**ENVIRONMENTAL PRODUCT DECLARATION**

as per /ISO 14025/ and /EN 15804/

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

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

www.ibu-epd.com / https://epd-online.com
General Information

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

Declaration number
EPD-EGE-20190135-CCC1-EN

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

Issue date
18-09-2019

Valid to
17-09-2024

Woven broadloom carpet

total pile material 700 gm², polyamide 6.6, continuous dyed,
woven textile backing

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

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

Scope:
The manufacturer declaration applies to a group of similar products with a maximum total pile weight of 700 gm².
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.

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.

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.

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

The performance data listed in the DoP apply.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Form</td>
<td>Broadloom</td>
<td>-</td>
</tr>
<tr>
<td>Type of manufacture</td>
<td>Woven loop pile carpet</td>
<td>-</td>
</tr>
<tr>
<td>Yarn type</td>
<td>Polyamide 6.6</td>
<td>-</td>
</tr>
<tr>
<td>Coloration</td>
<td>Continuous dyed</td>
<td>-</td>
</tr>
<tr>
<td>Secondary backing</td>
<td>Woven textile made of PP</td>
<td>-</td>
</tr>
<tr>
<td>Total pile weight</td>
<td>max. 700</td>
<td>g/m²</td>
</tr>
<tr>
<td>Total carpet weight</td>
<td>max. 2494</td>
<td>g/m²</td>
</tr>
</tbody>
</table>

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).

LCA: Calculation rules

Declared Unit

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declared unit</td>
<td>1</td>
<td>m²</td>
</tr>
<tr>
<td>Conversion factor to 1 kg</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Mass reference</td>
<td>2.49</td>
<td>kg/m²</td>
</tr>
</tbody>
</table>

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 emissions are emitted.
(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)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Litres of fuel (truck, EURO 0-6 mix)</td>
<td>0.006</td>
<td>l/100km</td>
</tr>
<tr>
<td>Transport distance</td>
<td>700</td>
<td>km</td>
</tr>
<tr>
<td>Capacity utilisation (including empty runs)</td>
<td>85</td>
<td>%</td>
</tr>
</tbody>
</table>

**Installation in the building (A5)**

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material loss</td>
<td>0.224</td>
<td>kg</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance cycle (wet cleaning)</td>
<td>1.5</td>
<td>1/year</td>
</tr>
<tr>
<td>Maintenance cycle (vacuum cleaning)</td>
<td>208</td>
<td>1/year</td>
</tr>
<tr>
<td>Water consumption (wet cleaning)</td>
<td>0.004</td>
<td>m³</td>
</tr>
<tr>
<td>Cleaning agent (wet cleaning)</td>
<td>0.09</td>
<td>kg</td>
</tr>
<tr>
<td>Electricity consumption</td>
<td>0.314</td>
<td>kWh</td>
</tr>
</tbody>
</table>

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:
\[ x + y + z = 100 \]

<table>
<thead>
<tr>
<th>Name</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collected as mixed construction waste (scenario 1 and 2)</td>
<td>2.49</td>
<td>kg</td>
</tr>
<tr>
<td>Collected separately (scenario 3)</td>
<td>2.49</td>
<td>kg</td>
</tr>
<tr>
<td>Landfilling (scenario 1)</td>
<td>2.49</td>
<td>kg</td>
</tr>
<tr>
<td>Energy recovery (scenario 2)</td>
<td>2.49</td>
<td>kg</td>
</tr>
<tr>
<td>Energy recovery (scenario 3)</td>
<td>1.56</td>
<td>kg</td>
</tr>
<tr>
<td>Recycling (scenario 3)</td>
<td>0.93</td>
<td>kg</td>
</tr>
</tbody>
</table>

**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)

| Raw material supply | Transport | Manufacturing | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy | Operational water use | Decommissioning | Transport | Waste processing | Disposal | Reuse/Recycle - Recovery - 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      | X           | X            | X                | X                  | X                | X           | X       | X                 | X      | D                       |

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 m² floor covering

#### Parameters
- **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

#### Parameter Unit
- **A1-A3**
- **A4**
- **A5**
- **B1**
- **B2**
- **B3**
- **B4**
- **B5**
- **B6**
- **B7**
- **C1**
- **C2**
- **C3**
- **C4/I**
- **D**
- **D1**
- **D2**
- **D3**

#### Values
- **GWP** (kg CO₂-Eq.)
- **ODP** (kg CFC11-Eq.)
- **AP** (kg SO₂-Eq.)
- **EP** (kg PO₄₂⁻-Eq.)
- **POCP** (kg ethene-Eq.)
- **ADPE** (kg bi-Eq.)
- **ADPF** (MJ)

#### Captions
- **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

#### Parameters
- **PERE**: Use of renewable primary energy excluding renewable primary energy resources used as raw materials
- **PERM**: Use of renewable 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
- **SM**: Use of secondary material
- **RSF**: Use of renewable secondary fuels
- **NRSF**: Use of non-renewable secondary fuels
- **FW**: Use of net fresh water

#### Parameter Unit
- **A1-A3**
- **A4**
- **A5**
- **B1**
- **B2**
- **B3**
- **B4**
- **B5**
- **B6**
- **B7**
- **C1**
- **C2**
- **C3**
- **C4/I**
- **D**
- **D1**
- **D2**
- **D3**

#### Values
- **PERE** (MJ)
- **PERM** (MJ)
- **PERT** (MJ)
- **PENRE** (MJ)
- **PENRM** (MJ)
- **SM** (kg)
- **RSF** (MJ)
- **NRSF** (MJ)
- **FW** (m³)

#### Captions
- **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; **PERM** = Use of renewable 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; **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

#### Parameters
- **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
- **EEF**: Exported electrical energy

#### Parameter Unit
- **A1-A3**
- **A4**
- **A5**
- **B1**
- **B2**
- **B3**
- **B4**
- **B5**
- **B6**
- **B7**
- **C1**
- **C2**
- **C3**
- **C4/I**
- **D**
- **D1**
- **D2**
- **D3**

#### Values
- **HWD** (kg)
- **NHWD** (kg)
- **RWD** (kg)
- **CRU** (kg)
- **MFR** (kg)
- **MER** (kg)
- **EEE** (MJ)
- **EEF** (MJ)

#### Captions
- **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; **EEF** = Exported electrical 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/

/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 15686-7: 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./

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

/CPR/

/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/

/GaBi 8.7/
GaBi Software-System and Database for Life Cycle Engineering, 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 27.06.2018, 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