

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	Vorwerk & Co. Teppichwerke GmbH & Co.KG
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-VOR-20140050-CBD1-EN
Issue date	03.07.2014
Valid to	02.07.2019

RE/COVER green

Resilient polyurethane floor covering

Vorwerk Teppichwerke

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



General Information

Vorwerk Teppichwerke

Programme holder

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

Declaration number

EPD-VOR-20140050-CBD1-EN

This Declaration is based on the Product Category Rules:

Floor coverings, 07-2012
(PCR tested and approved by the independent expert committee)

Issue date

03.07.2014

Valid to

02.07.2019

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

Dr. Burkhard Lehmann
(Managing Director IBU)

RE/COVER green

Resilient polyurethane floor covering

Owner of the Declaration

Vorwerk & Co. Teppichwerke GmbH & Co.KG
Kuhlmannstraße 11
31785 Hameln
Germany

Declared product / Declared unit

1 m² resilient floor covering "RE/COVER green"

Scope:

The declaration applies to the resilient floor covering "RE/COVER green".

The product is available in the designs

- RE/COVER green (rolls)
- RE/COVER green PARTS (planks)

It is manufactured at the Windmüller Polymer Technologie (WPT) site in Detmold, Germany. Cutting of planks take place at the windmüller flooring products site in Augustdorf, Germany.

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.

Verification

The CEN Norm EN 15804 serves as the core PCR

Independent verification of the declaration according to ISO 14025

internally externally

Dr. Eva Schmincke
(Independent tester appointed by SVA)

Product

Product description

"RE/COVER green" - resilient floor covering based on polyurethane is produced with the reactive component castor oil as renewable raw material and with natural inorganic filler.

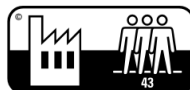
"RE/COVER green" is available in many different decors and textures and it is offered

- as rolls - RE/COVER green
- as planks - RE/COVER green PARTS.

Application

According to the use class as defined in ISO 10874 the product can be used

- in all domestic areas, classified as "use class 23",
- in all commercial areas, classified as "use class 34"
- in all industrial areas, classified as "use class 43"



Technical Data

Name	Value	Unit
Product Form RE/COVER green	Rolls	-
Product form RE/COVER green PARTS	Planks	-
Product thickness	2.5	mm
Total weight RE/COVER green	3.6	kg/m ²
Total weight RE/COVER green PARTS	3.9	kg/m ²

Additional product properties and performance ratings can be found in the technical information provided by Vorwerk Teppichwerke (www.vorwerk-teppich.de).

Base materials / Ancillary materials

Average product

Name	Value	Unit
Polyurethane including 50 % renewable material	49.3	%
Filler	45.7	%
Paper	1.8	%
Glass fibre	0.8	%
Polyester	2.4	%

The declared recipes are conform with the REACH candidate list from December 16th 2013 and do not contain listed REACH substances.

Reference service life

The service life of resilient floor coverings depends on the correct installation and the adherence to cleaning and maintenance instructions.

A minimum service life of 20 years can be assumed /BNB/, technical service life can be considerably longer.

The use stage refers to 1 year installed floor covering. Module B1 indicates the impact from emissions during the whole service life (see calculation rules, B1 Use).

The figures in module B2 have to be multiplied with the assumed service life of the floor covering.

LCA: Calculation rules

Declared Unit

Average product

Name	Value	Unit
Declared unit	1	m ²
Conversion factor to 1 kg	0.27	-
Mass reference	3.75	kg/m ²

System boundary

Type of EPD: Cradle to grave

System boundaries of modules A, B, C, D:

A1-A3 Production:

Energy supply and production of the basic material, processing of secondary material (waste paper/packaging), auxiliary material, transport of the material to the manufacturing site, emissions, waste water treatment, packaging material and waste processing up to the landfill disposal of residual waste (except radioactive waste). Credits for electricity and steam from the incineration of production waste are aggregated.

A4 Transport:

Transport of the packed floor covering from factory gate to the place of installation.

A5 Installation:

Installation of the floor covering, production and transport of auxiliary material, waste processing up to the landfill disposal of residual waste (except radioactive waste), the production of the amount of floor covering that occurs as installation waste incl. its transport to the place of installation. Credits for electricity and steam from the incineration of packaging and installation waste leave the product system.

B1 Use:

Indoor emissions during the use stage are considered. After the first year of use no product related VOC emissions are relevant due to VOC decay curves of the product.

B2 Maintenance:

Cleaning of the floor covering for a period of 1 year: Wet cleaning/automatic scubber – electricity, water consumption, production of the cleaning agent, waste water treatment.

The declared values in this module have to be multiplied with the assumed service life of the floor covering in the building considered.

B3 - B7:

The modules are not relevant and therefore not declared.

