Generic data based on plant averages) Core module (A3): Very good (site-specific) Downstream data: Good (Generic data based on plant averages)
Time-related coverage	Upstream data: Good Core module (A3): Very good (2019 data) Downstream data: Good
Consistency, allocation method, etc.	In general allocation follows a physical causality in line with EN 15804. For purchased industry spillage, material economic allocation in line with EN 15804 is used.
Completeness and treatment of missing data	No data is found missing.

Product information

Characteristics*		Comments
Weight	2,8-3,1 kg/m²	Weight depends on collection
Thickness	2,3-2,5 mm	Thickness depends on collection

Fire resistance	B_{fl}-s1	EN 13501-1
Friction	>0,3	EN 13893
Colour fastness to light	>7	EN ISO 105-B02

*For more information see Bolon.com and technical specification.

Content information

Product components*	Composition weight %
Filler (Calcium carbonate)	25-50
Polyvinylchloride (PVC)	25-50
Plasticizer	10-25
Polyester	<2
Fiber glas	<2

Recycled content is calculated on yearly basis acc. to ISO 14021. Visit Bolon.com for information.
*For more specified content, visit Bolon.com and see Declaration of content.

The product does not contain any substances classified as “hazardous substance” (SVHC) and fulfils REACH legislation.

Scenario information

Average transport distances (A4)

Road transport type	Road transport distance (km)	Sea transport type	Sea transport distance (km)
Euro 5 truck 16-32t	666	Container ship	6756

Installation (A5)
10% of the product is lost during installation

Materials consumed in use phase per m² flooring (B2)

Material or energy	Quantity	Reference service life	Comment
Electricity	0,314 kWh/year	1 year	Electricity for vacuuming
Floor cleaning agent	0,09 litres/year	1 year	Cleaning agent for wet cleaning.
Water	9,0 litres/year	1 year	Water for wet cleaning

End of life (C1-C4)

The flooring is removed and transported to a waste treatment facility, shares are region based according to table below:

Treatment	Europe	USA	Asia
Incineration with energy recovery	54%	18%	48%
Landfill	46%	82%	52%

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	5,18	0,57	1,08	ND	0,35	ND	ND	ND	ND	ND	ND	0,10	ND	2,79	-2,12
GWP-fossil	kg CO_2 eq.	5,35	0,57	0,75	ND	0,28	ND	ND	ND	ND	ND	ND	0,10	ND	2,74	-1,99
GWP-biogenic	kg CO_2 eq.	-0,31	0,00	0,34	ND	0,06	ND	ND	ND	ND	ND	ND	0,00	ND	0,05	-0,13
GWP-luluc	kg CO_2 eq.	0,15	0,00	0,00	ND	0,00	ND	ND	ND	ND	ND	ND	0,00	ND	0,00	-0,01
ODP	kg CFC 11 eq.	2,26E-06	1,25E-07	1,21E-08	ND	1,49E-08	ND	ND	ND	ND	ND	ND	2,25E-08	ND	9,16E-08	-5,78E-08
AP	mol H^+ eq.	2,09E-02	8,28E-03	2,22E-03	ND	1,47E-03	ND	ND	ND	ND	ND	ND	4,24E-04	ND	2,10E-03	-1,20E-02
EP-freshwater	kg P eq	9,58E-04	3,12E-05	3,25E-05	ND	1,33E-04	ND	ND	ND	ND	ND	ND	7,99E-06	ND	1,21E-04	-8,11E-04
EP-freshwater	kg PO_4^{-3} eq	2,94E-03	9,58E-05	9,98E-05	ND	4,08E-04	ND	ND	ND	ND	ND	ND	2,45E-05	ND	3,70E-04	-2,49E-03
EP-marine	kg N eq.	4,47E-03	2,13E-03	5,11E-04	ND	3,15E-04	ND	ND	ND	ND	ND	ND	1,27E-04	ND	1,17E-03	-1,95E-03
EP-terrestrial	mol N eq.	4,19E-02	2,35E-02	3,59E-03	ND	2,91E-03	ND	ND	ND	ND	ND	ND	1,39E-03	ND	5,95E-03	-1,98E-02
POCP	kg NMVOC eq.	1,41E-02	6,31E-03	1,56E-03	ND	7,78E-04	ND	ND	ND	ND	ND	ND	4,21E-04	ND	1,68E-03	-5,47E-03
ADP-minerals & metals*	kg Sb eq.	5,56E-05	1,59E-06	8,84E-07	ND	1,76E-06	ND	ND	ND	ND	ND	ND	3,63E-07	ND	2,51E-06	-2,57E-06
ADP-fossil*	MJ	134,5	8,2	6,5	ND	3,8	ND	ND	ND	ND	ND	ND	1,5	ND	4,6	-26,7
WDP	m^3	5,14	0,02	0,50	ND	0,46	ND	ND	ND	ND	ND	ND	0,00	ND	3,81	-0,28
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; 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; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Particulate matter	disease inc.	1,81E-07	3,15E-08	1,77E-08	ND	1,17E-08	ND	ND	ND	ND	ND	ND	7,14E-09	ND	1,78E-08	-1,48E-07
Ionising radiation	kBq U-235 eq	1,93	0,04	0,01	ND	0,04	ND	ND	ND	ND	ND	ND	0,01	ND	0,03	-0,54
Ecotoxicity, freshwater	CTUe	113,7	5,8	18,2	ND	6,2	ND	ND	ND	ND	ND	ND	1,3	ND	151,3	-49,0
Human toxicity, cancer	CTUh	3,34E-09	2,90E-10	1,13E-10	ND	1,28E-10	ND	ND	ND	ND	ND	ND	4,20E-11	ND	5,48E-10	-5,54E-10
Human toxicity, non-cancer	CTUh	8,18E-08	5,26E-09	6,23E-09	ND	3,33E-09	ND	ND	ND	ND	ND	ND	1,21E-09	ND	4,12E-08	-1,72E-08
Land use	Pt	50,50	4,17	0,44	ND	1,08	ND	ND	ND	ND	ND	ND	1,04	ND	3,28	-8,88

