ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	Upofloor Oy, Finland
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
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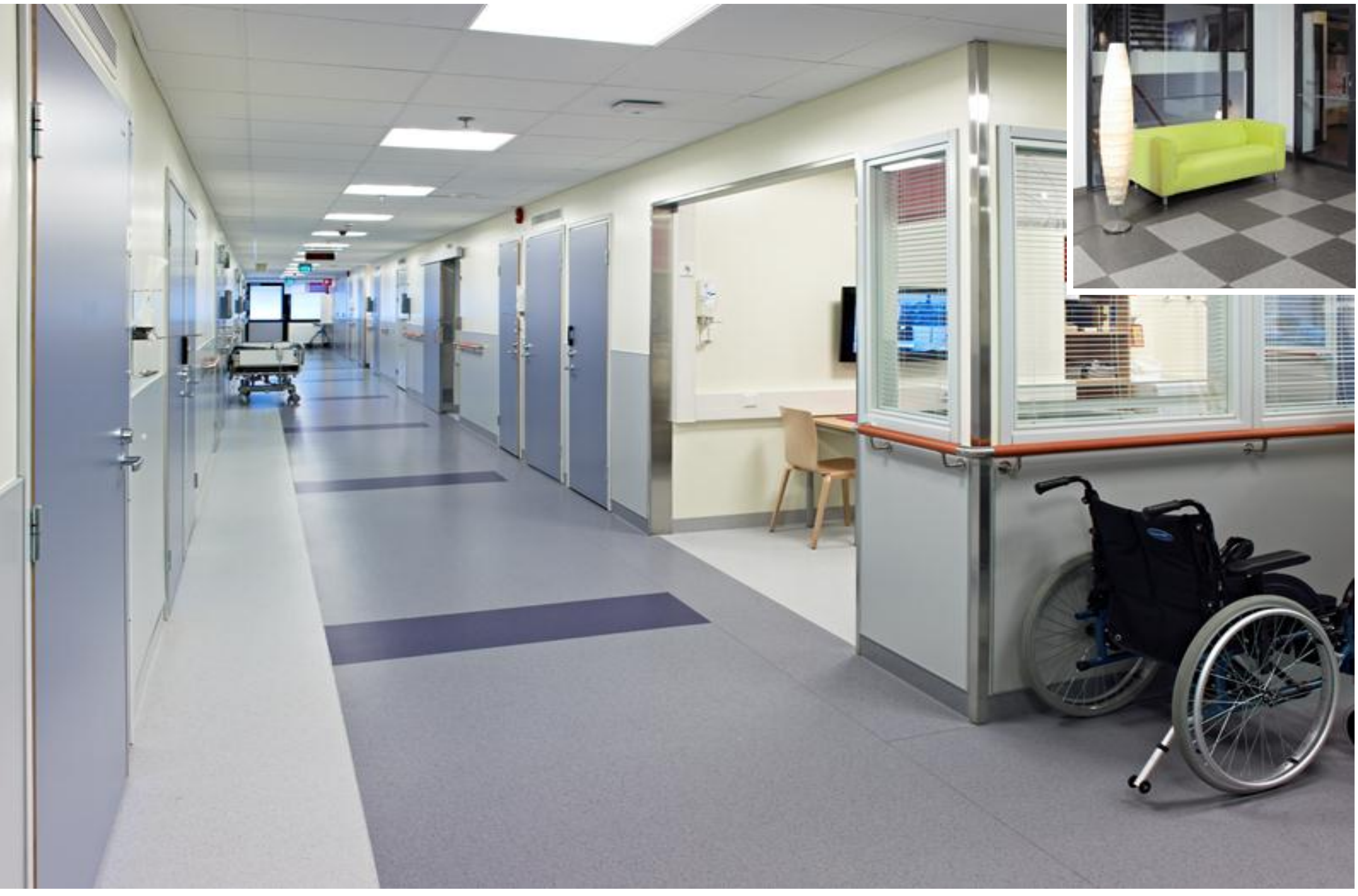
Valid to	31.03.2018

Resilient floor covering based upon synthetic thermoplastic polymers according to EN 14565

Upofloor Oy, Finland

www.bau-umwelt.com / https://epd-online.com



General Information

Upofloor

Programme holder
IBU - Institut Bauen und Umwelt e.V.
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10178 Berlin

Declaration number
EPD-UPO-2013112-EN

This Declaration is based on the Product Category Rules:
Floor coverings, Version 1.1: 29.10.2012
(PCR tested and approved by the independent expert committee (SVR))

Issue date
01.04.2013

Valid to
31.03.2018

Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)

Prof. Dr.-Ing. Hans-Wolf Reinhardt
(Chairman of SVR)

Synthetic thermoplastic polymers

Owner of the Declaration
Upofloor Oy
Souranderintie 2
FI-37101 Nokia

Declared product / Declared unit
1m² Resilient floor covering based upon synthetic thermoplastic polymers, installed

Scope:
In this EPD resilient floor coverings based upon synthetic thermoplastic polymers are declared. The application of this EPD is restricted **to non PVC Enomer product line** (former LifeLine) of Upofloor Oy. It is delivered in the designs

- LifeLine tile
- **Xpression** (LifeLine LT)
- **Zero** (LifeLine CS / Forte)

Data are based upon production during 2011 in Finland. The owner of the declaration shall be liable for the underlying information and evidence.

