

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	Gemeinschaft umweltfreundlicher Teppichboden e.V. (GUT)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-GUT-20160118-CCA1-EN
Issue date	20.07.2016
Valid to	19.07.2021

Tufted broadloom carpet - luxury class LC1-LC5
- with 1200 g/m² maximum surface pile weight -
pile material made of polyamide 6.6,
textile backing

**Gemeinschaft umweltfreundlicher
Teppichboden e.V. (GUT)**

www.ibu-epd.com / <https://epd-online.com>



General Information

Gemeinschaft umweltfreundlicher Teppichboden e.V.

Programme holder

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

Declaration number

EPD-GUT-20160118-CCA1-EN

This Declaration is based on the Product Category Rules:

Floor coverings, 07.2014
(PCR tested and approved by the SVR)

Issue date

20.07.2016

Valid to

19.07.2021

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

Dr. Burkhard Lehmann
(Managing Director IBU)

Tufted PA 6.6 broadloom carpet luxury class LC1-LC5

1200 g/m² max. surface pile weight,
pile material made of PA 6.6,
textile backing

Owner of the Declaration

Gemeinschaft umweltfreundlicher Teppichboden e.V.
Schönebergstraße 2
52068 Aachen
Germany

Declared product / Declared unit

1 m² tufted broadloom carpet, luxury class LC1-LC5,
pile material made of PA 6.6, textile backing.

Scope:

The declaration applies to a group of similar products in luxury class LC1-LC5 (max. 1200 g/m² surface pile weight).

It is only valid in conjunction with a valid GUT/PRODIS license.

Average construction elements and data for the production processes are based on data provided by European member companies of Gemeinschaft umweltfreundlicher Teppichboden e.V. The declared product represents a group of products having the characteristics as described in the EPD.

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

Angela Schindler
(Independent verifier appointed by SVR)

Product

Product description

Tufted broadloom carpet having a pile material of polyamide 6.6 and a textile backing. Coloring and design of the use layer may be achieved by aqueous dyeing methods or by using solution dyed yarns.

The calculations refer to average construction data based on data provided by member companies of Gemeinschaft umweltfreundlicher Teppichboden e.V. The data represent a significant market share.

The declaration applies to products in luxury classes LC1 to LC5 with 1200 g/m² as the maximum surface pile weight.

LCA values mentioned in this report (see table 'LCA: Results') refer to LC5 with a maximum surface pile weight of 1200 g/m². More specific LCA results of

products in luxury classes LC1 to LC4 can be taken from the tables of the corresponding annex. These values always refer to the highest surface pile weight of the corresponding luxury class. Results for similar products with any other surface pile weight can be calculated by using equation 1 given in the annex (see annex chapter: 'General Information on the annex').

Application

The use class of the specific product as defined in /EN 1307/ can be found in the Product Information System (PRODIS) using the PRODIS registration number of the product.

Technical Data

Name	Value	Unit
Product Form	Broadloom carpet	-
Type of manufacture	Tufted carpet	-
Yarn type	Polyamide 6.6	-
Secondary backing	Textile backing	-
Surface pile weight	max. 1200	g/m ²
Total carpet weight	2600	g/m ²

Additional product properties and performance ratings according to /EN 14041/ and /EN 1307/ can be found on the Product Information System (PRODIS) using the PRODIS registration number of the product (www.pro-dis.info).

Base materials / Ancillary materials

Luxury class LC5, surface pile weight 1200 g/m²

Name	Value	Unit
Polyamide 6.6	55.8	%
Polyester	3.8	%
Polypropylene	3.8	%
Limestone	12.5	%
Aluminiumhydroxide	14.0	%
SBR-latex	9.5	%
Additives	0.6	%

For luxury classes LC1 to LC4 see annex.

The products are registered in the GUT-PRODIS Information System. The PRODIS system ensures the compliance with limitations of various chemicals and VOC-emissions and a ban on use of all substances that are listed as 'Substances of Very High Concern' (SVHC) under REACH.

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 (LC5)	0.38	m ² /kg
Mass reference (LC5)	2.6	kg/m ²

The declared unit refers to 1 m² produced textile floor covering. Output of module A5 'Assembly' is 1 m² installed textile floor covering.

