ENVIRONMENTAL PRODUCT DECLARATION
as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	Egetaepper a/s
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EGE-20190135-CCC1-EN
Issue date	18-09-2019
Valid to	17-09-2024

Woven broadloom carpet
max. total pile material 700 gm², Polyamide 6.6,
continous dyed,
woven textile backing

ege®

www.ibu-epd.co

Email	Relatienr	verwerkt Pl	AccMgr	Bedrijfsnaam	Klanttype	G
nico.bricksandbrains.nl	13799		Maarten	Brains + Bricks	Interm. Projectmgt	M
info@kamerlingvanderburg	4148		Wim	Kamerling van den Burg Architectuur	Interm. Architect	M
i.rijks@takarchitecten	9091		Wim	Tak Architecten	Interm. Architect	V
ed.bvab.nl	14305		Pieter	Ed Bergers Architecten	Interm. Architect	M
n,wierenga@brique-architecten.nl	15355		Pieter	Brique Architecten	Interm. Architect	V
info@bartoszek-design	11382		Wim	Bartoszek Design	Interm. Architect	M

Institut Bauen
und Umwelt e.V.

ege

General Information

ege®	Woven broadloom carpet
	total pile material 700 gm², polyamide 6.6, continous dyed, woven textile backing

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

Owner of the declaration
egetaepper a/s
Industrivej Nord 25
7400 Herning
Denmark

Declaration number
EPD-EGE-20190135-CCC1-EN

Declared product / declared unit
1 m² woven broadloom carpet, with a pile material made of PA6.6

This declaration is based on the product category rules:
Floor coverings, 02/2018
(PCR checked and approved by the SVR)

Scope:
The manufacturer declaration applies to a group of similar products with a maximum total pile weight of 700 g/m2.
The carpet is woven at Bentzon Carpets, Roejle, Denmark and it is coloured and backcoated in the ege® manufacturing site Gram, Denmark.
It is only valid in conjunction with a valid GUT-/PRODIS/ license of the product.

Issue date
18-09-2019

Valid to
17-09-2024

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

☐ internally	☒ externally

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

Dr. Alexander Röder
(Managing Director IBU)

Angela Schindler
(Independent verifier appointed by SVR)

Product

Product description / Product definition
Woven broadloom carpet having a surface pile material of polyamide 6.6 and a woven textile backing out of polypropylene. The carpet is colored by continuous dyeing method. The calculations refer to a total pile weight of 700 g/m².
The declaration applies to a group of products with a maximum total pile weight of 700 g/m². The LCA results are calculated for products with the maximum total pile weight.

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 /CPR/ applies. The products need a Declaration of Performance taking into consideration /EN 14041/ and the CE-marking. The DoP of the products can be found on the manufacturer's technical information section.

For the application and use of the products the respective national provisions apply.

Application
According to the use class as defined in /EN 1307/ the products can be used in all professional areas which require class **33** or less.

ege

Technical Data

The performance data listed in the DoP apply.

Name	Value	Unit
Product Form	Broadloom	-
Type of manufacture	Woven loop pile carpet	-
Yarn type	Polyamide 6.6	-
Coloration	Continous dyed	
Secondary backing	Woven textile made of PP	-
Total pile weight	max.700	g/m²
Total carpet weight	max.2494	g/m²

Additional product properties in accordance with /EN 1307/ and performance data of the product in accordance with the Declaration of Performance with respect to its Essential Characteristics according to /EN 14041/ 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 (www.egecarpets.com).

Base materials / Ancillary materials

Name	Value	Unit
Polyamide 6.6	28.1	%
Polyester	7.8	%
Polypropylene	8.7	%
Limestone	16.8	%
Aluminium hydroxide	20.6	%
Polymer dispersion (solid content)	18.0	%

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/.
This product contains substances listed in the candidate list (27.06.2018) exceeding 0.1 percentage by mass: no

Reference service life
A calculation of the reference service life according to /ISO 15686/ is not possible.
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 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	m²
Conversion factor to 1 kg	0.4	-
Mass reference	2,49	kg/m²

The declared unit refers to 1 m² produced textile floor covering. The 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:
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.

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.
Floor preparation 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 - B7:
The modules are not relevant and therefore 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, waste processing (granulating).