C1 De-construction:

Energy supply for the de-construction machine.

C2 Transport:

Transport to a landfill or to the municipal waste incineration plant (MWI).

C3 Waste processing:

C3, C3/1: Landfill and waste incineration need no waste processing.

C4 Disposal

C4, C4/1: Impact from landfill and from waste incineration (credits leave the system boundaries).

D Recycling potential:

D, D/1: Energy credits from landfill and from waste incineration (processing with < 60% efficiency).

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 information refers to the declared modules and is the basis for calculations or can be used for further calculations. All indicated values refer to the declared functional unit.

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-5 mix)	0.0072	l/m ² *100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%

Installation in the building (A5)

Name	Value	Unit
Auxiliary (adhesive)	0.4	kg
Material loss	0.15	kg

Seams are heat-sealed.

Pure cardboard packaging waste leaves the system for recycling, coated paper waste and installation waste are considered to be recovered in a municipal incineration plant.

Maintenance (B2)

Name	Value	Unit
Maintenance cycle (wet wiping, automatic scubber)	235	1/year
Water consumption	0.069	m ³
Cleaning agent, 19% solution	0.1983	kg
Electricity consumption	0.085	kWh

Domestic, commercial and industrial use are taken into account by a third each.

Further information on cleaning and maintenance see www.vorwerk-teppichboden.de

End of Life (C1-C4)

Two different end-of-life (EOL) scenarios are declared and the results are indicated separately in module C. Each scenario is calculated as a 100% scenario.

Scenario 1 (C3/1, C4/1) : 100% landfill

Scenario 2 (C3/2, C4/2) : 100% municipal waste incineration (MWI)

If combinations of these scenarios have to be calculated this should be done according to the following scheme:

EOL-impact = x% impact (Scenario 1)
+ y% impact (Scenario 2)

Name	Value	Unit
Collected as mixed construction waste (scenario 1 and 2)	3.75	kg
Landfilling (scenario 1)	3.75	kg
Energy recovery (scenario 2)	3.75	kg

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

The recovery potentials due to the two end-of-life scenarios are indicated separately:

Module D/1 - recovery potential from landfill,

module D/2 - recovery potential from incineration

LCA: Results

Information on undeclared modules:

Modules B3 - B7 are not relevant during the service life of the floor covering and are therefore not declared.
Module C2 represents the transport for scenario 1 and scenario 2.

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 BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement ⁽¹⁾	Refurbishment ⁽¹⁾	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	X	X	X	X	MND	MND	MND	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 m² floorcovering

Parameter	Unit	A1 - A3	A4	A5	B1	B2	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
GWP	[kg CO ₂ -Eq.]	3.65E+0	1.57E-1	5.64E-1	0.0E+0	4.99E-1	7.78E-3	8.77E-3	0.0E+0	0.0E+0	8.37E+0	4.49E+0	-2.09E-1	-2.66E+0
ODP	[kg CFC11-Eq.]	7.36E-8	7.5E-13	2.9E-8	0.0E+0	1.46E-8	5.3E-12	4.19E-14	0.0E+0	0.0E+0	7.2E-12	4.9E-9	-1.4E-10	-1.51E-9
AP	[kg SO ₂ -Eq.]	2.47E-2	7.22E-4	2.42E-3	0.0E+0	1.06E-3	3.67E-5	4.03E-5	0.0E+0	0.0E+0	1.04E-3	1.97E-3	-9.83E-4	-1.08E-2
EP	[kg (PO ₄) ³⁻ -Eq.]	4.95E-3	1.65E-4	8.65E-4	0.0E+0	7.5E-4	2.07E-6	9.24E-6	0.0E+0	0.0E+0	4.82E-3	4.83E-4	-5.54E-5	-6.32E-4
POCP	[kg Ethen Eq.]	6.08E-3	-2.57E-4	4.44E-4	3.14E-6	1.35E-4	2.18E-6	-1.43E-5	0.0E+0	0.0E+0	1.22E-3	1.35E-4	-5.85E-5	-6.86E-4
ADPE	[kg Sb Eq.]	3.48E-5	5.91E-9	2.51E-6	0.0E+0	6.52E-7	1.08E-9	3.3E-10	0.0E+0	0.0E+0	3.97E-8	-4.69E-7	-2.89E-8	-3.21E-7
ADPF	[MJ]	115	2.16	10.4	0	3.44	0.088	0.121	0	0	2.67	1.88	-2.37	-32.4