Use of resources

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	24,4	0,09	0,09	ND	0,56	ND	ND	ND	ND	ND	ND	0,02	ND	0,38	-4,88
PERM	MJ	2,1	0,00	0,00	ND	0,00	ND	ND	ND	ND	ND	ND	0,00	ND	0,00	0,00
PERT	MJ	26,5	0,09	0,09	ND	0,56	ND	ND	ND	ND	ND	ND	0,02	ND	0,38	-4,88
PENRE	MJ	143,4	8,7	7,0	ND	4,0	ND	ND	ND	ND	ND	ND	1,6	ND	4,9	-28,1
PENRM	MJ.	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
PENRT	MJ	143,4	8,7	7,0	ND	4,0	ND	ND	ND	ND	ND	ND	1,6	ND	4,9	-28,1
SM	kg	0,5	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
RSF	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
NRSF	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
FW	m^3	0,63	0,00	0,01	ND	0,02	ND	ND	ND	ND	ND	ND	0,00	ND	0,12	-0,01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0	0	0	ND	ND	ND	ND	ND	ND	ND	ND	0	ND	0	0
Non-hazardous waste disposed	kg	0	0	0	ND	ND	ND	ND	ND	ND	ND	ND	0	ND	0	0
Radioactive waste disposed	kg	0	0	0	ND	ND	ND	ND	ND	ND	ND	ND	0	ND	0	0

Since an aggregated dataset that includes waste treatment is used (Ecoinvent 3.7) no waste production is declared.

Output flows

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Material for recycling	kg	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Materials for energy recovery	kg	0,4	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	1,3	0,0
Exported energy, electricity	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Exported energy, thermal	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0,0
Biogenic carbon content in packaging	kg C	0,10

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

References

General Programme Instructions of the International EPD® System. Version 4.0 2021-03-29

PCR 2019:14 version 1.11 Construction products (EN 15804:2012+A2:2019)

Sub-PCR-F Resilient textile and laminate floor coverings (EN 16810:2017)
C-PCR-004 (TO PCR 2019:14) VERSION: 2019-12-20

LCA report: “Life Cycle Assessment of Woven Vinyl Flooring. Rolls, Tiles and Acoustic Tiles”, 2021, Author: Viktor Hakkarainen, Miljögiraff AB

EPD®

www.environdec.com

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Woven vinyl flooring delivered as tiles

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Programme operator:	EPD International AB
EPD registration number:	S-P-03985
Publication date:	2021-10-27
Valid until:	2026-10-27

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Contact: Michaela Ljungdahl

Description of the organisation: Bolon is a Swedish design company that makes innovative flooring solutions for public spaces. It is a third-generation family business run by sisters Annica and Marie Eklund. Under their leadership, Bolon has transformed from a traditional weaving mill into an international design brand with clients in different sectors all over the world. With a strong commitment to sustainability, Bolon designs and manufactures all its products at a facility in Ulricehamn in Sweden. The company is recognized worldwide for its award-winning flooring and its collaborations with some of the world's most acclaimed innovators and creatives.

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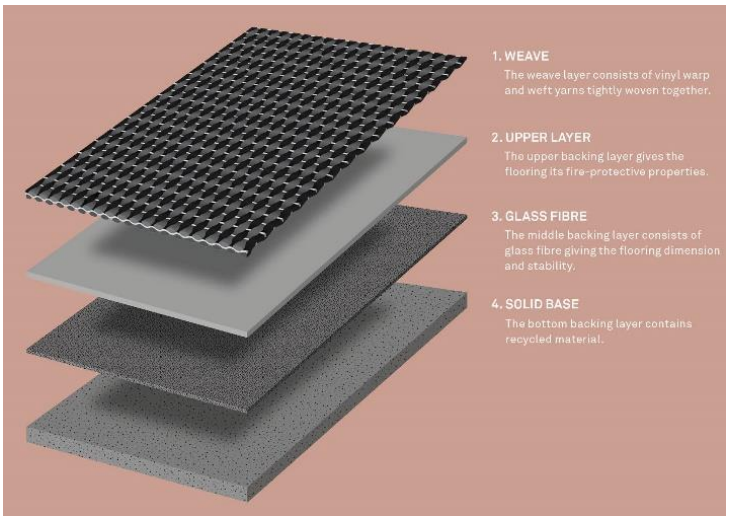

