ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	Desso BV
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DES-20160155-CAB1-DE
Issue date	30.09.2016
Valid to	29.09.2021

Tufted carpet tiles
Pile material 600-700 g/m² polyamide 6 with 0% recycled content and EcoBase™ backing

Institut Bauen und Umwelt e.V.

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

General Information

Desso BV, a Tarkett company
www.desso.com

Tufted carpet tiles
Pile material 600-700 g/m² Polyamide 6 with 0% recycled content and EcoBase ™ backing.

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

Owner of the Declaration
Desso BV
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5142 PA Waalwijk
The Netherlands

Declaration number
EPD-DES-20160155-CAB1-DE

Declared product / Declared unit
1 m² Tufted carpet tiles Pile material 600-700 g/m² Polyamide 6 with 0% recycled content and EcoBase™ backing.

This Declaration is based on the Product Category Rules:
Floor coverings, 07.2014
(PCR tested and approved by the SVR)

Scope:
The declaration applies for a group of tufted modular carpet tiles.
It is only valid in conjunction with a valid PRODIS licence.
The products are produced in the manufacturing sites Dendermonde, Belgium (tufting) and in Waalwijk, the Netherlands (precoating and heavy coating).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.

Issue date
30.09.2016

Valid to
29.09.2021

Verification

The CEN Norm /EN 15804/ serves as the core PCR
Independent verification of the declaration according to /ISO 14025/
☐ internally ☒ externally

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

Dr. Burkhart Lehmann
(Managing Director IBU)

Dr. Eva Schmincke
(Independent verifier appointed by SVR)

Product

Product description
Product description
Tufted carpet tiles with a surface pile of 0% recycled solution-dyed polyamide 6 and a DESSO EcoBase® backing. The declaration applies for a group of products with a total pile-material of 600-700 g/m². The calculations refer to the average pile-material input of 650 g/m².

DESSO EcoBase® Backing
DESSO EcoBase® is a polyolefin based backing which contains 100% positively defined* recycled calcium carbonate (chalk) as well as a polypropylene covering fleece and glass scrim reinforcement. The EcoBase™ backing is 100% recyclable in Desso's own production process. Products declared in this EPD have a minimum of 40% positively defined* recycled content.

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.

Technical Data

Name	Value	Unit
Product form	Tiles	-
Type of manufacture	Tufted	-
Yarn type	0% recycled PA6	-
Total carpet weight	4200	g/m²
Surface pile weight	600 - 700	g/m²
Secondary backing	EcoBase™ backing	-

Additional product properties according to /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 Desso website: www.desso.com

Base materials / Ancillary materials

Name	Value	Unit
Polyamide 6	15,5	%
Polyester	2,4	%
Polypropylene	1,0	%
Calcium Carbonate (chalk)	42,3	%
Polyolefin	18,1	%
Aluminium tri hydrate	14,8	%
Latex	4,6	%
Glass fibre	0,6	%
additives	0,7	%

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 of cleaning and maintenance instructions.A minimum service life of 10 years could be assumed, technical service life can be considerably longer.

*Positively defined = all ingredients have been assessed as either Green (optimal) or Yellow (tolerable) according to the Cradle to Cradle® assessment criteria. As described in Cradle to Cradle® Certified^{CM} Product Standard Version 3.1.

LCA: Calculation rules

Declared Unit

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Conversion factor to 1 kg	0.24	-
Mass reference (average product)	4.2	kg/m^2

Database: EcoInvent

System boundary

Type of the EPD: Cradle-to-grave.

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

A1-A3 Production:
Energy provision, production of raw material that is not secondary material (e.g. additives, dyes), yarn processing (e.g. solution dying):
Auxiliary material, transport of any material to the manufacturing site, waste water treatment, production of packaging material and waste processing of residual waste up to the landfill. Credits for electricity and steam from the incineration of production waste are not taken into account nor are any credits as a result of carbon offsetting.

A4 Transport:
Transport of the packed textile floor covering from manufacturing gate to the place of installation.