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 by the assumed service life of the floor covering in the building considered (see annex, chapter: 'Information on use stage').

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: Landfill disposal need no waste processing.
- C3-2: Waste incineration need no waste processing.
- C3-3: Collection of the carpet waste, waste processing (granulating).

C4 Disposal

- C4-1: Impact from landfill disposal,
- C4-2: Impact 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-A5: Energy credits from waste incineration of packaging and installation waste (incineration plant with R1<0.6),
- D-1: Energy credits from landfill disposal of carpet waste at the end-of-life,

D-2: Energy credits from waste incineration of carpet waste at the end-of-life (incineration plant with R1<0.6),

D-3: Energetic and substance related credits from recovery of the carpet at the end-of-life in a cement plant (substitution of material and fuel input in the cement kiln), transport from the reprocessing plant to the cement kiln.

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. Background data are taken from the GaBi database 2016, service pack 29 and from the ecoinvent 3.1 database.

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 of the product in luxury class LC5. Information on products in luxury class LC1 to LC4 can be taken from the annex.

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

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

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-5 mix)	0.0052	l/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	0.23	kg

Cardboard packaging waste leaves the system for recycling.

PE-packaging waste and Installation waste are considered to be incinerated in a municipal waste incineration plant.

Maintenance (B2)

The values are indicated per m² floor covering and per year (see annex, chapter: 'General Information on use stages B1 to B7').

Name	Value	Unit
Maintenance cycle (wet cleaning)	0.9	1/year
Maintenance cycle (vacuum cleaning)	156	1/year
Water consumption (wet cleaning)	0.003	m ³
Cleaning agent (wet cleaning)	0.055	kg
Electricity consumption	0.326	kWh

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 disposal
- Scenario 2: 100% municipal waste incineration (MWI)
- Scenario 3: 100% recycling in the cement industry

Name	Value	Unit
Collected as mixed construction waste (LC5, scenario 1 and 2)	2.6	kg
Collected separately (LC5, scenario 3)	2.6	kg
Landfilling (LC5, scenario 1)	2.6	kg
Energy recovery (LC5, scenario 2)	2.6	kg
Energy recovery (LC5, scenario 3)	1.9	kg
Recycling (LC5, scenario 3)	0.7	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 (60.0%), hard coal (27.4%) and petrol coke (12.6%).

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

LCA: Results

The LCA results refer to luxury class LC5 and they are valid for all luxury classes.

More specific LCA results for products in luxury classes LC1 to LC4 can be taken from the corresponding tables of the annex or can be calculated by using equation 1 given in the annex (see annex, chapter: 'General Information on the annex').

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 in question (see annex, chapter: 'General Information on use stage B1 to B7').

Information on un-declared modules:

Modules B3 - B7 are not relevant during the service life of the carpet and are therefore not declared. Modules C1, C3/1 and C3/2 cause no additional impact (see "LCA: Calculation rules") and are therefore not declared. Module C2 represents the transport for scenarios 1, 2 and 3. Column D represents module D/A5.

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	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	X	X	X	X	MNR	MNR	MNR	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	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
GWP	[kg CO ₂ -Eq.]	21.40	0.11	2.64	0.00	0.28	0.01	0.02	0.19	4.71	0.00	-0.23	0.00	-2.43	-0.47
ODP	[kg CFC11-Eq.]	3.45E-8	4.92E-13	2.68E-8	0.00E+0	8.32E-9	2.77E-14	1.19E-11	6.96E-12	1.94E-9	0.00E+0	-7.28E-11	0.00E+0	-7.66E-10	-2.23E-11
AP	[kg SO ₂ -Eq.]	3.11E-2	4.68E-4	5.25E-3	0.00E+0	1.06E-3	2.64E-5	4.67E-5	5.15E-4	4.16E-3	0.00E+0	-3.56E-4	0.00E+0	-3.74E-3	-2.06E-3
EP	[kg (PO ₄) ³⁻ -Eq.]	6.20E-3	1.15E-4	1.36E-3	0.00E+0	2.04E-4	6.48E-6	4.18E-6	5.09E-4	1.08E-3	0.00E+0	-3.63E-5	0.00E+0	-3.82E-4	-1.93E-4
POCP	[kg ethene-Eq.]	6.08E-3	-1.77E-4	8.44E-4	1.52E-4	1.77E-4	-9.96E-6	3.22E-6	6.69E-5	2.61E-4	0.00E+0	-3.87E-5	0.00E+0	-4.07E-4	-2.58E-4
ADPE	[kg Sb-Eq.]	8.93E-6	7.12E-9	2.64E-6	0.00E+0	7.59E-7	4.01E-10	5.47E-9	3.63E-8	-1.58E-7	0.00E+0	-3.80E-8	0.00E+0	-4.00E-7	-2.39E-7
ADPF	[MJ]	347.00	1.47	36.80	0.00	5.06	0.08	0.18	2.66	1.99	0.00	-3.20	0.00	-33.60	-59.30

