ENVIRONMENTAL PRODUCT DECLARATION

as per /EN 16810/ and as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	ERFMI - European Resilient Flooring Manufacturers' Institute
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
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Valid to	04/03/2024

Polyvinyl chloride floorcoverings with enhanced slip resistance (Safety Flooring) according to EN 13845 ERFMI European Resilient Flooring Manufacturers' Institute



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ERFMI- European Resilient Flooring Manufacturers' Institute

Programme holder

IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany

Declaration number EPD-ERF-20180181-CCI1-EN

This declaration is based on the product category rules: Floor coverings, 02/2018

(PCR checked and approved by the SVR)

Issue date 05/03/2019

Valid to 04/03/2024

Wermanes

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

Gland Wall,

Dr. Alexander Röder (Head of Board IBU)

Polyvinyl chloride floorcoverings with enhanced slip resistance (Safety Flooring) according to EN 13845

Owner of the declaration

ERFMI vzw, European Resilient Flooring Manufacturers' Institute 24, Rue Montoyer B-1000 Brussels

Declared product / declared unit

1m² Polyvinyl chloride floorcoverings with enhanced slip resistance (Safety Flooring)

Scope:

In this EPD polyvinyl chloride floorcoverings with enhanced slip resistance (safety flooring) are declared. The application of this EPD is restricted to polyvinyl chloride floorcoverings with enhanced slip resistance (safety flooring) produced by the members of the European Resilient Flooring Manufacturers' Institute (ERFMI). Data are based upon production during 2017 in Europe. Data have been provided by 7 companies of ERFMI which represent 100% of ERFMI members.

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The standard /EN 15804/ serves as the core PCR Independent verification of the declaration and data according to /ISO 14025:2010/ internally x externally

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

Product

Product description / Product definition

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 plastics, linoleum, cork or rubber. 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.

Polyvinyl chloride floorcoverings with enhanced slip resistance (safety flooring) are based on polyvinyl chloride with a wear surface modified to provide sustainable enhanced slip resisting properties under specified conditions. The surface contains various aggregate or identifiable particles of different hardness which are present throughout the normal wear life of the product.

For the placing on the market of the product on the EU/EFTA (with exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. The product needs a Declaration of Performance taking into consideration /EN 14041: 2004/AC 2006 Resilient, textile and laminate floor coverings. Essential characteristics/and the CE-marking.

For the application and use the respective national provisions apply.

Application

According to /EN ISO 10874/ 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

The following table contains the construction data of the declared product group:

Constructional data

Name	Value	Unit
Product thickness	2	mm
Surface weight	2.8	kg/m²
Product Form	sheet	-

The data set out in the Declaration of Performance apply.

Base materials / Ancillary materials

The product group has the following composition:

- Additives 6%
- Filler 24%
- Plasticizer 18%
- Pigments <1%
- Polymers (PVC) 42%
- Auxiliaries 2%
- Lacquer <1%

LCA: Calculation rules

Declared Unit

1m² of floor covering.

Declared unit

Name	Value	Unit
Declared unit	1	m ²
Declared unit	2.8	kg/m²
Conversion factor to 1 kg	0.3571	-

The declaration refers to an average product from 6 production sites of ERFMI members. The data have been weighted according to the annual square meters produced by each site. The life cycle impact assessment is conducted based on the vertical average.

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 offcuts and adhesive for the installation of the floor covering, and incineration of offcuts 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 Flooring Recyclate (PVC) 7%

Reference service life

The service lifetime of a floor covering for a certain application on a floor is too widespread to give one common number. For this EPD model the reference service lifetime (RSL) is set to one year. This means that all impacts for the use phase are based on the cleaning and maintenance model for one year. Depending on the area of use based on /EN ISO 10874/, the technical lifetime advised by the manufacturer and the estimated time on the floor by the customer, the service lifetime can be determined. The use phase impacts should be calculated with the foreseen service life to arrive at the total environmental impact /EN 16810/.

ERFMI provides an online tool for the calculation of a specific service life on the ERFMI home page (www.erfmi.com) for the end-user.

results in this EPD are declared for a one-year usage.

Module C1 considers electricity supply for the deconstruction of the flooring.

Module C2 includes transportation of the postconsumer waste to waste processing.