A5 Installation:
Installation of the textile floor covering, production and transport of auxiliary material, waste processing up to the landfill of residual 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 installation waste leave the product system and are not declared in Module D.

B1 Use:
Product related VOC-emissions are not relevant.

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 with the assumed service time of the floor covering in the building in question.

B3 - B7:
The modules are not relevant and therefore not declared.

C1 De-construction:
De-construction of the floor covering is made by handcraft and causes no additional impacts.

C2 Transport:
Carpet waste is returned to Desso and therefore the distance is equal to the impact in A4.

C3 Waste processing:
The yarn is separated from the backing. The carpet tile is processed at Desso. Desso specific data is used as input for this module.

C4 Disposal
Non-recycled waste is discarded by Desso for use in the cement industry. Potential benefits are allocated to module D.

D Recycling Potential:
The EcoBase^{TM} backing is 100% recyclable in Desso's own production process and therefore replaces primary EcoBase^{TM} in the carpet tile production. The yarn is extracted from the tile and sent for recycling to create new yarn. Polyester tuft cloth and latex compound are used as fuels in the cement production.
D/1 is the recycling potential of EcoBase^{TM} carpet tile backing.
D/2 is the recycling potential of PA6.
D/3 are the benefits from substituting fuel in the cement production.

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.

LCA: Scenarios and additional technical information

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel	29.4	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	700	kg/m^3

Installation in the building (A5)

Name	Value	Unit
Auxiliary	0.2	kg
Material loss	0.13	kg

Cardboard waste (packaging material) leaves the system for recycling. Installation waste is considered to be incinerated in a municipal waste incineration plant.

Maintenance (B2)

Name	Value	Unit
Maintenance cycle (wet cleaning)	1.5	1/year
Cleaning agent (wet cleaning)	0.06	kg/year
Water consumption (wet cleaning)	0.03	m^3
Maintenance (dry cleaning)	208	1/year
Electricity consumption	0.314	kWh

Further information on cleaning and maintenance see www.desso.com

End of Life (C1-C4)

DESSO EcoBase® products are designed for disassembly and recycling. Next to that a take back programme has been put in place, called ReStart® as well as a recycling facility called Refinity® Removal of used carpet tiles is done by hand and the reverse logistic process is organised by Desso.

In order to further secure the return of these valuable raw materials, Desso has also launched a Carpet LeaseTM programme together with global financial solutions provider DLL.

Name	Value	Unit
Collected separately	4.2	kg
Recycling	4.2	kg

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

Both the yarn and EcoBase™ backing can be recycled. The backing can be used 100% in Desso's own production process. After additional processing, the yarn (PA6) can be used as yarn again. This means that both materials replace the need for primary materials in the next phase. Polyester and latex compound are used as fuels in the production of cement.

Name	Value	Unit
DESSO EcoBase® recovered of total tile	62.0	%
Polyamide 6 recovered of total tile	15.5	%
Polyester, Latex, Energy recovery	22.6	%

Recycling in the cement industry: the organic material of the carpet is used as secondary fuel in a cement kiln. It substitutes mainly lignite (58%), hard coal (26%) and petrol coke (12%). The inorganic material is substantially integrated in the cement clinker and substitutes virgin material input.

LCA: Results

Modules B3 - B7 are not relevant during the service time of the carpet and are therefore not declared.
Module C1 causes no additional impact (see "LCA: Calculation rules", "C1 De-construction") and is therefore not declared. The declared values in module B2 have to be multiplied with the assumed service time (in years) of the floor covering in the building considered.