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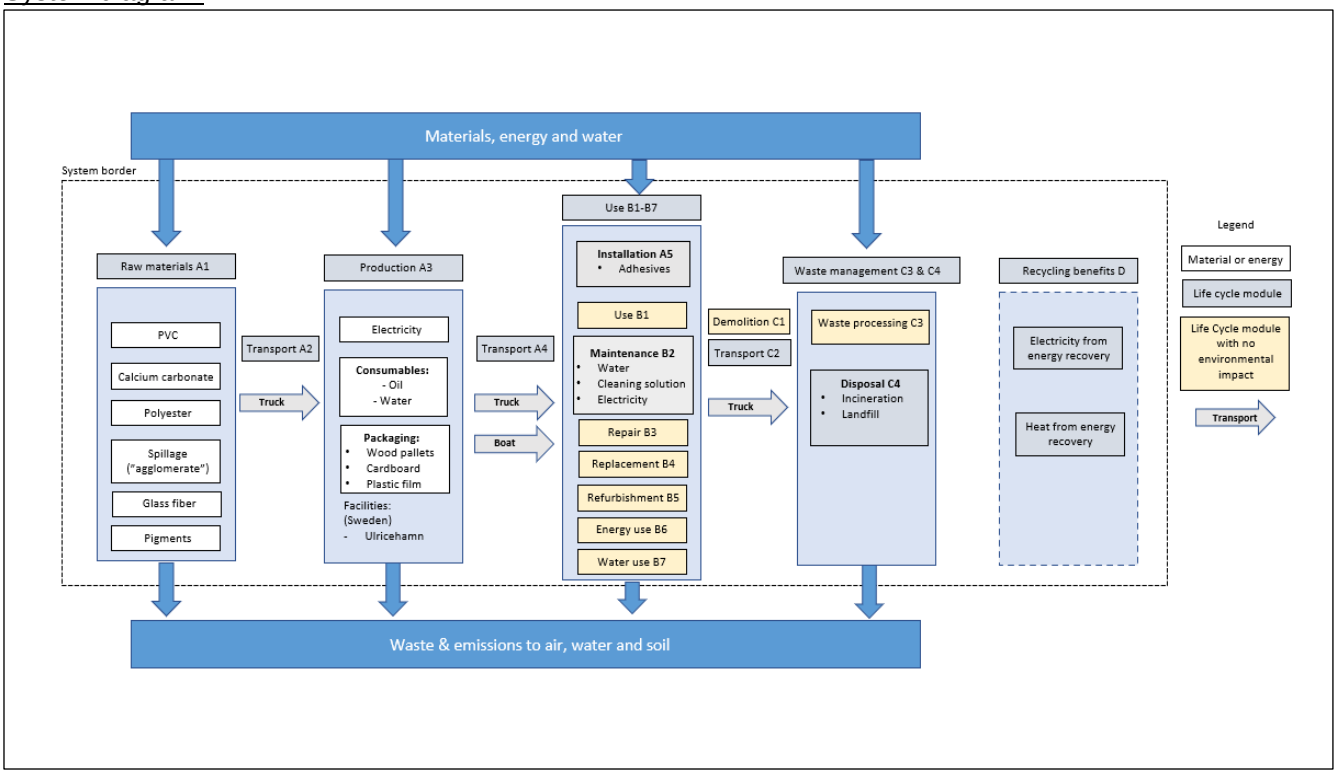

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Modules declared	X	X	X	X	X	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	EU	EU	SE	GLO	GLO	MND	GLO	MND	MND	MND	MND	MND	GLO	GLO	GLO	GLO	GLO

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Generic data was also used for the transportation of raw material (A2), however, distance and information regarding the type of transportation was collected from Bolon.

Downstream waste management data is based on regional average treatment of PVC waste (Europe, Asia, and USA).

General information

LCA & EPD author	Viktor Hakkarainen, Miljögiraff AB
Cut-off rules	<1% for specific process, <5% for sum of all processes
Cut-off applications	- Impact from different pigmentations (<0,2 w% of total weight) - Materials with presence <0,1 w%
Excluded parts	- Production of capital goods for manufacturing (machines and facilities) - Potential transports from retailer to installation site - Maintenance products packaging and transport
Assumptions	- All road transports are assumed to be made with 16-32t EURO 5 trucks - All sea transports are assumed to be made with container ships - All product packaging is assumed to go to incineration with heat recovery - At the end of life, the product is assumed to be transported 200 km to a waste treatment facility. - 80% global average energy efficiency is assumed for district heating plants (CHP).
Electricity source	Hydropower (3,96 g CO2 eq/kWh)
Data quality	
Geographical coverage	Upstream data: Good (Country specific) Core module (A3): Very good (site-specific) Downstream data: Medium (continent specific)
Technological representativeness	Upstream data: Good (Generic data based on plant averages) Core module (A3): Very good (site-specific) Downstream data: Good (Generic data based on plant averages)
Time-related coverage	Upstream data: Good Core module (A3): Very good (2019 data) Downstream data: Good
Consistency, allocation method, etc.	In general allocation follows a physical causality in line with EN 15804. For purchased industry spillage, material economic allocation in line with EN 15804 is used.
Completeness and treatment of missing data	No data is found missing.