End of life scenarios are declared for:

- 100% incineration in a waste incineration plant (WIP) (Scenario 1, C3/1)
- 100% landfilling (Scenario 2, C4/2)
- 100% recycling according to information from AgPR, (Arbeitsgemeinschaft PVC-Bodenbelag Recycling) (Scenario 3 - for the recycling scenario the end of waste state is reached after removal from the building)

Module D includes potential 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.

As background database /GaBi ts/ is used.

LCA: Scenarios and additional technical information

The following technical information is a basis for the declared modules

Name	Value	Unit
Transport distance	2000	km
Capacity utilisation (including empty	85	%

Transport to the construction site (A4)



runs)

Installation in the building (A5)

Name	Value	Unit
Material loss (installation waste)	6	%
Auxiliary (adhesive)	0.3	kg
Biogenic carbon incorporated in the p	ackaging	material

is released as CO_2 emissions in module A5.

Maintenance (B2)

Name	Value	Unit	
Water consumption	0.003	m ³	
Electricity consumption	0.55	kWh	
Maintenance cycle (vacuum cleaning	156	number/	
& wet cleaning)	150	а	
Auxiliary (detergent)	0.04	kg	

End of Life (C1-C4)

Name	Value	Unit
Energy recovery [100%, Scenario 1]	2.8	kg
Landfilling [100%, Scenario 2]	2.8	kg
Recycling [100%, Scenario 3]	2.8	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

For module D the potential benefits 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.

ERFMI provides an online tool for this calculation on the ERFMI home page (www.erfmi.com) for the end-user.

Scenario 1 applies to 100% incineration. Scenario 2 applies to 100% landfilling. Scenario 3 applies to 100% recycling.

