ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-DES-20130054-CBD1-EN
Issue date	08/05/2013
Valid to	07/05/2018

Tufted carpet tiles
Pile material 600-700 g/m² polyamide 6 with 100 % recycled content and a modified bitumen backing
Desso®

Institut Bauen und Umwelt e.V.

www.bau-umwelt.com / https://epd-online.com

General Information

Desso®

Tufted carpet tiles
Pile material 600-700 g/m² polyamide 6 with 100 % recycled content and a modified bitumen backing

Programme holder
IBU - Institut Bauen und Umwelt e.V.
Rheinufer 108
D-53639 Königswinter

Owner of the Declaration
Desso BV
Taxandriaweg 15
5142 PA Waalwijk,
The Netherlands

Declaration number
EPD-DES-20130054-CBD1-EN

Declared product / Declared unit
1m² tufted carpet tiles with a surface pile of 600-700 g/m² recycled polyamide 6 and a modified bitumen backing.

This Declaration is based on the Product Category Rules:
Floor coverings, 07-2012
(PCR tested and approved by the independent expert committee)

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 site 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.

Issue date
08/05/2013

Valid to
07/05/2018

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

Prof. Dr.-Ing. Hans-Wolf Reinhardt
(Chairman of SVA)

Verification

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

Dr. Eva Schmincke
(Independent tester appointed by SVA)

Product

Product description
Tufted carpet tiles with a surface pile of solution-dyed polyamide 6 with 100% recycled content, and a modified bitumen backing.
The declaration applies for a group of products with a total pile-material input of 600-700 g/m².
The calculations refer to the average pile-material input of 650 g.
The recycled content out of total weight amount to 15,5%.

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

Constructional data

Name	Value	Unit
Product Form	Tiles	-
Type of manufacture	Tufted	-
Yarn type	100% recycled PA 6	-
Secondary backing	Heavy backing bitumen based with textile bottom and reinforcement	-
Total pile weight	600-700	g/m²
Total carpet weight	4200	g/m²

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

Base materials / Ancillary materials

Name	Value	Unit
Polyamide 6	16,8	%
Polyester	1,3	%
Polypropylene	1,0	%
Limestone	59,0	%
Bitumen	13,6	%
Aluminium hydroxide	1,2	%
Latex	5,8	%
Glass fibre	0,7	%
Additives	0,6	%

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.

LCA: Calculation rules

Declared Unit

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Conversion factor to 1 kg (average product)	0.24	-
Mass reference (average product)	4,2	kg/m²

System boundary

Type of the EPD: Cradle to grave.

System boundaries of the 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 of residual waste (except radioactive waste). Credits for electricity and steam from the incineration of production waste are aggregated.

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

A5 Installation:
Installation of the textile floorcovering, production and transport of auxiliary material, waste processing up to the landfill of residual waste (except radioactive 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.

B1 Use:
Indoor emissions during the use stage. Due to known VOC-decay curves of the product after the first year no product related VOC-emissions are relevant.

B2 Maintenance:
Cleaning of the textile floorcovering 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 considered.

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

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

C2 Transport:
Transport of the carpet waste to landfill, to the municipal waste incineration (MWI) or to the waste collection for recycling.

C3 Waste processing:
C3-0, C3-1: Landfill and waste incineration need no waste processing.
C3-2: Collection of the carpet waste, waste processing (granulating).

C4 Disposal
C4-0, C4-1: Impacts from landfill or from waste incineration (credits leave the system boundaries),
C4-2: The processed carpet waste leaves the system and need no disposal.

D Recycling potential:
D-0, D-1: Energy credits from landfill and from waste incineration (processing with < 60% efficiency),
D-2: Transport from the reprocessing plant to the cement plant, substitution of material and fuel input in the cement kiln (substantial and energetic credits).

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

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

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-5 mix)	29.4	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	700	kg/m³

Installation in the building (A5)

Name	Value	Unit
Auxiliary (Fixing agent)	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)

Indication per m² and year

Name	Value	Unit
Maintenance cycle (wet cleaning)	1,5	1/year
Maintenance cycle (vacuum cleaning)	208	1/year
Water consumption (wet cleaning)	0.003	m³
Cleaning agent (wet cleaning)	0,06	kg
Electricity consumption	0.314	kWh

Further information on cleaning and maintenance see www.desso.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 0: 100% landfill
Scenario 1: 100% municipal waste incineration (MWI)
Scenario 2: 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 0)
+ y% impact (Scenario 1)
+ z% impact (Scenario 2)

Name	Value	Unit
Collected as mixed construction waste (scenario 0 and 1)	4.2	kg
Collected separately (scenario 2)	4.2	kg
Landfilling (scenario 0)	4.2	kg
Energy recovery (scenario 1)	4.2	kg
Energy recovery (scenario 2)	1,6	kg
Recycling (scenario 2)	2.6	kg

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

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

Recycling in the cement industry (scenario 2)

The organic material of the carpet is used as secondary fuel in a cement kiln. It substitutes mainly lignite (62,7%), hard coal (27,3%) and petrol coke (10,0%).
The inorganic material is substantially integrated in the cement clinker and substitutes original material input.

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LCA: Results

Information on not declared modules:
The 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.
Module C2 represents the transport for scenario 0, 1 and 2.