Verification

The CEN Norm EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025

☐ internally ☒ externally

Prof. Dr. Birgit Grahl
(Independent verifier appointed by SVR)

Product

Product description
Resilient floor coverings are an entire product family of flexible flooring solutions available in sheet, tiles and planks. It is classified in heterogeneous or homogeneous composition based on vinyl, linoleum, cork, rubber or synthetic thermoplastic polymers. Resilient floor coverings can provide different functionalities (acoustic, static control, slip resistance, easy maintenance etc.) to match a wide range of domestic, commercial and industrial applications. It is available in an enormous range of patterns and colours fitting with inspiration and decorative needs.
LifeLine products are based upon synthetic thermoplastic polymers and are supplied in either tile, plank or roll form.

Application
According to ISO 10874 (EN 685) the area of application for resilient floor coverings is indicated by use classes. The declared product group covers the use classes 23, 34 and 43.

Technical Data
Technical construction data for the product group:

Constructional data	Value	Unit	Test standard
Product thickness	2.0	mm	ISO 24346
Surface weight	3.6	kg/m^2	ISO 23997
Product Form	sheet		

Base materials/ Ancilliary materials
The product group has the following composition:

Component	Value	Unit
Filler	37.9	%
Pigments	1.9	%
Polymers (EMAA, EVA)	26.3	%
Auxiliaries	2.8	%
Lacquer	0.7	%
Flooring Recyclate	30.4	%

The declared recipes were checked with the REACH candidate list from June 18th, 2012 and did not contain listed REACH substances.

Reference service life
This EPD does not indicate RSL. Only module B2 (maintenance) is declared and the use stage scenario is independent on the life time of the product.
The declared modules in the table of results (chapter 5) refer to one life cycle of the floor covering with B2 (cleaning) being declared for a time period of one year. For the calculation of the impact of B2 for a different time period the values for B2 have to be multiplied by the estimated service life in years.

LCA: Calculation rules

Declared Unit
1m² of installed floor covering.

Name	Value	Unit
Declared unit	1	m^2
Conversion factor to 1 kg	1/3.6	-

System boundary
Type of EPD: cradle to grave

Modules A1-A3 include processes that provide materials and energy input for the system, manufacturing and transport processes up to the factory gate, as well as waste processing.

Module A4 includes transport of the floor covering to the place of installation.

Module A5 includes the production of adhesive for the installation of the floor covering, and incineration of off-cuts and packaging material.

Module B2 is including provision of cleaning agent, energy and water consumption for the cleaning of the floor covering incl. waste water treatment. The LCA results in this EPD are declared for a one year usage.

Module C1 considers electricity supply for the de-construction of the flooring.

Module C2 includes transportation of the post-consumer waste to waste processing.

End of life scenarios are declared for:
- 100% incineration in a waste incineration plant (WIP)
- 100% landfilling

Module D includes benefits from all net flows given in module A5 and C3 that leave the product boundary system after having passed the end-of-waste state in the form of recovery and/or recycling potentials. Module D is declared for each scenario separately.

Comparability
Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to EN 15804 and the building context, respectively the product-specific characteristics of performance, are taken into account.

LCA: Scenarios and additional technical information

The following technical information is a basis for the declared modules

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel	0,0058	l/m²*100km
Transport distance	2000	km
Capacity utilisation (including empty runs)	85	%

Installation in the building (A5)

Name	Value	Unit
Auxiliary (adhesive)	0.3	kg
Material loss (installation waste)	6.0	%

Maintenance (B2)

Name	Value	Unit
Maintenance cycle (vacuum cleaning & wet cleaning)	156	number/a
Water consumption	0.003	m^3
Auxiliary (detergent)	0.04	kg
Electricity consumption	0.55	kWh

End of Life (C1-C4)

Name	Value	Unit
Incineration	3.6	kg
Landfilling	3.6	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information
For module D the credits given in module A5 and C3 are declared.
For waste incineration combustion in a WIP (R1 < 0.6) with energy recuperation is considered.

