Environmental Product Declaration

In accordance with ISO 14025 and EN 15804+A1 and ISO 21930 for:

Maxwear

from

AB Golvabia

Programme:	The International EPD® System www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-01456
Publication date:	2018-12-17
Validity date:	2023-12-16
Geographical scope:	Europe

General information

Information about the organization

Owner of the EPD and site of production: Roger Davidsson, roger.davidsson@golvabia.se, AB Golvabia, Box 43 Långgatan 10, Anderstorp

Description of the organisation: Industrial producer of flooring from raw materials purchased from suppliers in EU. Distribution via retail in Scandinavia and other countries.

Product-related or management system-related certifications: Golvabia is certified according to ISO 9001 and ISO 14001. Also, for sustainable supply of wood sources, FCS-STD-40-004 Version 3.0 FSG Standard for Chain of Custody Certification and FSC-STD-50-001 for balance paper and fibreboard.

About the company

Golvabia was established in 1949 and have more than 70 years of experience with wood floors. But the foundation of Golvabia was laid already in 1927 when the 19-year-old Ivar Andersson decided to leave his father's sawmill and get experience in America. Over there he learned the parquet business and when he came back to Sweden, he started his flooring company. Golvabia is today a family business in the third generation and one of Scandinavia's leading flooring companies. Golvabia is certified according to ISO 9001 and ISO 14001, which guarantees that our wood floors meet the highest quality and environmental demands. We manufacture our wood floors in a modern, highly automated facility in Anderstorp in the southern part of Sweden.

The company Golvabia develops and sells floor products. High quality and responsibility throughout the life cycle are core values in the business concept. The products produced at Golvabia are mainly in flooring.

Product information

Product name: Maxwear
Product identification: Golvabia Maxwear 1190x195x11 mm
Product description: Vinyl flooring

UN CPC code: 36910 Floor coverings of plastics, in rolls or in the form of tiles; wall or ceiling coverings of plastics.

Geographical scope: Europe

LCA information

Functional unit / declared unit: 1 m2

Reference service life: 25 years

Time representativeness: 2017

Database(s):
ecoinvent 3.4 – "allocation cut off by classification" is used throughout the study (10402 LCI data). Version 3.4 was released on the 4th October 2017.
Complementary generic data from ESU database 2018 has been used for representing the production and disposal of real estate (2474 LCI data).
Industry data 2.0 is used for representing steel constructions in Golvbia production facilities (1 LCI data).

LCA software used: SimaPro 8.5.0.0

Assumptions generic for this study:

- Choice of energy model: regional averages derived from the Ecoinvent.
- Selection of transport model: regional average values from ecoinvent
- Transport by truck is using emission standard Euro 5
- Commercial transports are assumed to be only one way (and not return empty).
- The flooring is used in 25 years and then disposed of.
- At disposal 60 m2 are loaded on one personal Vehicle.

Description of system boundaries: Cradle to grave including raw materials, production, manufacturing, use and disposal and all transports are included in the study.

Excluded lifecycle stages:
The use phase exclude retail, installation, repair, refurbish and dismantling because it is beyond the control of Golvabia and depend much on the specific conditions. It is estimated by Golvabia and LCA practitioner to be insignificant because the installation and dismantling require no processing but only man power and person transport. Repair and refurbish is uncommon.

