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-20180127-CBC1-EN
Issue date	08.10.2018
Valid to	07.10.2023

Rawline
Woven broadloom carpet
pile material 300-400 g/m² 100% recycled polyamide 6,
woven textile backing

ege®

Institut Bauen
und Umwelt e.V.

ege

General Information

ege®	Rawline
	Woven broadloom carpet, pile material 300-400 g/m^2 100 % recycled polyamid 6, 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-20180127-CBC1-EN

Declared product / declared unit
1 m² tufted broadloom carpet 'Rawline' with a pile material made of PA6.

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

Scope:
The declaration applies to a group of similar products with a total pile material of 300-400 g/m².
It is only valid in conjunction with a valid GUT-/PRODIS/ license of the product.
The carpet is woven at Bentzon Carpets, Roejle, Denmark.
It is backcoated in the ege® manufacturing site Herning, Denmark. Cutting of tiles takes place also in the ege® manufacturing site Herning, Denmark.

Issue date
08.10.2018

Valid to
07.10.2023

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

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

Dipl. Ing. Hans Peters
(Head of Board IBU)

Angela Schindler
(Independent verifier appointed by SVR)

Product

Product description / Product definition
Rawline-woven broadloom carpet having a pile material of 100% recycled polyamide 6 and a woven textile backing out of polypropylene.
The injection printing system allows the creation of various designs.
The declaration applies to group of products with a total pile material weight of 300-400 g/m². The calculations refer to the average pile material of 350 g/m².
The recycled content out of total weight amounts to 17.8%.

For the placing on the market of the product in the EU/EFTA (with the exception of Switzerland) Regulation (EU) No. 305/2011 /CPR/ applies. The Declaration of Performance of the products taking into consideration /EN 14041/ and the CE-marking 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 area which require class 33 or less.

Base materials / Ancillary materials

Name	Value	Unit
Polyamide 6	17.8	%
Polyester	13.9	%
Polypropylene	4.6	%
Limestone	22.9	%
Aluminium hydroxide	22	%
Polymer dispersion (solid content)	18.6	%
Additives	0.21	%

Technical Data

Name	Value	Unit
Product Form	Broadloom carpet	-
Type of manufacture	Woven loop pile carpet	-
Yarn type	Polyamide 6, 100% recycled	-
Secondary backing	Woven textile made of PP	-
Total pile weight	300-400	g/m²
Total carpet weight	max.2020	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).

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
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	0.51	-
Mass reference	1.97	kg/m²

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). 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.
Preparing 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 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 (see annex, chapter 'General information on use stage').

<u>B3 - B7:</u>
The modules are not relevant and therefore not declared.

<u>C1 De-construction:</u>
The floor covering is de-constructed manually and no additional environmental impact is caused.

<u>C2 Transport:</u>
Transport of the carpet waste to a landfill, to the municipal waste incineration plant (MWI) or to the waste collection facility for recycling.

<u>C3 Waste processing:</u>
C3-1: Landfill disposal need no waste processing.
C3-2: Impact from waste incineration (plant with R1>0.1), generated electricity and steam are listed in the result table as exported energy.
C3-3: Collection of the carpet waste, waste processing (granulating).

<u>C4 Disposal</u>
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

<u>D Recycling potential:</u>
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 database 2018/, service pack 36 and from the /ecoinvent 3.4/ database.
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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 all products with a total pile weight up to 400 g/m².

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-5 mix)	0.0033	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%

Installation in the building (A5)

Name	Value	Unit
Material loss	0.18	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)
Indication per m² floor covering and per year (see annex, chapter 'General Information on use stage')

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)

Name	Value	Unit
Collected as mixed construction waste (scenario 1 and 2)	1.97	kg
Collected separately (scenario 3)	1.97	kg
Landfilling (scenario 1)	1.97	kg
Energy recovery (scenario 2)	1.97	kg
Energy recovery (scenario 3)	1.09	kg
Recycling (scenario 3)	0.89	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)
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The organic material of the carpet is used as

secondary fuel in a cement kiln. It mainly substitutes for lignite (61.9%), hard coal (26.8%) and petrol coke (11.3%).
The inorganic material is substantially integrated in the cement clinker and substitutes for original material input.

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LCA: Results

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 in question (see annex, chapter 'General Information on use stage').

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, C4/2 and C4/3 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.
The CML characterisation factors version January 2016 are applied.

