

ENVIRONMENTAL PRODUCT DECLARATION

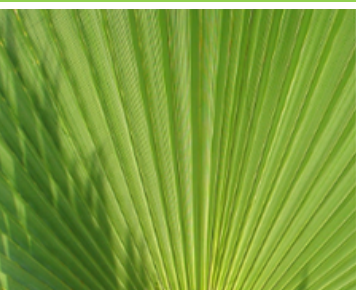
as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Gemeinschaft umweltfreundlicher Teppichboden (GUT) e.V.
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-GUT-20220351-CBG1-EN
Issue date	01.02.2023
Valid to	31.01.2028

**Tufted wall-to-wall carpet - luxury class LC5
with a pile material made of polypropylene**
maximum surface pile weight 1200 g/m²,
maximum total pile weight 1450 g/m²,
textile backing with a maximum weight of 250 g/m²

**Gemeinschaft umweltfreundlicher
Teppichboden (GUT)**

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



General Information

Gemeinschaft umweltfreundlicher Teppichboden (GUT) e.V.

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-GUT-20220351-CBG1-EN

This declaration is based on the product category rules:

Floor coverings, 09.2022
(PCR checked and approved by the SVR)

Issue date

01.02.2023

Valid to

31.01.2028

Dipl. Ing. Hans Peters
(chairman of Institut Bauen und Umwelt e.V.)

Dr. Alexander Röder
(Managing Director Institut Bauen und Umwelt e.V.)

Tufted wall-to-wall carpet - luxury class LC5, with a PP pile material,
max. surface pile weight 1200 g/m²,
max. total pile weight 1450 g/m², textile
backing with a max. weight of 250 g/m²

Owner of the declaration

Gemeinschaft umweltfreundlicher Teppichboden e.V.
Schönebergstraße 2
51068 Aachen
Germany

Declared product / declared unit

1 m² tufted wall-to-wall carpet, luxury class LC5, PP
pile material with a textile backing.

Scope:

This sample EPD applies to all products of the member companies of the Gemeinschaft umweltfreundlicher Teppichboden (GUT) e.V. that comply with the product descriptions and are registered in the GUT/PRODIS information system. It is only valid in conjunction with a valid GUT/PRODIS license of the product.

The construction and production data of the registered products are provided by the member companies of the GUT e.V.. The production sites are located in Belgium, Denmark, France, Germany, the Netherlands and Switzerland.

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 EPD was created according to the specifications of *EN 15804+A2*. In the following, the standard will be simplified as *EN 15804*.

Verification

The standard *EN 15804* serves as the core PCR

Independent verification of the declaration and data
according to *ISO 14025:2011*

internally externally

Angela Schindler
(Independent verifier)

Product

Product description/Product definition

The declaration applies to tufted wall-to-wall carpets having a pile material of polypropylene and a textile backing with a maximum weight of 250 g/m². The products correspond to luxury class LC5 with a limitation of the maximum surface pile weight of 1200 g/m² and a maximum total pile weight of 1450 g/m². Colouring and design of the use layer is achieved by using solution-dyed yarns.

For the placing on the market of the specific product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) *Regulation (EU) No. 305/2011 Construction Product*

Regulation (CPR) applies. The product needs a Declaration of Performance (DoP) taking into consideration *EN 14041:2018-05*, Resilient, textile and laminate floor coverings - Essential characteristics, and the CE-marking. The DoP of the product can be found on the manufacturer's technical information section. For the application and use of the product the respective national provisions apply.

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

The technical data describes a fictitious worst-case product representing all products with the described characteristics.

Constructional data according to EN 1307

Name	Value	Unit
Product Form	wall-to-wall carpet on rolls	-
Type of manufacture	Tufted carpet	-
Yarn type	Polypropylene	-
Total carpet weight	max. 3200	g/m ²
Surface pile weight	max. 1200	g/m ²
Secondary backing	Textile backing	-

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 14041: 2018-05, Resilient, textile and laminate floor coverings - Essential characteristics.*

Additional product properties in accordance with *EN 1307* can be found on the Product Information System *PRODIS* using the *PRODIS* registration number of the product (www.pro-dis.info) or on the manufacturer's technical information section.