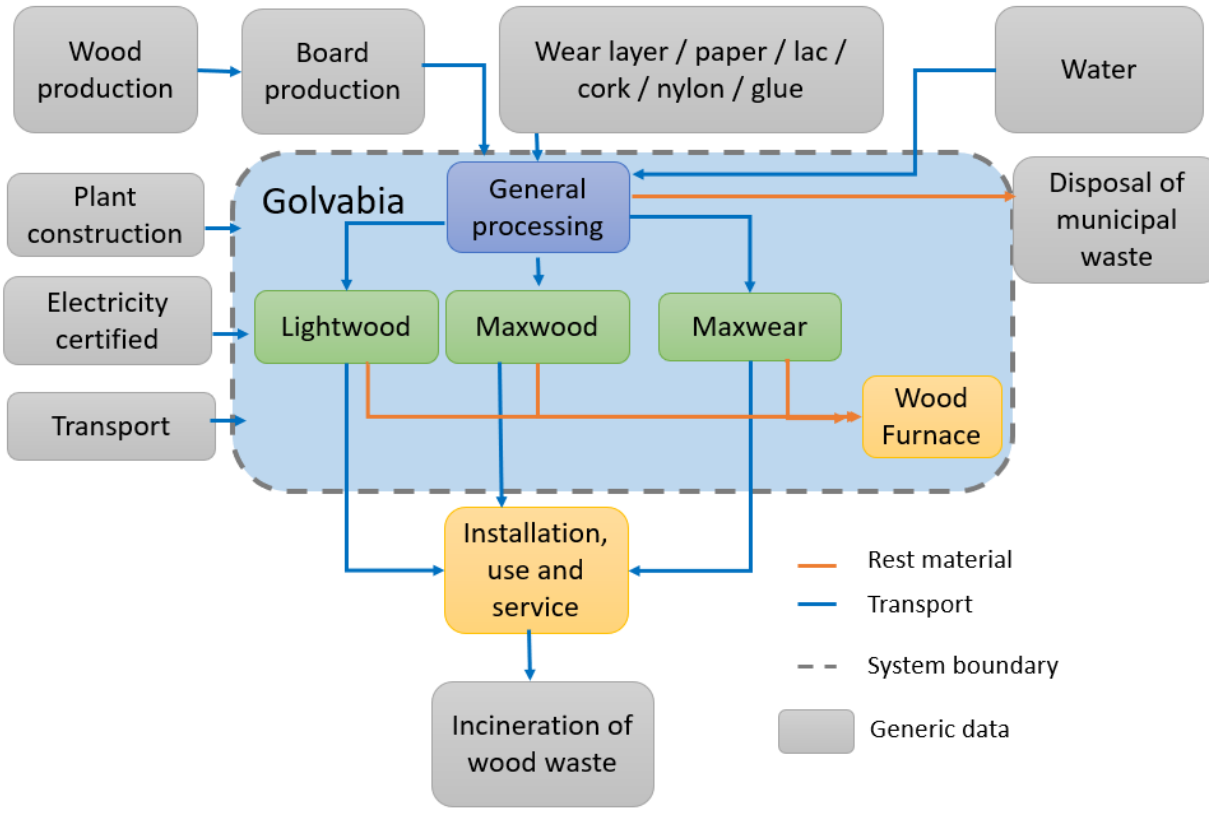
More information:
This EPD and background LCA report was prepared by Miljögiraff AB.

System diagram: See below

Product			Construct		Use							End of life			
Raw material	Transport supply	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy	Operational water	Deconstruction	Transport	Waste treatment	Disposal
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
X	X	X	X	NR	X	MND	MND	NR	MND	NR	NR	MND	X	X	X
X = included			NR = module not relevant					MND = Module not declared							

Lifecycle phases and modules included.

The specific data is modelled within system boundary (1) and the generic data for production of raw material are technical inflows to this. Also, the production of electricity, transport and production of the plant, is represented by generic data. For the use phase primary data is used. For treatment of waste the wood is used internally for heat production, but the other fractions are sent to municipal treatment (as a general scenario for Sweden). The disposal of flooring at the end of life are assumed to be sent to municipal waste incineration.



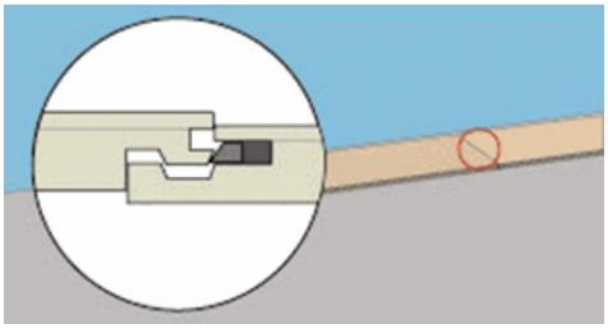
The image show system boundary (1), main processes and type of data quality used to represent these processes.

Content declaration

Product

		Maxwear	
Component	**Specification**	Weight-%	**g/m2**
Surface treatment	Acrylate-based paint, UV-cured	<0,1	a 8-10
Wear layer			
Wear layer	PVC	15	1480
Medium material	HDF 6.7 and 8.7mm	80	7725
Bottom material	Balance sheet of uncoated cardboard	1	120
Backing	Cork	2	175
Paste	PVAc, dry substance	1	90
Other			
Electricity	1090 MWh	34%	

No substances contained in the products are listed in the “Candidate List of Substances of Very High Concern for Authorization”.



