

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-20140144-CBC1-EN
Issue date	28.11.2014
Valid to	27.11.2019

Woven carpet

*Pile material 800-900 g/m² polyamide 6,
finish*

Vorwerk Teppichwerke

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



General Information

Vorwerk Teppichwerke

Programme holder

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

Declaration number

EPD-VOR-20140144-CBC1-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

28.11.2014

Valid to

29.11.2019

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

Dr. Burkhard Lehmann
(Managing Director IBU)

Woven carpet

Pile material 800-900 g/m² PA 6,
finish

Owner of the Declaration

Vorwerk und Co Teppichboden GmbH & Co.KG
Kuhlmannstraße 11
31785 Hameln
Germany

Declared product / Declared unit

1 m² woven carpet,
pile material 800-900 g/m² PA6, finish

Scope:

The declaration applies to a group of similar products with a pile material of 800-900 g/m².

It is only valid in conjunction with a valid PRODIS licence.

The carpet is produced in the Vorwerk manufacturing site Hameln, 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

Woven broadloom carpet having a surface pile of polyamide 6, hank dyed, and a transparent finish. The declaration applies for a group of products with a total pile material weight of 800-900 g/m². The calculations refer to the average pile material of 850 g/m².

Application

According to the use class as defined in EN 1307 the products can be used in professional area. The use class of the product can be found on the Product Information System (PRODIS) using the PRODIS registration number of the product (www.pro-dis.info).

Technical Data

of the average product according to EN 1307

Name	Value	Unit
Product Form	Rolls of 2 m width	-
Type of manufacture	Woven loop pile carpet	-
Yarn type	PA 6	-
Secondary backing	Finish	-
Total pile weight	800-900	g/m ²
Total carpet weight	up to 1950	g/m ²

Additional product properties and performance ratings according to EN 1307 can be found on PRODIS using the registration number of the product (www.pro-dis.info) or on the manufacturer's technical information section (www.vorwerk-teppich.com)

Base materials / Ancillary materials

Name	Value	Unit
Polyamide 6	44.7	%
Polyester	19.7	%
Polypropylene	11.7	%
Ethyl-vinyl-acetate	16.3	%
Aluminiumhydroxide	6.2	
Additives	1.4	%

Reference service life

The service life of textile floorcoverings strongly depends on the correct installation taking into account the declared use classification and the adherence to cleaning and maintenance instructions.

A minimum service life of 10 years can be assumed, technical service life can be considerably longer.

LCA: Calculation rules

Declared Unit

Name	Value	Unit
Declared unit	1	m ²
Conversion factor to 1 kg (average product)	0.53	kg/m ²
Mass reference (average product)	1.9	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, 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 textile floorcovering from factory gate to the place of installation.

A5 Installation:

Installation of the textile floorcovering, 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 carpet 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. After the first year no product related VOC emissions are relevant due to known VOC decay curves of the product.

B2 Maintenance:

Cleaning of the textile floor covering for a period of 1 year:

Vacuum cleaning – electricity supply

Wet cleaning – 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:

The floorcovering is de-constructed manually and no additional environmental impact is caused.

C2 Transport:

Transport of the carpet waste to a landfill, to the municipal waste incineration plant (MWI) or to the waste collection facility for recycling.

C3 Waste processing:

C3-1, C3-2: Landfill and waste incineration need no waste processing.

C3-3: Collection of the carpet waste, waste processing (granulating).

C4 Disposal

C4-1, C4-2: Impact from landfill or from waste incineration (credits leave the system boundaries), C4-3: The pre-processed carpet waste leaves the system and needs no disposal.

D Recycling potential:

D-1, D-2: Energy credits from landfill and from waste incineration (processing with < 60% efficiency), D-3: Transport from the reprocessing plant to the cement plant, substitution of material and fuel input in the cement kiln (energetic and substance related credits).

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)	0.0079	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	380	kg/m ³

Installation in the building (A5)

Name	Value	Unit
Auxiliary (adhesive)	0.4	kg
Material loss	0.17	kg

Cardboard waste (packaging material) leaves the system for recycling. PE-foil (packaging material) and installation waste are considered to be incinerated in a municipal waste incineration plant.