Base materials/Ancillary materials

Name	Value	Unit
Polypropylene	51.3	%
Polyester	5.9	%
Mineral Filler	29.2	%
Aluminiumhydroxide	4.7	%
Polymer dispersion (solid content)	5.7	%

LCA: Calculation rules

Declared Unit

Name	Value	Unit
Declared unit	1	m ²
Grammage	3.2	kg/m ²

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

The layer thickness of the specific product covered by the EPD can be found on the Product Information System *PRODIS* using the *PRODIS* registration number of the product (www.pro-dis.info) or on the manufacturer's technical information section.

The LCA results refer to the fictitious worst-case product, which covers all products of the members of the GUT e.V. that correspond to the product descriptions and are registered in the *GUT/PRODIS* information system.

System boundary

Type of EPD:

Cradle-to-gate with options, module C1-C4, module D, and additional modules A4, A5, B1, B2.

Additives	3.2	%
-----------	-----	---

The base materials refer to the fictitious worst-case product representing all products with the described characteristics.

The specific product covered by the EPD contains substances listed in the *ECHA candidate list* (08.07.2021) or other carcinogenic, mutagenic or reprotoxic (CMR) substances in categories 1A or 1B which are not on the candidate list exceeding 0.1 percentage by mass: no

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

Reference service life

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

A calculation of the reference service life according to *ISO 15686* is not possible.

Alternatively, a reference service life of 10 years can be assumed, during which the functional and visual quality is guaranteed (*BNB, Nutzungsdauer von Bauteilen*). The technical service life can be significantly longer.

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

Modules C3, C4 and D are indicated separately for three end-of-life scenarios:

- 1 - landfill disposal
- 2 - municipal waste incineration
- 3 - recovery in a cement plant

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). Benefits for generated electricity and steam due to the incineration of production waste are aggregated.

Biogenic carbon that is stored in renewable material (packaging paper) is taken into account as well as the associated carbon dioxide uptake from the air from which this biogenic carbon comes.

A4 Transport:

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

A5 Installation:

Installation of the textile floor covering, processing of installation waste and packaging waste up to the landfill disposal of residual waste (except radioactive waste), the production of the amount of carpet that occurs as installation waste including its transport to the place of installation.
Generated electricity and steam due to the incineration of waste are listed in the result table as exported energy.
Biogenic carbon that is stored in renewable materials in packaging paper is released as carbon dioxide emissions into the air at the end of life in module A5.
Preparation of the floor and auxiliary materials (adhesives, fixing agents, PET connectors) are beyond the system boundaries and not taken into account.

B1 Use:

Indoor emissions during the use stage. After the first year, no product-related Volatile Organic Compound (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 in question.

B3 - B5:

The modules are not relevant within the assumed reference service life of 10 years.

B6 - B7:

No energy and water input are required for the operation of the carpet in the use stage. The modules are not relevant and not declared.

C1 De-construction:

The floor covering 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 needs no waste processing.
C3-2: Impact from waste incineration (plant with $R1 > 0.6$), generated electricity and steam are listed in the result table as exported energy.
C3-3: Collection of the carpet waste for recovery in the cement industry, waste processing (granulating), transport to the cement plant, emissions from the incineration.

C4 Disposal

C4-1: Impact from landfill disposal,
C4-2: The carpet waste leaves the system in module C3-2,
C4-3: The pre-processed carpet waste leaves the system in module C3-3.

D Recycling potential:

Calculated benefits result from materials exclusive secondary materials (net materials).
D-A5: Benefits for generated energy due to incineration of packaging and installation waste (incineration plant with $R1 > 0.6$),
D-1: Benefits for generated energy due to landfill disposal of carpet waste at the end of life,
D-2: Benefits for generated energy due to incineration of carpet waste at the end-of-life (incineration plant with $R1 > 0.6$),
D-3: Benefits for saved fossil energy and saved inorganic material due to recovery of the carpet in a cement plant.

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*, 2021-2. Remaining data gaps are covered by the *ecoinvent 3.7 database*, 2020.

LCA: Scenarios and additional technical information

Characteristic product properties Information on biogenic carbon

Name	Value	Unit
Biogenic carbon content in accompanying packaging at factory gate	0.005	kg C
1 kg biogenic Carbon is equivalent to 44/12 kg of CO ₂		

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-6 mix)	0.0076	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	55	%

Installation in the building (A5)

Name	Value	Unit
Material loss	0.288	kg

Polyethylene packaging waste and installation waste are considered to be incinerated in a municipal waste incineration plant. Cardboard packaging waste is going to be recycled.
Preparation of the floor and auxiliaries (adhesives, fixing agents, PET connectors etc.) are not taken into account.