Product information

Use classification*		Comments
Weight	3,88-4,08 kg/m²	Weight depends on collection
Average weight	4,0	This weight is used for the environmental information
Thickness	2,9-3,1 mm	Thickness depends on collection

Fire resistance	Bfl-S1	EN 13501-1
Friction	>0,3	EN 13893
Colour fastness to light	>7	EN ISO 105-B02

For more information see bolon.com and the technical specification.

Content information

Product components*	Composition weight %
Filler (Calcium carbonate)	25-50
Polyvinylchloride (PVC)	25-50
Plasticizer	10-25
Polyester	<2
Fiber glas	<2

Recycled content is calculated on yearly basis acc. to ISO 14021. Visit Bolon.com for information.
*For more specified content, visit Bolon.com and see Declaration of content.

The product does not contain any substances classified as “hazardous substance” (SVHC) and fulfils REACH legislation.

Scenario information

Average transport distances (A4)

Road transport type	Road transport distance (km)	Sea transport type	Sea transport distance (km)
Euro 5 truck 16-32t	717	Container ship	7104

Installation (A5)
10% of the product is lost during installation

Materials consumed in use phase per m² flooring (B2)

Material or energy	Quantity	Reference service life	Comment
Electricity	0,314 kWh/year	1 year	Electricity for vacuuming
Floor cleaning agent	0,09 litres/year	1 year	Cleaning agent for wet cleaning.
Water	9,0 litres/year	1 year	Water for wet cleaning

End of life (C1-C4)

The flooring is removed and transported to a waste treatment facility, shares are region based according to table below:

Treatment	Europe	USA	Asia
Incineration with energy recovery	54%	18%	48%
Landfill	46%	82%	52%

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	6,19	0,77	0,89	ND	0,35	ND	ND	ND	ND	ND	ND	0,14	ND	4,15	-2,39
GWP-fossil	kg CO_2 eq.	6,29	0,76	0,57	ND	0,28	ND	ND	ND	ND	ND	ND	0,14	ND	4,07	-2,24
GWP-biogenic	kg CO_2 eq.	-0,33	0,00	0,32	ND	0,06	ND	ND	ND	ND	ND	ND	0,00	ND	0,09	-0,14
GWP-luluc	kg CO_2 eq.	0,23	0,00	0,00	ND	0,00	ND	ND	ND	ND	ND	ND	0,00	ND	0,00	-0,01
ODP	kg CFC 11 eq.	2,79E-06	1,67E-07	1,13E-08	ND	1,49E-08	ND	ND	ND	ND	ND	ND	3,00E-08	ND	1,36E-07	-6,50E-08
AP	mol H^+ eq.	2,48E-02	1,10E-02	1,17E-03	ND	1,47E-03	ND	ND	ND	ND	ND	ND	5,65E-04	ND	3,11E-03	-1,36E-02
EP-freshwater	kg P eq	1,12E-03	4,16E-05	2,28E-05	ND	1,33E-04	ND	ND	ND	ND	ND	ND	1,07E-05	ND	1,79E-04	-9,16E-04
EP-freshwater	kg PO_4^{-3} eq	3,45E-03	1,28E-04	7,00E-05	ND	4,08E-04	ND	ND	ND	ND	ND	ND	3,27E-05	ND	5,49E-04	-2,81E-03
EP-marine	kg N eq.	5,44E-03	2,83E-03	3,18E-04	ND	3,15E-04	ND	ND	ND	ND	ND	ND	1,70E-04	ND	1,73E-03	-2,19E-03
EP-terrestrial	mol N eq.	4,99E-02	3,14E-02	2,14E-03	ND	2,91E-03	ND	ND	ND	ND	ND	ND	1,85E-03	ND	8,81E-03	-2,23E-02
POCP	kg NMVOC eq.	1,68E-02	8,42E-03	8,46E-04	ND	7,78E-04	ND	ND	ND	ND	ND	ND	5,62E-04	ND	2,48E-03	-6,16E-03
ADP-minerals & metals*	kg Sb eq.	6,96E-05	2,12E-06	5,60E-07	ND	1,76E-06	ND	ND	ND	ND	ND	ND	4,84E-07	ND	3,71E-06	-2,81E-06
ADP-fossil*	MJ	165,3	10,9	3,3	ND	3,8	ND	ND	ND	ND	ND	ND	2,0	ND	6,8	-29,6
WDP	m^3	6,42	0,03	0,46	ND	0,46	ND	ND	ND	ND	ND	ND	0,01	ND	5,64	-0,31
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; 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; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Particulate matter	disease inc.	2,14E-07	4,20E-08	9,34E-09	ND	1,17E-08	ND	ND	ND	ND	ND	ND	9,52E-09	ND	2,63E-08	-1,66E-07
Ionising radiation	kBq U-235 eq	2,47	0,05	0,00	ND	0,04	ND	ND	ND	ND	ND	ND	0,01	ND	0,04	-0,57
Ecotoxicity, freshwater	CTUe	128,1	7,8	17,5	ND	6,2	ND	ND	ND	ND	ND	ND	1,7	ND	224,2	-55,2
Human toxicity, cancer	CTUh	3,97E-09	3,86E-10	9,35E-11	ND	1,28E-10	ND	ND	ND	ND	ND	ND	5,60E-11	ND	8,12E-10	-6,20E-10
Human toxicity, non-cancer	CTUh	9,77E-08	7,01E-09	5,69E-09	ND	3,33E-09	ND	ND	ND	ND	ND	ND	1,62E-09	ND	6,10E-08	-1,94E-08
Land use	Pt	57,63	5,56	0,41	ND	1,08	ND	ND	ND	ND	ND	ND	1,39	ND	4,86	-9,88