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 BOUNDARYS
Raw material supply	Transport	Manufacturing	Transport	Construction-installation process	Use	Maintenance	Repair	Replacement[1)]	Refurbishment[1)]	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: 1 m² floorcovering

Parameter	Unit	A1 - A3	A4	A5	B1	B2	C2	C3	C3/1	C3/2	C4	C4/1	C4/2	D	D/1	D/2
GWP	[kg CO_2-Eq.]	7.43	0.176	0.593	0.003	0.29	0.01	0	0	0.028	9.38	7.93	0	-0.237	-2.44	-0.368
ODP	[kg CFC11-Eq.]	1.09E-7	3.1E-12	1.98E-8	0.0E+0	6.45E-9	1.7E-13	0.0E+0	0.0E+0	2.5E-11	1.1E-10	6.2E-10	0.0E+0	-2.1E-10	-5.0E-10	-9.35E-8
AP	[kg SO_2-Eq.]	3.77E-2	8.05E-4	2.09E-3	0.0E+0	1.37E-3	4.47E-5	0.0E+0	0.0E+0	1.33E-4	1.15E-3	5.22E-3	0.0E+0	-1.12E-3	-3.99E-3	-2.55E-3
EP	[kg $(PO_4)^{3-}$- Eq.]	1.24E-2	1.86E-4	7.49E-4	0.0E+0	1.99E-4	1.03E-5	0.0E+0	0.0E+0	7.01E-6	5.39E-3	1.37E-3	0.0E+0	-5.91E-5	-3.3E-4	-5.29E-4
POCP	[kg Ethen Eq.]	2.72E-3	-2.91E-4	1.9E-4	1.11E-4	1.79E-4	-1.62E-5	0.0E+0	0.0E+0	7.84E-6	1.38E-3	3.73E-4	0.0E+0	-6.61E-5	-4.2E-4	-3.43E-4
ADPE	[kg Sb Eq.]	3.55E-4	6.58E-9	1.11E-5	0.0E+0	5.44E-7	3.7E-10	0.0E+0	0.0E+0	3.87E-9	4.35E-8	1.5E-6	0.0E+0	-3.26E-8	-1.45E-7	-6.29E-8
ADPF	[MJ]	145	2.44	8.41	0	6.55	0.136	0	0	0.495	3.21	6.8	0	-4.17	-40.6	-61.8

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	C3/1	C3/2	C4	C4/1	C4/2	D	D/1	D/2
PERE	[MJ]	9.37	0.096	1.79	0	0.5	0.005	0	0	0.083	0.155	0.306	0	-0.696	-1.63	-0.168
PERM	[MJ]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERT	[MJ]	9.37	0.096	1.79	0	0.5	0.005	0	0	0.083	0.155	0.306	0	-0.696	-1.63	-0.168
PENRE	[MJ]	88.56	2.44	8.41	0	6.55	0.136	0	0	0.496	3.21	6.8	0	-4.18	-40.6	-61.8
PENRM	[MJ]	56.44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PENRT	[MJ]	145	2.44	8.41	0	6.55	0.136	0	0	0.496	3.21	6.8	0	-4.18	-40.6	-61.8
SM	[kg]	0.696	0	0.017	0	0	0	0	0	0	0	0	0	0	0	0
RSF	[MJ]	1.98E-3	1.54E-5	1.17E-4	0.0E+0	2.03E-4	8.57E-7	0.0E+0	0.0E+0	1.01E-5	2.57E-3	1.86E-4	0.0E+0	-8.53E-5	-4.7E-4	-2.13E-5
NRSF	[MJ]	2.07E-2	1.62E-4	1.22E-3	0.0E+0	2.13E-3	8.98E-6	0.0E+0	0.0E+0	1.06E-4	6.13E-3	1.93E-3	0.0E+0	-8.93E-4	-4.93E-3	-2.2E-4
FW	[m^3]	1.95E+1	9.54E-3	1.05E+0	0.0E+0	8.49E-1	5.3E-4	0.0E+0	0.0E+0	1.07E-1	1.19E-1	3.24E-1	0.0E+0	-9.05E-1	-2.12E+0	-2.96E-1

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	C3/1	C3/2	C4	C4/1	C4/2	D	D/1	D/2
HWD	[kg]	0.009	0	0.017	0	0	0	0	0	0	0	0.56	0	0	0	0
NHWD	[kg]	7.48E+0	8.7E-3	3.912E-1	0.0E+0	6.2E-1	4.83E-4	0.0E+0	0.0E+0	1.12E-1	3.2E+0	7.68E-1	0.0E+0	-9.45E-1	-2.22E+0	-4.83E+1
RWD	[kg]	3.2E-3	3.4E-6	1.73E-4	0.0E+0	3.95E-4	1.89E-7	0.0E+0	0.0E+0	7.28E-5	5.89E-5	2.04E-4	0.0E+0	-6.14E-4	-1.43E-3	-1.01E-4
CRU	[kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MFR	[kg]	0.067	0	0.12	0	0	0	0	0	0	0	0	2.59	0	0	0
MER	[kg]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EEE	[MJ]	0	0	0.113	0	0	0	0	0	0	1.77	3.76	0	0	0	0
EET	[MJ]	0	0	0.771	0	0	0	0	0	0	0	25.7	0	0	0	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

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.

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