Maintenance (B2)

The values for cleaning refer to 1 m² floor covering per year.
Depending on the application based on *ISO 10874*, the technical service life recommended by the manufacturer and the anticipated strain on the floor by customers, the case-specific useful life can be



established. Based on this useful life the effects of module B2 need to be calculated in order to obtain the overall environmental impacts.

Name	Value	Unit
Maintenance cycle (vacuum cleaning)	156	Number /year
Maintenance cycle (wet cleaning)	0.92	Number /year
Water consumption (wet cleaning)	0.0027	m ³
Cleaning agent (wet cleaning)	0.055	kg
Electricity consumption	0.326	kWh

The values result from the calculation of a mixed scenario for use in object areas and in private areas. Maintenance cycle vacuum cleaning: 4 times per week in object areas, 2 times per week in private areas. Maintenance cycle wet cleaning: 3 times per 2 years in object areas, 1 time per 3 years in private areas.

Service life

Name	Value	Unit
Life Span (according to BBSR)	10	a
Declared product properties (at the gate) and finishes	Corresponds to the specifications of EN 1307	-
An assumed quality of work, when installed in accordance with the manufacturer's instructions	Conforms to the manufacturer's instructions	-
Usage conditions, e.g. frequency of use, mechanical exposure	Use in areas defined by the use class according to EN 1307	-
Maintenance e.g. required frequency, type and quality and replacement of components	According to the manufacturers' instructions	-

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) with R1>0.6
Scenario 3: 100 % recovery in the cement industry

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)
+ z % impact (Scenario 3)
with x % + y % + z % = 100 %

Name	Value	Unit
Collected as mixed construction waste (scenarios 1 and 2)	3.2	kg
Collected separately (scenario 3)	3.2	kg
Landfilling (scenario 1)	3.2	kg
Energy recovery (scenario 2)	3.2	kg
Energy recovery (scenario 3)	2.116	kg
Recycling (scenario 3)	1.084	kg

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

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

Recycling in the cement industry (scenario 3)

The organic material of the carpet is used as an alternative fuel in a cement kiln. It mainly substitutes for lignite (68.8 %), hard coal (23.6 %) and petrol coke (7.6 %). The inorganic material is substantially integrated into the cement clinker and substitutes for the original material input. VDZ e.V.

**RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 m² floor covering**

Indicator	Unit	A1-A3	A4	A5	B1	B2	C1	C2	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
PM	[Disease Incidence]	1.08E-7	6.70E-9	1.26E-8	0.00E+0	4.27E-8	0.00E+0	3.73E-10	2.31E-8	2.43E-8	6.46E-9	-5.31E-9	0.00E+0	-4.57E-8	-2.80E-8
IRP	[kBq U235-Eq.]	1.03E+0	4.71E-4	9.48E-2	0.00E+0	6.58E-2	0.00E+0	2.62E-5	1.79E-2	2.61E-2	5.84E-3	-1.11E-1	0.00E+0	-9.52E-1	-1.24E-2
ETP-fw	[CTUe]	9.96E+1	1.81E+0	9.26E+0	3.60E-3	2.03E+0	0.00E+0	1.01E-1	1.27E+0	1.65E+0	3.15E+0	-1.82E+0	0.00E+0	-1.57E+1	-1.27E+1
HTP-c	[CTUh]	3.24E-9	3.65E-11	3.04E-10	0.00E+0	3.90E-10	0.00E+0	2.03E-12	8.62E-11	9.50E-11	1.41E-10	-8.36E-11	0.00E+0	-7.20E-10	-1.25E-10
HTP-nc	[CTUh]	1.66E-7	2.16E-9	1.56E-8	2.60E-11	6.19E-9	0.00E+0	1.20E-10	4.08E-9	4.52E-9	1.19E-8	-3.21E-9	0.00E+0	-2.76E-8	-6.85E-9
SQP	[]	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

No substantiated values can be given for the SQP indicator with the existing database.