Maintenance (B2)

Name	Value	Unit
Maintenance cycle (wet cleaning)	1.5	1/year
Maintenance cycle (vacuum cleaning)	208	1/year
Water consumption (wet cleaning)	0.004	m ³
Cleaning agent (wet cleaning)	0.09	kg
Electricity consumption	0.314	kWh

Further information on cleaning and maintenance see www.vorwerk-teppich.com

End of Life (C1-C4)

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

Scenario 1: 100% landfill

Scenario 2: 100% municipal waste incineration (MWI)

Scenario 3: 100% recycling in the cement industry

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

$$\begin{aligned} \text{EOL-impact} &= x\% \text{ impact (Scenario 1)} \\ &+ y\% \text{ impact (Scenario 2)} \\ &+ z\% \text{ impact (Scenario 3)} \end{aligned}$$

Name	Value	Unit
Collected as mixed construction waste (scenario 1 and 2)	1.9	kg
Collected separately (scenario 3)	1.9	kg
Landfilling (scenario 1)	1.9	kg
Energy recovery (scenario 2)	1.9	kg
Energy recovery (scenario 3)	1.8	kg
Recycling (scenario 3)	0.1	kg

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

The recovery or recycling potentials due to the three end-of-life scenarios (module C) are indicated separately.

Recycling in the cement industry (scenario 3) /VDZ e.V./

The organic material of the carpet is used as secondary fuel in a cement kiln. It mainly substitutes for lignite (63.2%), hard coal (27.7%) and petrol coke (9.1%).

The inorganic material is substantially integrated in the cement clinker and substitutes for original material input.

LCA: Results

Information on un-declared modules:

Modules B3 - B7 are not relevant during the service life of the carpet and are therefore not declared.

Module C1 causes no additional impact (see "LCA: Calculation rules", "C1 De-construction") and is therefore not declared.

Module C2 represents the transport for scenarios 1, 2 and 3.

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	MND	X	X	X	X	

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 m² floorcovering

Parameter	Unit	A1 - A3	A4	A5	B1	B2	C2	C3/1	C3/2	C3/3	C4/1	C4/2	C4/3	D/1	D/2	D/3
GWP	[kg CO ₂ -Eq.]	13.20	0.08	1.79	0.00	0.35	4.00E-3	0.00	0.00	0.01	4.24	4.21	0.00	-0.11	-1.83	-0.29
ODP	[kg CFC11-Eq.]	3.54E-8	3.8E-13	2.9E-8	0.00E+0	9.60E-9	2.1E-14	0.00E+0	0.00E+0	8.6E-12	3.7E-12	3.4E-10	0.00E+0	-7.2E-11	-5.1E-10	-4.4E-12
AP	[kg SO ₂ -Eq.]	2.70E-2	3.65E-4	4.22E-3	0.00E+0	1.67E-3	2.04E-5	0.00E+0	0.00E+0	5.91E-5	5.27E-4	4.47E-3	0.00E+0	-4.98E-4	-4.34E-3	-1.59E-3
EP	[kg (PO ₄) ³⁻ -Eq.]	4.05E-3	8.35E-5	1.12E-3	0.00E+0	2.78E-4	4.68E-6	0.00E+0	0.00E+0	3.33E-6	2.44E-3	8.98E-4	0.00E+0	-2.81E-5	-3.05E-4	-1.14E-4
POCP	[kg Ethen Eq.]	4.45E-3	-1.30E-4	6.12E-4	1.11E-4	2.43E-4	-7.27E-6	0.00E+0	0.00E+0	3.51E-6	6.19E-4	2.34E-4	0.00E+0	-2.96E-5	-3.70E-4	-1.85E-4
ADPE	[kg Sb Eq.]	4.69E-4	2.98E-9	4.26E-5	0.00E+0	8.04E-7	1.7E-10	0.00E+0	0.00E+0	1.73E-9	2.01E-8	3.28E-7	0.00E+0	-1.46E-8	-1.40E-7	-1.65E-8
ADPF	[MJ]	264.00	1.09	29.30	0.00	7.05	0.06	0.00	0.00	0.14	1.36	3.19	0.00	-1.20	-26.20	-48.60