Use of resources

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	26,3	0,12	0,07	ND	0,56	ND	ND	ND	ND	ND	ND	0,02	ND	0,56	-5,22
PERM	MJ	2,3	0,00	0,00	ND	0,00	ND	ND	ND	ND	ND	ND	0,00	ND	0,00	0,00
PERT	MJ	28,6	0,12	0,07	ND	0,56	ND	ND	ND	ND	ND	ND	0,02	ND	0,56	-5,22
PENRE	MJ	176,2	11,6	3,5	ND	4,0	ND	ND	ND	ND	ND	ND	2,2	ND	7,2	-31,1
PENRM	MJ.	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
PENRT	MJ	176,2	11,6	3,5	ND	4,0	ND	ND	ND	ND	ND	ND	2,2	ND	7,2	-31,1
SM	kg	0,9	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
RSF	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
NRSF	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
FW	m^3	0,78	0,00	0,01	ND	0,02	ND	ND	ND	ND	ND	ND	0,00	ND	0,17	-0,01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0	0	0	ND	0	ND	ND	ND	ND	ND	ND	0	ND	0	0
Non-hazardous waste disposed	kg	0	0	0	ND	0	ND	ND	ND	ND	ND	ND	0	ND	0	0
Radioactive waste disposed	kg	0	0	0	ND	0	ND	ND	ND	ND	ND	ND	0	ND	0	0

Since an aggregated dataset that includes waste treatment is used (Ecoinvent 3.7) no waste production is declared.

Output flows

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Material for recycling	kg	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Materials for energy recovery	kg	0,4	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	1,6	0,0
Exported energy, electricity	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Exported energy, thermal	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0,0
Biogenic carbon content in packaging	kg C	0,10

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

References

General Programme Instructions of the International EPD® System. Version 4.0 2021-03-29

PCR 2019:14 version 1.11 Construction products (EN 15804:2012+A2:2019)

Sub-PCR-F Resilient textile and laminate floor coverings (EN 16810:2017)
C-PCR-004 (TO PCR 2019:14) VERSION: 2019-12-20

LCA report: “Life Cycle Assessment of Woven Vinyl Flooring. Rolls, Tiles and Acoustic Tiles”, 2021, Author: Viktor Hakkarainen, Miljögiraff AB

EPD®

www.environdec.com

Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

Woven vinyl flooring delivered with acoustic backing

BOLON

Industrivägen 12, SE-523 90 Ulricehamn, Sweden

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-03986
Publication date:	2021-10-27
Valid until:	2026-10-27

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

CEN standard EN 15804 and EN 16810 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2019:14 version 1.11 Construction products (EN 15804:2012+A2:2019) and Sub-PCR-F Resilient textile and laminate floor coverings (EN 16810)
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☒ EPD verification
Third party verifier: *Martyna Mikusinska, Sweco AB*
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Bolon AB

Contact: Michaela Ljungdahl

Description of the organisation: Bolon is a Swedish design company that makes innovative flooring solutions for public spaces. It is a third-generation family business run by sisters Annica and Marie Eklund. Under their leadership, Bolon has transformed from a traditional weaving mill into an international design brand with clients in different sectors all over the world. With a strong commitment to sustainability, Bolon designs and manufactures all its products at a facility in Ulricehamn in Sweden. The company is recognized worldwide for its award-winning flooring and its collaborations with some of the world's most acclaimed innovators and creatives.

Product-related certifications*:
The product meets the requirement of EN 14041, CE- certified.
Emissions certificate, e.g M1 and Floorescore
Rawmaterial, Green star Best environmental practice PVC

*For updated information contact customer support or visit Bolon.com.

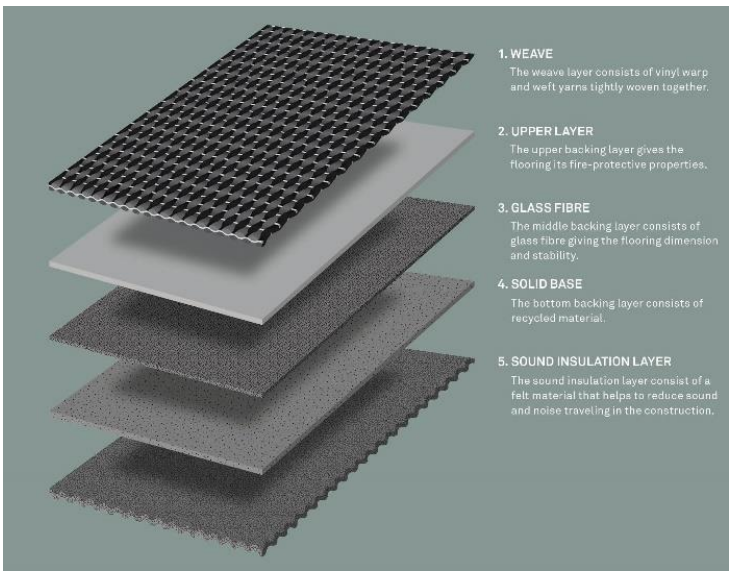
Name and location of production site(s): Industrivägen 12, 523 90 Ulricehamn, Sweden

Product information

Product name: Woven vinyl flooring delivered with acoustic backing

Product identification:
Bolon flooring is tested to the EN 1307 standard for textile floor coverings and classified according to , textile and laminate floor coverings (ISO 10874).