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	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
GWP	[kg CO$_2$-Eq.]	5.70E+0	8.52E-2	2.99E-1	0.00E+0	3.40E-1	4.59E-3	2.94E+0	1.14E-2	1.38E-1	-4.77E-2	0.00E+0	-1.23E+0	-3.36E-1
ODP	[kg CFC11-Eq.]	1.65E-8	2.34E-15	4.66E-10	0.00E+0	1.26E-8	1.26E-16	8.03E-14	5.05E-14	3.74E-14	-1.04E-13	0.00E+0	-2.67E-12	-2.05E-13
AP	[kg SO$_2$-Eq.]	1.06E-2	3.52E-4	3.50E-4	0.00E+0	1.30E-3	1.90E-5	1.24E-3	2.95E-5	3.68E-4	-7.46E-5	0.00E+0	-1.91E-3	-1.43E-3
EP	[kg (PO$_4$)^3-Eq.]	2.37E-3	8.87E-5	7.96E-5	0.00E+0	4.78E-6	3.25E-4	3.09E-4	2.93E-6	3.85E-4	-8.41E-6	0.00E+0	-2.16E-4	-1.46E-4
POCP	[kg ethene-Eq.]	1.05E-3	-1.46E-4	2.77E-5	6.29E-5	1.64E-4	-7.86E-6	8.15E-5	2.02E-6	4.13E-5	-6.29E-6	0.00E+0	-1.62E-4	-1.49E-4
ADPE	[kg Sb-Eq.]	2.65E-6	6.40E-9	7.56E-8	0.00E+0	1.02E-6	3.45E-10	1.54E-8	5.78E-9	1.51E-8	-1.30E-8	0.00E+0	-3.32E-7	-4.74E-8
ADPF	[MJ]	1.10E+2	1.17E+0	3.19E+0	0.00E+0	6.80E+0	6.29E-2	1.06E+0	1.21E-1	2.01E+0	-6.56E-1	0.00E+0	-1.69E+1	-3.59E+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 floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
PERE	[MJ]	2.68E+1	6.45E-2	7.65E-1	0.00E+0	1.11E+0	3.48E-3	1.63E-1	7.79E-2	1.55E-1	-1.61E-1	0.00E+0	-4.14E+0	-4.34E-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]	2.68E+1	6.45E-2	7.65E-1	0.00E+0	1.11E+0	3.48E-3	1.63E-1	7.79E-2	1.55E-1	-1.61E-1	0.00E+0	-4.14E+0	-4.34E-1
PENRE	[MJ]	9.46E+1	1.17E+0	3.39E+0	0.00E+0	7.99E+0	6.31E-2	2.37E+1	2.27E+1	2.08E+0	-8.35E-1	0.00E+0	-2.15E+1	-3.63E+1
PENRM	[MJ]	2.25E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-2.25E+1	-2.25E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	[MJ]	1.17E+2	1.17E+0	3.39E+0	0.00E+0	7.99E+0	6.31E-2	1.20E+0	2.07E-1	2.08E+0	-8.35E-1	0.00E+0	-2.15E+1	-3.63E+1
SM	[kg]	4.62E-1	0.00E+0	1.31E-2	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	8.86E-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	3.37E+1
FW	[m³]	2.26E-1	1.19E-4	6.72E-3	0.00E+0	4.45E-3	6.41E-6	8.81E-3	1.06E-4	-5.35E-6	-2.20E-4	0.00E+0	-5.64E-3	-3.55E-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	C3/2	C3/3	C4/1	D	D/1	D/2	D/3
HWD	[kg]	1.46E-3	6.76E-8	4.12E-5	0.00E+0	1.26E-9	3.65E-9	6.32E-9	9.73E-11	8.89E-9	-3.40E-10	0.00E+0	-8.75E-9	-2.35E-9
NHWD	[kg]	5.33E-1	9.80E-5	2.70E-2	0.00E+0	8.24E-3	5.29E-6	3.96E-1	1.46E-4	1.97E+0	-3.58E-4	0.00E+0	-9.20E-3	-2.06E-1
RWD	[kg]	2.70E-3	1.60E-6	7.84E-5	0.00E+0	3.95E-4	8.64E-8	5.72E-5	3.44E-5	2.96E-5	-7.09E-5	0.00E+0	-1.82E-3	-1.44E-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	1.10E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.86E-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	1.08E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	2.03E-1	0.00E+0	0.00E+0	0.00E+0	5.21E+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	3.67E-1	0.00E+0	0.00E+0	0.00E+0	9.45E+0	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
Institut Bauen und Umwelt e.V., Berlin (pub.):
Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU),
Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report, V1.6 April 2017
www.bau-umwelt.de

PCR Part B
Institut Bauen und Umwelt e.V., Berlin (pub.):
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, V1.4, September 2016
www.bau-umwelt.de

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: Hochbau und Bauwerke -
    Planung der Lebensdauer
ISO 15686-1: 2011-05: Teil 1: Allgemeine Grundlagen
    und Rahmenbedingungen
ISO 15686-2: 2012-05: Teil 2: Verfahren zur
    Voraussage der Lebensdauer
ISO 15686-7: 2006-03: Teil 7: Leistungsbewertung für
    die Rückmeldung von Daten über die
    Nutzungsdauer aus der Praxis
ISO 15686-8: 2008-06: Teil 8: Referenznutzungsdauer
    und Bestimmung der Nutzungsdauer

VDZ e.V.
Umweltdaten der deutschen Zementindustrie 2015

CPR
Construction Producs Regulation, Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011

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 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency (ECHA), European Union Regulation No 1907/2006, June 2017,

GaBi database 2018
GaBi Software-System and Database for Life Cycle Engeneering, thinkstep AG, Leinfelden-Echterdingen, service pack 36, 2017

ecoinvent 3.4
ecoinvent, Zurich, Switzerland, Database Version 3.4, Oktober 2017