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	MND	MND	MND	MND	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1m² EcoBase™ carpet tiles - 600 to 700 g/m² PA6, 0% recycled

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D/1	D/2	D/3
GWP	[kg CO_2-Eq.]	1.13E+1	5.32E-1	3.33E-1	0.00E+0	2.47E-1	5.32E-1	1.86E-2	0.00E+0	-2.13E+0	-4.38E+0	-8.34E-2
ODP	[kg CFC11-Eq.]	3.79E-7	9.73E-8	2.89E-8	0.00E+0	5.60E-8	9.73E-8	6.72E-10	0.00E+0	-2.31E-8	-1.56E-9	-2.81E-8
AP	[kg SO_2-Eq.]	4.28E-2	2.15E-3	1.05E-3	0.00E+0	1.82E-3	2.15E-3	2.25E-5	0.00E+0	-4.68E-3	-1.40E-2	-7.11E-4
EP	[kg $(PO_4)^{3-}$-Eq.]	1.09E-2	4.62E-4	7.68E-4	0.00E+0	8.59E-5	4.62E-4	7.59E-6	0.00E+0	-1.45E-3	-3.16E-3	-7.04E-5
POCP	[kg ethene-Eq.]	2.13E-3	9.08E-5	3.26E-4	0.00E+0	8.26E-5	9.08E-5	1.13E-6	0.00E+0	-4.23E-4	-6.40E-4	-4.05E-5
ADPE	[kg Sb-Eq.]	7.15E-2	3.88E-3	1.43E-3	0.00E+0	3.15E-4	3.88E-3	1.40E-5	0.00E+0	-8.82E-3	-2.62E-2	-7.19E-3
ADPF	[MJ]	1.84E+2	8.49E+0	9.01E-1	0.00E+0	5.37E+0	8.49E+0	4.43E-3	0.00E+0	-3.53E+1	-1.33E-1	-9.77E+0

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: 1m² EcoBase™ carpet tiles - 600 to 700 g/m² PA6, 0% recycled

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D/1	D/2	D/3
PERE	[MJ]	6.82E+0	1.01E-1	1.19E+0	0.00E+0	3.40E-1	1.01E-1	3.00E-1	0.00E+0	-2.97E-1	-2.64E-1	-1.90E-2
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
PERT	[MJ]	6.82E+0	1.01E-1	1.19E+0	0.00E+0	3.42E-1	1.01E-1	3.00E-1	0.00E+0	-2.97E-1	-2.64E-1	-1.90E-2
PENRE	[MJ]	2.00E+2	8.63E+0	3.81E+0	0.00E+0	4.89E+0	8.63E+0	2.91E-2	0.00E+0	-6.03E+1	-5.74E+1	-1.28E+1
PENRM	[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
PENRT	[MJ]	2.00E+2	8.63E+0	3.81E+0	0.00E+0	4.91E+0	8.63E+0	2.37E-1	0.00E+0	-6.03E+1	-5.74E+1	-1.28E+1
SM	[kg]	1.78E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-1.80E+0	0.00E+0	0.00E+0
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
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
FW	[m^3]	1.20E-2	4.75E-4	2.31E-2	0.00E+0	9.85E-3	4.75E-4	2.55E-5	0.00E+0	1.90E-4	1.70E-3	-3.82E-5

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: 1m² EcoBase™ carpet tiles - 600 to 700 g/m² PA6, 0% recycled

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3	C4	D/1	D/2	D/3
HWD	[kg]	6.34E-5	4.82E-6	3.52E-3	0.00E+0	1.75E-1	4.82E-6	1.60E-2	0.00E+0	-7.33E-6	-5.45E-7	-1.15E-6
NHWD	[kg]	9.86E-1	3.78E-1	3.83E-2	0.00E+0	9.43E-1	3.78E-1	3.35E-3	0.00E+0	-1.16E-2	-3.83E-2	-8.75E+0
RWD	[kg]	2.15E-4	5.51E-5	3.51E-3	0.00E+0	1.75E-1	5.51E-5	1.58E-2	0.00E+0	-4.41E-6	-4.21E-7	-8.62E-7
CRU	[kg]	0.00E+0	0.00E+0	2.37E-5	0.00E+0	1.18E-3	0.00E+0	1.98E-5	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	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	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	[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
EET	[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

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

Interpretation

In order to understand the full environmental impact of products declared in this EPD , one should consider Module D when comparing on building level.

This product is specifically designed for recycling, which is demonstrated in Module D

References

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Cradle to Cradle®
Cradle to Cradle Certified^{CM} Product Standard Version 3.1 McDonough Braungart Design Chemistry (MBDC) 2016.

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