Product description: Bolon acoustic flooring is composed by five layers, one weave and four backing layers, the bottom layer is an acoustic felt backing made of 90% post-consumer pet-bottles. This gives the product its unique qualities. The weave layer is made of vinyl warp and weft yarns tightly woven together. The variations of the warp and weft yarn together with the different weaving techniques give~~s~~ Bolon flooring its vast design alternatives. Floors are graded into different classes according to their resistance to wear. For example, they are suitable for hotels, shops, offices, and high traffic areas, such as public halls.



Expected service lifetime: 20-30 years.

All floor manufacturing takes place in Ulricehamn, Sweden. Here we manufacture the thread and the backing, weave the designer surface, and combine all these elements into a high-quality floor. Recycling is an integral part of our production, the recycled material is self-declared according to ISO 14021.

The floor is than packed and shipped to customers. Installation is normally made with adhesives, alternative installations methods are possible within Bolon recommendations. The floor coverings are water resistant and are cleaned using wet methods. Most cleaning needs can be accomplished with a vacuum cleaner, scrubbing brush, water and a minimal dose of stain remover.

At the end of its life the product is sent to either landfill or incineration with energy recovery.

LCA information

Functional unit / declared unit: 1 m² of floor covering with a reference service life (RSL) of 1 year for specified characteristics application and use areas according to declared use classification ISO 10874.

Reference service life: 1 year

Type of EPD: average

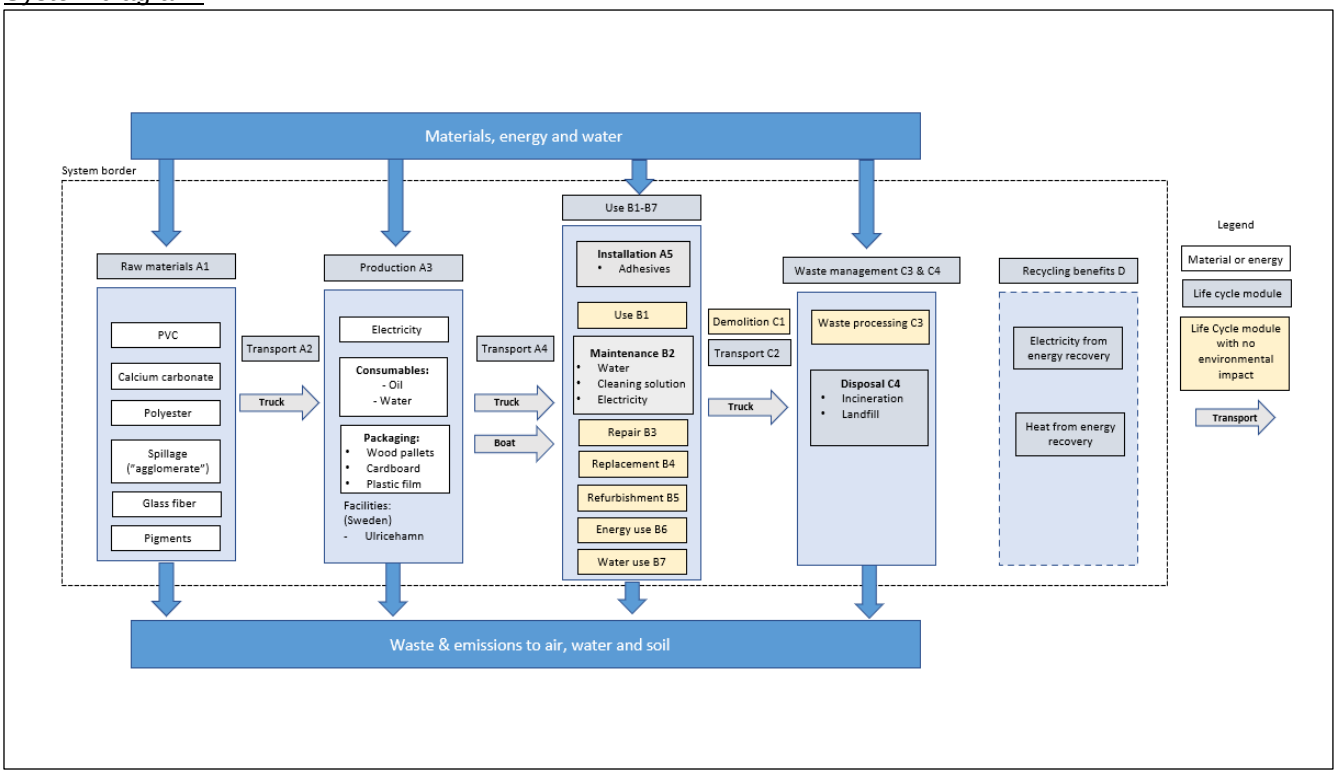
The EPD covers all products of Woven vinyl flooring that are delivered with acoustic backing produced in Ulricehamn. The difference between the products is a variation of product weight and pigmentation which can be seen under product information. The sensitivity analysis of the LCA shows that all environmental impact indicators results are within +/-10% of the presented environmental information.