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	C2	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
PERE	[MJ]	22.42	0.08	4.59	0.00	0.85	0.00	0.08	0.19	0.12	0.00	-0.50	0.00	-5.27	-0.42
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
PERT	[MJ]	22.42	0.08	4.59	0.00	0.85	0.00	0.08	0.19	0.12	0.00	-0.50	0.00	-5.27	-0.42
PENRE	[MJ]	311.35	1.48	39.47	0.00	6.18	0.08	0.29	2.77	2.22	0.00	-3.87	0.00	-40.75	-59.76
PENRM	[MJ]	58.39	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]	369.74	1.48	39.47	0.00	6.18	0.08	0.29	2.77	2.22	0.00	-3.87	0.00	-40.75	-59.76
SM	[kg]	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.70
RSF	[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
NRSF	[MJ]	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	0.00E+0	5.81E+1
FW	[m ³]	9.56E-2	2.10E-4	1.73E-2	0.00E+0	3.88E-3	1.18E-5	1.26E-4	1.22E-5	1.25E-2	0.00E+0	-7.78E-4	0.00E+0	-8.18E-3	-5.53E-3

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	C2	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
HWD	[kg]	2.21E-7	1.12E-7	9.81E-7	0.00E+0	3.40E-10	6.30E-9	1.86E-10	1.57E-8	9.02E-10	0.00E+0	-1.45E-9	0.00E+0	-1.53E-8	-7.77E-9
NHWD	[kg]	4.18E-1	1.24E-4	4.25E-2	0.00E+0	5.60E-3	7.00E-6	1.76E-4	2.59E+0	7.76E-3	0.00E+0	-1.31E-3	0.00E+0	-1.38E-2	-1.76E-1
RWD	[kg]	8.68E-3	2.11E-6	8.99E-4	0.00E+0	3.99E-4	1.19E-7	4.41E-5	4.22E-5	8.22E-5	0.00E+0	-2.70E-4	0.00E+0	-2.84E-3	-1.68E-4
CRU	[kg]	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
MFR	[kg]	0.05	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00	0.00	0.00
MER	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	0.00	0.00	0.00	0.00
EEE	[MJ]	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00	8.10	0.00	0.00	0.00	0.00	0.00
EET	[MJ]	0.00	0.00	1.75	0.00	0.00	0.00	0.00	0.00	18.38	0.00	0.00	0.00	0.00	0.00

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; EEE = Exported thermal energy



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ISO 14025

DIN EN ISO 14025:2011-10: Environmental labels and
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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 Part A

Institut Bauen und Umwelt e.V., Berlin (pub.):
Product Category Rules for Construction Products
from the range of Environmental Product Declarations
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Part A: Calculation Rules for the Life Cycle
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PCR Part B

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Part B: Requirements on the EPD for floor coverings,
V1.6, July 2014
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EN 1307

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

EN 14041

DIN EN 14041: 2004/AC 2006: Resilient, textile and
laminate floor coverings - Essential characteristics

ISO 10874

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

EN 13501-1:

DIN EN 13501-1:2010-01: Fire classification of
construction products and building elements - Part 1:
Classification using data from reaction to fire tests

VDZ e.V.:

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