The result figures given in module B2 refer to a period of 1 year because a reference service life is not declared. They have to be multiplied by the assumed service life (in years) of the floor covering in the building under consideration.

Disclaimer 1 – for the indicator “Potential Human exposure efficiency relative to U235”.

This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators “abiotic depletion potential for non-fossil resources”, “abiotic depletion potential for fossil resources”, “water (user) deprivation potential, deprivation-weighted water consumption”, “potential comparative toxic unit for ecosystems”, “potential comparative toxic unit for humans – cancerogenic”, “Potential comparative toxic unit for humans - not cancerogenic”, “potential soil quality index”.

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

References

EN 1307

DIN EN 1307: 2014+A1:2016+A2:2018-05: Textile floor coverings - Classification

EN 13501-1

DIN EN 13501-1:2019-05: Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

EN 14041

DIN EN 14041: 2018-05 and DIN EN 14041: 2008-05: Resilient, textile and laminate floor coverings - Essential characteristics

EN 15804

DIN EN 15804:2012+A2:2019 + AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

EN 16810

DIN EN 16810: 2017-08: Resilient, textile and laminate floor coverings – Environmental product declarations – Product category rules

ISO 10874

DIN EN ISO 10874: 2012+A1:2021-04: Resilient, textile and laminate floor coverings - Classification

ISO 14025

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

ISO 14040

DIN EN ISO 14040:2006+A1:2020 Environmental management - Life cycle assessment - Principles and framework

ISO 14044

DIN EN ISO 14044:2006+A1:2018+A2:2020 Environmental management - Life cycle assessment - Requirements and guidelines

ISO 15686

ISO 15686: Buildings and constructed assets - Service life planning

ISO 15686-1: 2011-05: Part 1: General principles and framework

ISO 15686-2: 2012-05: Part 2: Service life prediction procedures

ISO 15686-7: 2017-04: Part 7: Performance evaluation for feedback of service life data from practice

ISO 15686-8: 2008-06: Part 8: Reference service life and service-life estimation

Regulation (EU) No. 305/2011

Regulation No. 305/2011 Construction Products Regulation (CPR) of the European Council and of the European Parliament, April 2011

General Instructions for the IBU-EPD Program

General Instructions for the EPD-Program of the Institut Bauen und Umwelt e.V., The Preparation of Environmental Product Declarations - EPDs, version



2.0, Institut Bauen und Umwelt e.V., Berlin, January 2021, www.ibu-epd.de

BNB, Nutzungsdauer von Bauteilen

Bewertungssystem Nachhaltiges Bauen (BNB), Nutzungsdauer von Bauteilen, Bundesministerium des Inneren, für Bau und Heimat, 24.02.2017

ECHA candidate list

Candidate List of substances of very high concern (SVHCs) for authorisation, 08.07.2021, European Chemicals Agency (ECHA), Helsinki, Finland

ecoinvent

ecoinvent, Zurich, Switzerland, database version 3.7, published September 2020

GaBi database

GaBi Software-System and Database for Life Cycle Engineering, thinkstep AG, Leinfelden-Echterdingen, 2022-1

PCR Part A

Product Category Rules for Building-Related Products and Services Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, V1.2, Berlin: Institut Bauen und Umwelt e.V. (IBU), November 2021

PCR Part B

Product Category Rules for Building-Related Products and Services

Part B: Requirements on the EPD for floor coverings, V1.2, Berlin: Institut Bauen und Umwelt e.V. (IBU), February 2018

PRODIS

Product Information System (PRODIS) of the European Carpet Industry, Gemeinschaft umweltfreundlicher Teppichboden e.V (GUT) and European Carpet and Rug Association (ECRA), <http://www.pro-dis.info>

REACH

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), June 2017, last update: 08.07.2021

VDZ e.V.

Association of German Cement Works, Ed. Environmental Data of the German Cement Industry 2020

**Publisher**

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

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

**Programme holder**

Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

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

**Author of the Life Cycle****Assessment**

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

Tel +49 (0)241 96843 410
Fax +49 (0)241 96843 400
Mail mail@gut-ev.de
Web www.gut-ev.org

**Owner of the Declaration**

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

Tel +49 (0)241 96843 410
Fax +49 (0)241 96843 400
Mail mail@gut-ev.de
Web www.gut-ev.org