Time representativeness: 2020

Database(s) and LCA software used: SimaPro 9.2.0.1, LCI database: Ecoinvent 3.7

Description of system boundaries:
Cradle to grave and module D (A + B + C + D)

System diagram:



Modules declared

	Product stage		Construction process stage			Use stage*							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	EU	EU	SE	GLO	GLO	MND	GLO	MND	MND	MND	MND	MND	GLO	GLO	GLO	GLO	GLO

Data quality

Data for upstream processes (A1) has been collected directly from suppliers. Raw material and energy use as well as transports are included.

All data for the production (A3) has been collected from Bolon and is representative of the production practices under 2019. In the cases where no specific data could be used, available generic data was used mainly provided by Ecoinvent 3.7 (2021).

Generic data was also used for the transportation of raw material (A2), however, distance and information regarding the type of transportation was collected from Bolon.

Downstream waste management data is based on regional average treatment of PVC waste (Europe, Asia, and USA).

General information

LCA & EPD author	Viktor Hakkarainen, Miljögiraff AB
Cut-off rules	<1% for specific process, <5% for sum of all processes
Cut-off applications	- Impact from different pigmentations (<0,2 w% of total weight) - Materials with presence <0,1 w%
Excluded parts	- Production of capital goods for manufacturing (machines and facilities) - Potential transports from retailer to installation site - Maintenance products packaging and transport
Electricity source	Hydropower (3,96 g CO2 eq/kWh)
Assumptions	- All road transports are assumed to be made with 16-32t EURO 5 trucks - All sea transports are assumed to be made with container ships - All product packaging is assumed to go to incineration with heat recovery - At the end of life, the product is assumed to be transported 200 km to a waste treatment facility. - 80% global average energy efficiency is assumed for district heating plants (CHP).
Data quality	
Geographical coverage	Upstream data: Good (Country specific) Core module (A3): Very good (site-specific) Downstream data: Medium (continent specific)
Technological representativeness	Upstream data: Good (Generic data based on plant averages) Core module (A3): Very good (site-specific) Downstream data: Good (Generic data based on plant averages)
Time-related coverage	Upstream data: Good Core module (A3): Very good (2019 data) Downstream data: Good
Consistency, allocation method, etc.	In general allocation follows a physical causality in line with EN 15804. For purchased industry spillage, material economic allocation in line with EN 15804 is used.
Completeness and treatment of missing data	No data is found missing.

Product Information

Characteristics*		Comments
Weight	3,35-3,55 kg/m²	Weight depends on collection
Average weight	3,47	This weight is used for the environmental information
Thickness	5,0-5,2 mm	Thickness depends on collection

Fire resistance	Bfl-S1	EN 13501-1
Friction	>0,3	EN 13893
Colour fastness to light	>7	EN ISO 105-B02

For more information see bolon.com and the technical specification.

Content information

Product components*	Composition weight %
Filler (Calcium carbonate)	25-50
Polyvinylchloride (PVC)	25-50
Plasticizer	10-25
Polyester	10-25
Fiber glas	<2

Recycled content is calculated on yearly basis acc. to ISO 14021. Visit Bolon.com for information.
*For more specified content, visit Bolon.com and see Declaration of content.

The product does not contain any substances classified as “hazardous substance” (SVHC) and fulfils REACH legislation.

Scenario information

Average transport distances (A4)

Road transport type	Road transport distance (km)	Sea transport type	Sea transport distance (km)
Euro 5 truck 16-32t	453	Container ship	0

Installation (A5)
10% of the product is lost during installation

Materials consumed in use phase per m² flooring (B2)

Material or energy	Quantity	Reference service life	Comment
Electricity	0,314 kWh/year	1 year	Electricity for vacuuming
Floor cleaning agent	0,09 litres/year	1 year	Cleaning agent for wet cleaning.
Water	9,0 litres/year	1 year	Water for wet cleaning

End of life (C1-C4)

The flooring is removed and transported to a waste treatment facility, shares are region based according to table below:

Treatment	Europe	USA	Asia
Incineration with energy recovery	54%	18%	48%
Landfill	46%	82%	52%