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 at the end-of-life, 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 8.7/, service pack 37 and from the /ecoinvent 3.5/ (2018) database

.

LCA: Scenarios and additional technical information

The following information refer to the declared modules and are the basis for calculations or can be used for further calculations. The indicated values refer to the declared functional unit of the product.

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-6 mix)	0.006	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%

Installation in the building (A5)

Name	Value	Unit
Material loss	0.224	kg

Packaging waste and installation waste are considered to be incinerated in a municipal waste incineration plant.
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 used in commercial areas per year.
Depending on the application based on EN 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. The effects of Module B2 need to be calculated on the basis of this useful life in order to obtain the overall environmental impacts.

Name	Value	Unit
Maintenance cycle (wet cleaning)	1.5	1/year
Maintenance cycle (vacuum cleaning)	208	1/year
Water consumption (wet cleaning)	0.004	m³
Cleaning agent (wet cleaning)	0.09	kg
Electricity consumption	0.314	kWh

Further information on cleaning and maintenance see www.egecarpets.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 disposal
Scenario 2: 100% municipal waste incineration (MWI) with R1>0.6
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:

EOL-impact = x% impact (Scenario 1)
              + y% impact (Scenario 2)
              + z% impact (Scenario 3)

The following applies:
x + y + z = 100

Name	Value	Unit
Collected as mixed construction waste (scenario 1 and 2)	2.49	kg
Collected separately (scenario 3)	2.49	kg
Landfilling (scenario 1)	2.49	kg
Energy recovery (scenario 2)	2.49	kg
Energy recovery (scenario 3)	1.56	kg
Recycling (scenario 3)	0.93	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)
/VDZ e.V./
The organic material of the carpet is used as secondary fuel in a cement kiln. It mainly substitutes for lignite (62.2%), hard coal (27.3%) and petrol coke (10.5%).
The inorganic material is substantially integrated into the cement clinker and substitutes for original material input.

LCA: Results

The results refer to all declared products with a maximum total pile weight of 700 g/m².

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

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 C4/2 cause no additional impact (see chapter "LCA: Calculation rules" in this document) and are therefore not declared. Module C2 represents the transport for scenarios 1, 2 and 3. Column D represents module D/A5. The calculations are based on the /CML/ characterization factors (version January 2016).