With Maxwear you install a floor with the most modern and easiest system to install on the market. The click system is called Rolloc 5G and is developed by Välinge Innovation [1] for Golvabia. The unique design of the short end of the board makes it possible to install the board in one simple movement without using any tools or chemicals.

[1] https://www.valinge.se/

Use

The use phase exclude retail, installation, repair, refurbish and dismantling because it is insignificant, beyond the control of Golvabia and depend much on the specific conditions. It is estimated by Golvabia to be insignificant because the installation and dismantling require no processing but only man power and transport. Repair and refurbish is uncommon. The use phase includes emissions from the installed flooring as a worst-case scenario. The use phase includes also the transports to the user, via retailers.

Country	type	share	Truck (km)	Weighted distance (km)	Ship (km)
Sweden	retailors	50%	327	163	
Norge	retailors	15%	575	86	
Sweden	large customer	15%	327	49	
Export EU	large customer	10%	1751	175	
Export US	large customer	10%	1714	302	6289
Average				776	

Transport scenario to user.

Packaging

Secondary packaging: Carton package with plastic wrapping on EU Pallet.
Primary packaging: Carton package with plastic wrapping

Recycled material

The products do not contain any recycled materials. Rest materials from production of production of board and flooring and end of life treatment, include incineration with energy recovery.

Environmental performance

Potential environmental impact

Results of Maxwear for the total life cycle with the method CML version 4.2.

Global warming (GWP100a) as a total of fossil, biogenic and from landtransformation, and CO2 uptake included.

Impact category	Unit	Total	Raw material (A1)	Production (A2-3)	Transport A4	Use B1	Transport C1	Waste C3-C4
Acidification	kg SO2 eq	0,09	0,0643	0,00663	0,0166	0	0,00036	0,00204
Eutrophication	kg PO4--- eq	0.03	0.03	1.39E-3	1.99E-3	0	1.11E-4	2.83E-3
Global warming (GWP100a)	kg CO2 eq	14.38	11.21	1.37	1.37	0	0.11	0.09
Photochemical oxidation	kg C2H4 eq	0.01	4.23E-3	2.83E-4	5.75E-4	3.26E-3	2.57E-5	8.52E-5
Ozone layer depletion (ODP) (optional)	kg CFC-11 eq	9.68E-7	4.6E-7	2.39E-7	2.37E-7	0	1.62E-8	9.71E-9
Abiotic depletion (optional)	kg Sb eq	2.57E-5	1.38E-5	4.8E-6	1.43E-6	0	1.26E-6	1.81E-7
Abiotic depletion, fossil fuels (opt.)	MJ	1.68E+2	1.22E+2	21.77	19.85	0	1.47	0.85

Analysing 1 p 'LC Golvabia Maxwear 1 m2'; Method: EPD (2013) V1.04 / Characterisation

Results of MaxWear for the total life cycle with the method Green House Gas Protocol.

Impact category	Unit	Total	Raw material (A1)	Production (A2-3)	Transport A4	Use B1	Transport C1	Waste C3-C4
Fossil CO2 eq	kg CO2 eq	14.34	11.17	1.61	1.37	0	0.11	0.08
Biogenic CO2 eq	kg CO2 eq	21.59	6.21	1.34	0.01	0	6.88E-4	14.02
CO2 eq from land transformation	kg CO2 eq	0.18	0.18	1.69E-3	5.28E-4	0	4.19E-5	2.09E-5
CO2 uptake	kg CO2 eq	25.8	24.79	1	0.01	0	8.42E-4	6.34E-4

Analysing 1 p 'LC Golvabia Maxwear 1 m2'; Method: Greenhouse Gas Protocol V1.02 / C02 eq (kg) / Characterisation

Use of resources

MaxWear Natural resources

		Product		Construct	Use	End of life
Parameter	Unit/M	A1	A2-A3	A4	B1	C1, C3-C4
PERE	MJ	131,1	23,3	21,1	0	1,6
PERM	MJ	23,2	0,6	0,6	0	0,0
PERT	MJ	0,5	0,0	0,0	0	0,0
PENRE	MJ	265,0	7,0	0,1	0	0,0
PENRM	MJ	2,7	7,6	0,1	0	0,0
PENRT	MJ	3,6	0,7	0,2	0	0,0
SM	kg	0,0	0,0	0,0	0	0,0
RSF	MJ	0,0	0,0	0,0	0	0,0
NRSF	MJ	0,0	0,0	0,0	0	0,0
FW	m3	2,5	0,0	0,0	0	0,0