Environmental Information

Potential environmental impact – mandatory indicators according to EN 15804

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO_2 eq.	5,47	0,67	1,11	ND	0,35	ND	ND	ND	ND	ND	ND	0,12	ND	3,70	-2,63
GWP-fossil	kg CO_2 eq.	5,93	0,67	0,57	ND	0,28	ND	ND	ND	ND	ND	ND	0,12	ND	3,53	-2,47
GWP-biogenic	kg CO_2 eq.	-0,61	0,00	0,53	ND	0,06	ND	ND	ND	ND	ND	ND	0,00	ND	0,17	-0,15
GWP-luluc	kg CO_2 eq.	0,15	0,00	0,00	ND	0,00	ND	ND	ND	ND	ND	ND	0,00	ND	0,00	-0,01
ODP	kg CFC 11 eq.	2,83E-06	1,46E-07	1,15E-08	ND	1,49E-08	ND	ND	ND	ND	ND	ND	2,63E-08	ND	1,18E-07	-7,15E-08
AP	mol H^+ eq.	2,36E-02	9,65E-03	1,20E-03	ND	1,47E-03	ND	ND	ND	ND	ND	ND	4,94E-04	ND	2,70E-03	-1,50E-02
EP-freshwater	kg P eq	1,06E-03	3,64E-05	2,36E-05	ND	1,33E-04	ND	ND	ND	ND	ND	ND	9,32E-06	ND	1,55E-04	-1,01E-03
EP-freshwater	kg PO_4^{-3} eq	3,26E-03	1,12E-04	7,25E-05	ND	4,08E-04	ND	ND	ND	ND	ND	ND	2,86E-05	ND	4,76E-04	-3,10E-03
EP-marine	kg N eq.	5,24E-03	2,48E-03	3,34E-04	ND	3,15E-04	ND	ND	ND	ND	ND	ND	1,48E-04	ND	1,50E-03	-2,42E-03
EP-terrestrial	mol N eq.	4,93E-02	2,74E-02	2,28E-03	ND	2,91E-03	ND	ND	ND	ND	ND	ND	1,62E-03	ND	7,64E-03	-2,46E-02
POCP	kg NMVOC eq.	1,67E-02	7,37E-03	8,80E-04	ND	7,78E-04	ND	ND	ND	ND	ND	ND	4,92E-04	ND	2,15E-03	-6,80E-03
ADP-minerals & metals*	kg Sb eq.	5,94E-05	1,86E-06	5,67E-07	ND	1,76E-06	ND	ND	ND	ND	ND	ND	4,23E-07	ND	3,22E-06	-3,03E-06
ADP-fossil*	MJ	163,2	9,6	3,3	ND	3,8	ND	ND	ND	ND	ND	ND	1,8	ND	5,9	-32,2
WDP	m^3	5,38	0,02	0,46	ND	0,46	ND	ND	ND	ND	ND	ND	0,01	ND	4,90	-0,34
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; 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; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Potential environmental impact – additional mandatory and voluntary indicators

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Particulate matter	disease inc.	2,23E-07	3,68E-08	9,61E-09	ND	1,17E-08	ND	ND	ND	ND	ND	ND	8,33E-09	ND	2,28E-08	-1,84E-07
Ionising radiation	kBq U-235 eq	3,63	0,05	0,00	ND	0,04	ND	ND	ND	ND	ND	ND	0,01	ND	0,04	-0,59
Ecotoxicity, freshwater	CTUe	127,5	6,8	17,7	ND	6,2	ND	ND	ND	ND	ND	ND	1,5	ND	194,5	-60,8
Human toxicity, cancer	CTUh	3,98E-09	3,38E-10	1,03E-10	ND	1,28E-10	ND	ND	ND	ND	ND	ND	4,90E-11	ND	7,05E-10	-6,80E-10
Human toxicity, non-cancer	CTUh	9,09E-08	6,14E-09	6,08E-09	ND	3,33E-09	ND	ND	ND	ND	ND	ND	1,41E-09	ND	5,29E-08	-2,14E-08
Land use	Pt	78,20	4,86	0,41	ND	1,08	ND	ND	ND	ND	ND	ND	1,22	ND	4,22	-10,79

Use of resources

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	26,9	0,11	0,07	ND	0,56	ND	ND	ND	ND	ND	ND	0,02	ND	0,49	-5,54
PERM	MJ	3,8	0,00	0,00	ND	0,00	ND	ND	ND	ND	ND	ND	0,00	ND	0,00	0,00
PERT	MJ	30,7	0,11	0,07	ND	0,56	ND	ND	ND	ND	ND	ND	0,02	ND	0,49	-5,54
PENRE	MJ	172,6	10,1	3,5	ND	4,0	ND	ND	ND	ND	ND	ND	1,9	ND	6,2	-33,8
PENRM	MJ.	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
PENRT	MJ	172,6	10,1	3,5	ND	4,0	ND	ND	ND	ND	ND	ND	1,9	ND	6,2	-33,8
SM	kg	0,9	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
RSF	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
NRSF	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
FW	m^3	0,64	0,00	0,01	ND	0,02	ND	ND	ND	ND	ND	ND	0,00	ND	0,15	-0,01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste production and output flows

Waste production

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0	0	0	ND	0	ND	ND	ND	ND	ND	ND	0	ND	0	0
Non-hazardous waste disposed	kg	0	0	0	ND	0	ND	ND	ND	ND	ND	ND	0	ND	0	0
Radioactive waste disposed	kg	0	0	0	ND	0	ND	ND	ND	ND	ND	ND	0	ND	0	0

Since an aggregated dataset that includes waste treatment is used (Ecoinvent 3.7) no waste production is declared.

Output flows

Results per functional or declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Material for recycling	kg	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Materials for energy recovery	kg	0,4	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	1,4	0,0
Exported energy, electricity	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0
Exported energy, thermal	MJ	0,0	0,0	0,0	ND	0,0	ND	ND	ND	ND	ND	ND	0,0	ND	0,0	0,0

Information on biogenic carbon content

Results per functional or declared unit		
BIOGENIC CARBON CONTENT	**Unit**	**QUANTITY**
Biogenic carbon content in product	kg C	0,0
Biogenic carbon content in packaging	kg C	0,16

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

References

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