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EP		0 ₄) ³ -Eq.]	2.58E-		5E-4	3.20E-4	9.38E		3.31E-6	1.42E-5	2.12		5.47E-4	-2.65E-4			-1.86E-5
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PER PENR PENR PENR SM RSF NRSI FW Caption RESU 1 m ² p Paramo HWE NHW RWE CRL MFF MEF	T [RE [RE [RT [RT [RT [RT [RT [RT [RT] RE [RE [RE [RE [RE] RE [RE [RE] RE] RE [RE] RE	MJ MJ MJ MJ MJ MJ MJ MJ Wable pron-rene MJ MJ Mathematic pron-rene Kg] [Kg] [Kg]	125.72 39.30 165.02 5.09E-2 IND IND 5.31E-2 Use of re rimary en wable pri rimary en NO IND IND IND IND IND	3.66 0.00 3.66 INE 3.66 ergy res margy res ; RSF = - OU floor 4.08 3.01 E 4.92 E 3.01 E 4.92 INE INE	-7 4 -7 4 -7 4 -7 4 -7 4 -7 4 -7 4 -7 4	20.71 -0.13 20.57 3.25E-3 IND IND IND 3.84E-3 Y energy used as ccluding r a used as renewab FLOW ing with A5 J.91E-7 .73E-1 .11E-4 IND IND IND IND IND IND IND IND	5.13 0.00 5.13 0.00E+C IND IND 2.47E-3 excludin raw mate le secon /S ANI h enha B2 2.43E-9 8.38E-3 7.02E-4 IND IND	(((((((((((((((((((0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.02	0.02 0.35 0.00 0.35 0.00E+0 IND 1ND 3.58E-5 rimary ene Total use energy re: = Total use = Total u	1.22 46.53 -39.3 7.25 0.00E IND IND 1.32E ergy resc of non-resc Sources see of non-resc ORIES 1.22E 2.46E 2.46E 2.46E 2.46E 1.ND IND IND IND IND	5 0 +0 0 -2 -7 ources i vable pi used a: -renew enewate -renewate -rene	2.95 0.00 2.95 0.00E+0 IND IND 7.58E-6 used as r rimary er s raw ma rable prin ple secon m ²) C4/2 1.26E-8 .78E+0 .19E-5 IND IND IND IND IND IND	-26.91 0.00 -26.91 0.00E+0 IND -6.17E-3 raw mate hergy resident for the hergy resident for	-1.3 0.0 -1.1 0.000 IN S; FW = IN IN IN IN IN IN IN IN	32 38 30 38 E+0 D D 3E-4 PENRI F Use c Use c Use c 2 E-10 E-10 E-4 D D D 2 C 2 D 0 0 0 0 0 0 0 0 0 0 0 0 0	-1.88 0.00 -1.88 2.74E+0 IND IND -4.38E-4 Use of E = Use of of non- SM = Use f net fresh D/3 -7.52E-10 -7.43E-4 -1.41E-4 IND 2.80 IND
PER PENR PENR SM RSF NRSI FW Caption RESU 1 m² I Parame HWE NHW RWE CRU CRU	T [RE [M [RT] F [F] F [N renew of se ILTS (D] D] Z] R [C] C] C] C] C] C] C] C]	MJ PERE = wable proon-rene wable proon-rene wable proon-rene wable proon-rene Wable to the total	125.72 39.30 165.02 5.09E-2 IND IND IND 5.31E-2 Use of re imary en wable pri imary en / material IE LCA hloride A1-A3 7.06E-6 3.27E-1 4.58E-3 IND IND IND IND IND	3.66 0.00 3.66 INE 3.66E ergy res mary er ergy res ; RSF = ; RSF = 0 100 100 100 100 100 100 100 100 100		20.71 -0.13 20.57 3.25E-3 IND IND IND IND S.84E-3 y energy used as ccluding r used as renewab FLOW ing with A5 	5.13 0.00 5.13 0.00E+0 IND 2.47E-3 excludin raw mate non-rene raw mate le secon /S ANI h enha B2 2.43E-9 8.38E-3 7.02E-4 IND IND IND	C (((((((((((((((((((0.23 0.00 0.23 0.00 0.23 0.00 0.23 0.02	0.02 0.35 0.00 0.35 0.00E+0 IND IND 3.58E-5 rimary energy res = Total use energy res = Total use energy res = Total use er C2 2.04E-8 2.95E-5 4.82E-7 IND IND IND IND IND	1.22 46.54 -39.3 7.25 0.00E IND 1.32E ergy resc of renew sources te of non-re DRIES 1.02 (2. 2.3/4 4.54E 2.84E 2.84E 2.84E 1.ND IND IND 5.85 5.85 13.80	5 0 +0 0 -2 -7 ources t vable p used as renewat enewat : 8 kg/ -8 1 +0 2 -4 4	2.95 0.00 2.95 1ND 1ND 1ND 1ND 7.58E-6 used as r rimary er s raw ma able prin ble secon m ²) C4/2 1.26E-8 .78E+0 1.19E-5 IND IND IND IND IND IND IND IND	-26.91 0.00 -26.91 0.00E+0 IND IND -6.17E-3 raw mate hergy ress terials; P nary ener idary fuel D/1 -1.07E-8 -1.05E-2 -1.99E-3 IND IND IND IND IND IND IND IND	-1.1 0.0 -1.1 0.000 IN IN 6 4.38 rials; PE burces; f ENRM = gy reso. s; FW = D/ 6 -7.522 -7.43 6 -1.41 IN IN IN	32 38 30 54 54 54 54 54 54 54 54 54 54	-1.88 0.00 -1.88 2.74E+0 IND IND 4.38E-4 Use of E = Use of of non- SM = Use f net fresh D/3 -7.52E-10 -7.43E-4 -1.41E-4 IND 2.80



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Institut Bauen und Umwelt e.V.	Publisher Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	Tel Fax Mail Web	+49 (0)30 3087748- 0 +49 (0)30 3087748- 29 info@ibu-epd.com www.ibu-epd.com
Institut Bauen und Umwelt e.V.	Programme holder Institut Bauen und Umwelt e.V. Panoramastr 1 10178 Berlin Germany	Tel Fax Mail Web	+49 (0)30 - 3087748- 0 +49 (0)30 - 3087748 - 29 info@ibu-epd.com www.ibu-epd.com
thinkstep	Author of the Life Cycle Assessment thinkstep AG Hauptstrasse 111- 113 70771 Leinfelden-Echterdingen Germany	Tel Fax Mail Web	+49 711 341817-0 +49 711 341817-25 info@thinkstep.com http://www.thinkstep.com
ERFMI EUROPEAN RESILIENT FLOORING MANUFACTURERS'INSTITUTE	Owner of the Declaration ERFMI vzw, European Resilient Flooring Manufacturers' Institute Rue Montoyer 24 1000 Brussels Belgium	Tel Fax Mail Web	+ 32 2 2 87 08 72 info@erfmi.com www.erfmi.com