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	C2	C3/1	C3/2	C3/3	C4/1	C4/2	C4/3	D/1	D/2	D/3
PERE	[MJ]	12.50	0.04	3.47	0.00	0.56	2.00E-3	0.00	0.00	0.04	0.08	0.18	0.00	-0.34	-2.41	-0.13
PERM	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	[MJ]	12.50	0.04	3.47	0.00	0.56	2.00E-3	0.00	0.00	0.04	0.08	0.18	0.00	-0.34	-2.41	-0.13
PENRE	[MJ]	229.40	1.10	31.50	0.00	8.34	0.06	0.00	0.00	0.22	1.42	3.47	0.00	-1.88	-30.90	-48.80
PENRM	[MJ]	47.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	[MJ]	277.00	1.10	31.50	0.00	8.34	0.06	0.00	0.00	0.22	1.42	3.47	0.00	-1.88	-30.90	-48.80
SM	[kg]	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	[MJ]	3.97E-3	7.03E-6	4.50E-4	0.00E+0	8.37E-5	3.94E-7	0.00E+0	0.00E+0	4.65E-6	1.14E-3	1.92E-4	0.00E+0	-3.92E-5	-4.25E-4	-4.42E-5
NRSF	[MJ]	4.16E-2	7.36E-5	4.59E-3	0.00E+0	8.60E-4	4.13E-6	0.00E+0	0.00E+0	4.87E-5	2.52E-3	7.05E-4	0.00E+0	-4.11E-4	-4.45E-3	-4.64E-4
FW	[m ³]	1.65E+1	4.10E-3	2.30E+0	0.00E+0	9.80E-1	2.30E-4	0.00E+0	0.00E+0	4.85E-2	5.35E-2	1.72E-1	0.00E+0	-4.09E-1	-2.87E+0	-1.52E-1

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	C2	C3/1	C3/2	C3/3	C4/1	C4/2	C4/3	D/1	D/2	D/3
HWD	[kg]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NHWD	[kg]	4.500E-3	0.00E+0	3.970E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RWD	[kg]	5.120E-3	1.440E-6	5.980E-4	0.00E+0	3.830E-4	8.050E-8	0.00E+0	0.00E+0	3.210E-5	2.560E-5	1.080E-4	0.00E+0	-2.71E-4	-1.90E-3	-8.60E-5
CRU	[kg]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MFR	[kg]	0.307	0.000	0.052	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MER	[kg]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EEE	[MJ]	0.000	0.000	0.526	0.000	0.000	0.000	0.000	0.000	0.000	0.801	5.400	0.000	0.000	0.000	0.000
EET	[MJ]	0.035	0.000	1.450	0.000	0.000	0.000	0.000	0.000	0.000	0.000	14.900	0.000	0.000	0.000	0.000

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

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General principles

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PCR Part A

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Rules for the Life Cycle Assessment and
Requirements on the Background Report. April 2013
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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+A1 2013: 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.):
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V1.5, October 2013
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EN 1307

DIN EN 1307: 2014-07: Textile floor coverings -
Classification

EN 14041

DIN EN 14041: 2008-05: Resilient, textile and laminate
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ISO 10874

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

EN 13501-1:

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Classification using data from reaction to fire tests

VDZ e.V.:

Umweltdaten der deutschen Zementindustrie 2012

**Publisher**

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

Tel +49 (0)30 3087748- 0
Fax +49 (0)30 3087748- 29
Mail info@bau-umwelt.com
Web www.bau-umwelt.com

**Programme holder**

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

Tel +49 (0)30 - 3087748- 0
Fax +49 (0)30 – 3087748 - 29
Mail info@bau-umwelt.com
Web www.bau-umwelt.com

**Author of the Life Cycle Assessment**

Gemeinschaft umweltfreundlicher
Teppichboden (GUT) e.V.
Schönebergstraße 2
52068 Aachen
Germany

Tel +45 (0)241 96843 410
Fax +45 (0)241 96843 400
Mail mail@gut-ev.de
Web www.gut-ev.org

**Owner of the Declaration**

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

Tel +49 (0)5151 103 0
Fax +49 (0)5151 103 377
Mail info@vorwerk-teppich.de
Web www.vorwerk-teppich.de