LCA: Results

The results for module B2 refer to a period of one year.
For the calculation of the impact of B2 for a certain service life the values for B2 have to be multiplied by the estimated service life in years.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X			X	X	MND	X	MND	MND	MND	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1m² installed

Parameter	Unit	A1 - A3	A4	A5	B2	C1	C2	C3/I[1]	C3/L[2]	C4/I	C4/L	D/I	D/L
GWP	[kg CO_2-Äq.]	9,1E+00	3,7E-01	8,2E-01	4,3E-01	1,4E-02	3,4E-02	5,8E+00	0	0	2,6E-01	-2,4E+00	-1,6E-01
ODP	[kg CFC11-Äq.]	5,5E-09	6,4E-12	2,5E-10	2,6E-10	1,3E-11	6,0E-13	1,0E-09	0	0	1,3E-10	-9,1E-10	-5,92E-11
AP	[kg SO_2-Äq.]	2,5E-02	1,7E-03	1,1E-03	1,6E-03	6,8E-05	1,5E-04	2,8E-03	0	0	7,8E-04	-5,7E-03	-3,8E-04
EP	[kg PO_4^{3-}- Äq.]	2,2E-03	3,9E-04	1,6E-04	1,3E-04	3,6E-06	3,6E-05	3,4E-04	0	0	9,6E-04	-3,9E-04	-2,6E-05
POCP	[kg Ethen Äq.]	2,7E-03	-5,5E-04	1,8E-04	1,7E-04	4,0E-06	-5,1E-05	6,9E-04	0	0	1,2E-04	-4,7E-04	-3,12E-05
ADPE	[kg Sb Äq.]	4,8E-06	1,4E-08	2,3E-07	2,0E-07	2,0E-09	1,3E-09	4,7E-07	0	0	5,0E-08	-1,9E-07	-1,2E-08
ADPF	[MJ]	2,1E+02	5,1E+00	1,2E+01	8,3E+00	2,5E-01	4,7E-01	2,6E+01	0	0	4,0E+00	-4,0E+01	-2,7E+00
Caption	GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non fossil resources; ADPF = Abiotic depletion potential for fossil resources												

RESULTS OF THE LCA - RESOURCE USE: 1m² installed

Parameter	Unit	A1 - A3	A4	A5	B2	C1	C2	C3/I	C3/L	C4/I	C4/L	D/I	D/L
PERE	[MJ]	1,6E+01	-	-	-	-	-	-	-	-	-	-	-
PERM	[MJ]	0,0E+00	-	-	-	-	-	-	-	-	-	-	-
PERT	[MJ]	1,6E+01	2,0E-01	1,7E+00	8,3E-01	4,2E-02	1,9E-02	1,2E+00	0	0	1,8E-01	-2,9E+00	-1,9E-01
PENRE	[MJ]	1,6E+02	-	-	-	-	-	-	-	-	-	-	-
PENRM	[MJ]	5,8E+01	-	-	-	-	-	-	-	-	-	-	-
PENRT	[MJ]	2,1E+02	5,1E+00	1,2E+01	8,3E+00	2,5E-01	4,7E-01	2,6E+01	0	0	4,0E+00	-4,0E+01	-2,7E+00
SM	[kg]	1,7E+00	0	0	0	0	0	0	0	0	0	0	0
RSF	[MJ]	-	-	-	-	-	-	-	-	-	-	-	-
NRSF	[MJ]	-	-	-	-	-	-	-	-	-	-	-	-
FW	[kg]	6,0E+01	2,2E-01	3,2E+00	3,2E+00	1,1E-01	2,1E-02	1,9E+01	0	0	-2,1E+00	-8,3E+00	-5,4E-01
Caption	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												

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1m² installed

Parameter	Unit	A1 - A3	A4	A5	B2	C1	C2	C3/I	C3/L	C4/I	C4/L	D/I	D/L
HWD	[kg]	1,1E-02	0	7,7E-04	1,9E-03	0	0	1,9E-03	0	0	1,0E-03	0	0
NHWD	[kg]	5,5E-01	6,6E-04	5,4E-02	5,8E-03	1,1E-04	6,1E-05	8,2E-01	0	0	3,6E+00	-1,0E-02	-6,9E-04
RWD	[kg]	1,1E-02	7,1E-06	2,1E-04	7,3E-04	3,7E-05	6,6E-07	7,5E-04	0	0	7,1E-05	-2,6E-03	-1,7E-04
CRU	[kg]	-	-	-	-	-	-	-	-	-	-	-	-
MFR	[kg]	-	-	-	-	-	-	-	-	-	-	1,8E+00	1,8E+00
MER	[kg]	-	-	-	-	-	-	-	-	-	-	-	-
EEE	[MJ]	-	-	-	-	-	-	-	-	-	-	7,2E+00	4,7E-01
EET	[MJ]	-	-	-	-	-	-	-	-	-	-	2,1E+01	1,4E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy												

Not all of the life cycle inventories applied in this study support the methodological approach for the waste and water indicators. The data are based on publications of industry. The indicators for waste and water of the system are evaluated, but contain a higher degree of uncertainty.

[1] Scenario "I" = 100% Incineration'
[2] Scenario "L" = 100% Landfilling
The evaluation of best EoL-scenario requires the consideration of further aspects like avoidance of combustion of fossil fuels when incinerated and demand for landfilling when recycled.

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