Legend
PERE=Use of renewable primary energy excluding renewable primary energy resources used
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 reso
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 fuel
NRSF=Use of non-renewable secondary fuels
FW=Use of net fresh water

Waste production and output flows

Waste production

MaxWear — Waste

		Product		Construct	Use	End of life
Parameter	**Unit/M**	**A1**	**A2-A3**	**A4**	**B1**	**C1, C3-C4**
HWD	Kg	0	0,029	0	0	0
NHWD	Kg	0	0,026	0	0	0
RWD	Kg	0	5,171E-09	0	0	0

Legend	
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed

Output flows

MaxWear — Outputs, secondary materials and exported energy

		Product		Construct	Use	End of life
Parameter	**Unit/M**	**A1**	**A2-A3**	**A4**	**B1**	**C1, C3-C4**
CRU	Kg	0	0	0	0	0
MFR	Kg	0	0,046	0	0	0
MER	Kg	0	0,254	0	0	0
EE	MJ	0	0	0	0	0

Legend	
CRU	Component for reuse *
MFR	Material For Recycling
MER	Material for energy recovery
EE	Exported energy

Other environmental indicators

Results of Maxwear for the total life cycle with the method Aware 1.01

1 p LC Golvabia Maxwear 1 m2 (of project 536 EPD Golvabia)

Water use	Total	Raw material (A1)	Production (A2-3)	Transport A4	Use B1	Transport C1	Waste C3-C4
m3	4,14	2,48	1,10	0,13	0,00	0,01	0,41

Interpretation of results

The clearest results that can be used as a benchmark with other flooring is Global warming potential, GWP. The additional environmental information is a weighting of the damage on safeguarding objects human health, ecosystem health and natural resources. That results tell us that GWP is relevant, but also particulate emissions that contribute to damage on human health via effect on respiratory organs. Use of land is also relevant as it contributes to negative effects on biodiversity. The use of fossil resources is also a relevant impact category as it effects the availability of natural resources.

Programme-related information and verification

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

Programme:	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com
EPD registration number:	S-P-01456
Published:	2018-12-17
Valid until:	2023-12-16
PCR reviewer	IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB
Product Category Rules:	1. PCR 2012-01 v2.2 Construction products and construction services, (EN – 15804) 2. RESILIENT, TEXTILE AND LAMINATE FLOOR COVERINGS (EN 16810:2017), Sub-PCR to PCR 2012:01 (v2.2), PCR 2012:01-SUB-PCR-F
Product group classification:	UN CPC 36910
Reference year for data:	2017
Geographical scope:	Sweden

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

☐ EPD process certification ☒ EPD verification

Third party verifier: Dr Hüdai Kara, metsims, 4 Clear Water Place, Oxford OX2 7NL, United Kingdom, Ph: +447557351476, info@metsims.com | www.metsims.com

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

References

General Programme Instructions of the International EPD® System. Version 3.0.

PCR 2012-01 v2.2 Construction products and construction services, (EN – 15804)
WOOD AND WOOD-BASED PRODUCTS FOR USE IN CONSTRUCTION (EN 16485:2014), Sub-PCR to PCR 2012:01 (v2.2), PCR 2012:01-SUB-PCR-E

Name of source	Description
EPD-VHI-20130021-IBE1-EN	EPD on HDF by VHI produced by Matthias Schuls
2010 0017 6.0 Pfleiderer Holzwerkstoffe GmbH Norway_Certifikat_English	Nordic ecolabel licens
BVB leverantörsintyg Fanergolv	Signed certificate to Byggvarubedömningen to guarantee no content of restricted chemicals
Emissiontest_Maxwear_1805	Test of VOC emissions from the floor during 28 days in a closed chamber. Below limits
EPD_High-density fibreboard (HDF)	EPD on HDF by VHI
GislavedEnergi elmix GoO 2017	Signed certificate regarding mix of electricity sold to Golvabia from Gislaved Energi 2017
Golvabia innehållsdeklarationer_LCA_1802	Declaration of content in the floors Lightwood, Maxwood and Maxwear, 2018
MaxWear declaration of content	Declaration of content in the floor
Pfleiderer FSC EN	HDF producers FSC Germany certificate valid until 2022
Sammanställning av inköp på trämaterial_17	List of all purchased wood raw materials to Golvabia 2017, by application, country of origine and certificate.
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EPD reviewer	Dr. Hudai Kara, Metsims Sustainability Consulting
Programme operator:	EPD International AB

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