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: 1 m² floorcovering

Parameter	Unit	A1 - A3	A4	A5	B1	B2	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
PERE	[MJ]	2.177E+1	8.52E-2	4.61E+0	0.0E+0	2.45E-1	2.53E-2	4.76E-3	0.0E+0	0.0E+0	1.49E-1	3.27E-2	-6.78E-1	-7.2E+0
PERM	[MJ]	35.43	0	0	0	0	0	0	0	0	0	0	0	0
PERT	[MJ]	5.72E+1	8.52E-2	4.61E+0	0.0E+0	2.45E-1	2.53E-2	4.76E-3	0.0E+0	0.0E+0	1.49E-1	3.27E-2	-6.78E-1	-7.2E+0
PENRE	[MJ]	103.118	2.17	11.8	0	4.03	0.138	0.121	0	0	2.8	2.23	-3.71	-46.6
PENRM	[MJ]	20.882	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	[MJ]	124	2.17	11.8	0	4.03	0.138	0.121	0	0	2.8	2.23	-3.71	-46.6
SM	[kg]	0.068	0	0	0	0	0	0	0	0	0	0	0	0
RSF	[MJ]	6.9E-3	1.39E-5	3.71E-4	0.0E+0	4.69E-4	2.89E-6	7.78E-7	0.0E+0	0.0E+0	2.25E-3	1.78E-5	-7.74E-5	-8.83E-4
NRSF	[MJ]	7.2E-2	1.46E-4	3.87E-3	0.0E+0	4.64E-3	3.02E-5	8.15E-6	0.0E+0	0.0E+0	4.98E-3	1.69E-4	-8.11E-4	-9.24E-3
FW	[m ³]	7.01E+0	8.11E-3	1.11E+0	0.0E+0	5.18E-1	3.01E-2	4.53E-4	0.0E+0	0.0E+0	1.06E-1	9.98E-2	-8.07E-1	-8.56E+0

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: 1 m² floorcovering

Parameter	Unit	A1 - A3	A4	A5	B1	B2	C1	C2	C3/1	C3/2	C4/1	C4/2	D/1	D/2
HWD	[kg]	1.21E-5	0.0E+0	4.75E-7	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0
NHWD	[kg]	8.92E+0	7.64E-3	6.912E-1	0.0E+0	3.2E-1	3.07E-2	4.27E-4	0.0E+0	0.0E+0	2.85E+0	1.12E+0	-8.22E-1	-8.72E+0
RWD	[kg]	2.95E-3	2.84E-6	2.55E-4	0.0E+0	1.4E-4	1.99E-5	1.59E-7	0.0E+0	0.0E+0	5.06E-5	1.17E-4	-5.35E-4	-5.67E-3
CRU	[kg]	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	[kg]	6.4E-4	0.0E+0	7.71E-2	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0
MER	[kg]	0	0	0	0	0	0	0	0	0	0	0	0	0
EEE	[MJ]	0	0	-0.258	0	0	0	0	0	0	-1.58	-16.7	0	0
EET	[MJ]	0	0	-0.61	0	0	0	0	0	0	0	-6.08	0	0

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; EEE = Exported thermal energy

The declared result figures in module B2 have to be multiplied by the assumed service time (in years) of the floor covering in the building considered.

References

Institut Bauen und Umwelt

Institut Bauen und Umwelt e.V., Berlin (pub.):
Generation of Environmental Product Declarations
(EPDs);

General principles

for the EPD range of Institut Bauen und Umwelt e.V.
(IBU), 2013-04
www.bau-umwelt.de

PCR Part A

Institut Bauen und Umwelt e.V., Königswinter (pub.):
Product Category Rules for Construction Products
from the range of Environmental Product Declarations
of Institut Bauen und Umwelt (IBU), Part A: Calculation
Rules for the Life Cycle Assessment and
Requirements on the Background Report. April 2013
www.bau-umwelt.de

ISO 14025

DIN EN ISO 14025:2011-10: Environmental labels and
declarations — Type III environmental declarations —
Principles and procedures

EN 15804

EN 15804:2012-04: Sustainability of construction
works — Environmental Product Declarations — Core
rules for the product category of construction products

PCR 2011, Part B

Institut Bauen und Umwelt e.V., Königswinter (pub.):
Product Category Rules for Construction Products
from the range of Environmental Product Declarations
of Institut Bauen und Umwelt (IBU),
Part B: Requirements on the EPD for floor coverings,
V1.3, April 2013
www.bau-umwelt.de

EN 14041

DIN EN 14041: 2008-05: Resilient, textile and laminate
floor coverings

ISO 10874

DIN EN ISO 10874: 2012-04: Resilient, textile and
laminate floor coverings - Classification

BNB:

Bundesinstitut für Bau-, Stadt- und Raumforschung im
Bundesamt für Bauwesen und Raumforschung:
Nutzungsdauern von Bauteilen für
Lebenszyklusanalysen nach Bewertungssystem
Nachhaltiges Bauen, Stand 11/2011

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