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 floor covering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
GWP	[kg CO$_2$-Eq.]	1.27E+1	1.04E-1	6.18E-1	0.00E+0	3.02E-1	5.87E-3	4.23E+0	1.45E-2	1.73E-1	-1.13E-1	0.00E+0	-1.89E+0	-4.64E-1
ODP	[kg CFC11-Eq.]	6.63E-9	1.73E-17	1.96E-10	0.00E+0	1.30E-8	9.74E-19	1.03E-15	4.04E-16	5.98E-16	-1.56E-15	0.00E+0	-2.58E-14	-2.64E-15
AP	[kg SO$_2$-Eq.]	1.85E-2	4.29E-4	6.34E-4	0.00E+0	1.23E-3	2.42E-5	2.23E-3	4.09E-5	4.73E-4	-1.91E-4	0.00E+0	-3.17E-3	-1.91E-3
EP	[kg (PO$_4$)^3-Eq.]	3.55E-3	1.09E-4	1.27E-4	0.00E+0	3.45E-4	6.13E-6	5.64E-4	3.83E-6	4.79E-4	-2.06E-5	0.00E+0	-3.43E-4	-2.03E-4
POCP	[kg ethene-Eq.]	2.34E-3	-1.76E-4	6.87E-5	6.29E-5	1.56E-4	-9.92E-6	1.41E-4	2.60E-6	5.32E-5	-1.51E-5	0.00E+0	-2.51E-4	-2.02E-4
ADPE	[kg Sb-Eq.]	4.69E-6	8.15E-9	1.42E-7	0.00E+0	1.08E-6	4.59E-10	7.86E-8	4.60E-9	3.31E-8	-2.04E-8	0.00E+0	-3.38E-7	-3.10E-7
ADPF	[MJ]	2.31E+2	1.42E+0	6.95E+0	0.00E+0	6.87E+0	7.99E-2	1.56E+0	1.55E-1	2.61E+0	-1.59E+0	0.00E+0	-2.65E+1	-4.67E+1
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 floor covering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
PERE	[MJ]	4.51E+1	8.26E-2	1.35E+0	0.00E+0	1.16E+0	4.65E-3	2.35E-1	1.05E-1	1.86E-1	-4.05E-1	0.00E+0	-6.71E+0	-5.90E-1
PERM	[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
PERT	[MJ]	4.51E+1	8.26E-2	1.35E+0	0.00E+0	1.16E+0	4.65E-3	2.35E-1	1.05E-1	1.86E-1	-4.05E-1	0.00E+0	-6.71E+0	-5.90E-1
PENRE	[MJ]	1.96E+2	1.42E+0	7.40E+0	0.00E+0	8.11E+0	8.02E-2	5.21E+1	5.06E+1	2.70E+0	-2.00E+0	0.00E+0	-3.33E+1	-4.72E+1
PENRM	[MJ]	5.04E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-5.04E+1	-5.04E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	[MJ]	2.46E+2	1.42E+0	7.40E+0	0.00E+0	8.11E+0	8.02E-2	1.74E+0	2.61E-1	2.70E+0	-2.00E+0	0.00E+0	-3.33E+1	-4.72E+1
SM	[kg]	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	9.96E-1
RSF	[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
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	5.04E+1
FW	[m³]	5.50E-2	1.40E-4	2.23E-3	0.00E+0	4.27E-3	7.87E-6	1.19E-2	1.24E-4	4.58E-5	-4.77E-4	0.00E+0	-7.92E-3	-4.33E-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 floor covering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
HWD	[kg]	2.01E-5	7.95E-8	5.96E-7	0.00E+0	1.19E-9	4.48E-9	8.15E-9	1.25E-10	1.13E-8	-8.22E-10	0.00E+0	-1.37E-8	-3.36E-9
NHWD	[kg]	3.84E-1	1.16E-4	2.50E-2	0.00E+0	5.22E-3	6.52E-6	4.39E-1	1.90E-4	2.49E+0	-8.63E-4	0.00E+0	-1.43E-2	-2.61E-1
RWD	[kg]	5.87E-3	1.16E-4	1.93E-6	0.00E+0	3.81E-4	1.09E-7	7.19E-5	4.20E-5	3.60E-5	-1.61E-4	0.00E+0	-2.68E-3	-1.75E-4
CRU	[kg]	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
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.32E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.32E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	4.79E-1	0.00E+0	0.00E+0	0.00E+0	7.94E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	8.58E-1	0.00E+0	0.00E+0	0.00E+0	1.43E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+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												

References

/IBU 2016/
IBU (2016): General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 1.1 Institut Bauen und Umwelt e.V., Berlin.
www.ibu-epd.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+A1 2013/, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

/PCR Part A/
Product Category Rules for Construction Products from the range of Environmental Product Declarations. Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report, V1.7, Berlin: *Institut Bauen und Umwelt* (IBU), *March 2018*

/PCR Part B/
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, V1.2, Berlin: *Institut Bauen und Umwelt e.V.m February 2018*

/EN 1307/
DIN EN 1307: 2014+A1:2016: Textile floor coverings - Classification

/EN 14041/
DIN EN 14041: 2008-05: 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

/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: 2006-03: 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

/VDZ e.V./
Association of German Cement Works, Ed. Environmental Data of the German Cement Industry 2016 (DE: *Verein deutscher Zementwerke e.V.*).Düsseldorf, 2017

/CML/
Characterization factors Version January 2016, *Center of Environmental Science (CML) of Leiden University in the Netherlands*.

/CPR/
Construction Products Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC.

/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). Last update: 25.03.2014 (Status: 27.06.2018)

/GaBi 8.7/
GaBi Software-System and Database for Life Cycle Engeneering, thinkstep AG, Leinfelden-Echterdingen, service pack 36, 2018

/ecoinvent 3.5/
ecoinvent, Zurich, Switzerland, database version 3.5, published 23.August 2018

/ECHA candidate list/
List of Substances of Very High Concern (SVHC) for authorisation (ECHA Candidate List) of 27.06.20108, published in accordance with Article 59(10) of the REACH Regulation. Helsinki: European Chemicals Agency.
available at: https://echa.europa.eu/de/candidate-list-table

De Projectinrichter

www.deprojectinrichter.com
088 - 650 12 34