

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	modulyss®
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-MOD-20150329-CBC1-EN
Issue date	01/02/2016
Valid to	31/01/2021

## Tufted carpet tiles

with a maximum pile weight of 800 g/m<sup>2</sup>,  
pile material 100% recycled polyamide 6 solution dyed,  
bitumen based backing

**modulyss®**

[www.bau-umwelt.com](http://www.bau-umwelt.com) / <https://epd-online.com>



## General Information

modulyss®

### Programme holder

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

### Declaration number

EPD-MOD-20150329-CBC1-EN

### This Declaration is based on the Product Category Rules:

Floor coverings, 07.2014  
(PCR tested and approved by the SVR)

### Issue date

01/02/2016

### Valid to

31/01/2021

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

Dr. Burkhard Lehmann  
(Managing Director IBU)

### Tufted carpet tiles

max. pile weight 800 g/m<sup>2</sup>, pile material 100% recycled PA 6 solution dyed, bitumen based backing

### Owner of the Declaration

modulyss  
Zevensterrestraat 21  
9240 Zele  
Belgium

### Declared product / Declared unit

1 m<sup>2</sup> tufted carpet tiles with a surface pile of recycled solution dyed PA 6 and a bitumen based backing.

### Scope:

The manufacturer declaration applies to a group of similar products with a maximum pile weight of 800 g/m<sup>2</sup>.

The products are manufactured in the modulyss production site Zele, Belgium.

Specific LCA results of products having a lower total pile weight can be taken from the corresponding tables of the annex or can be calculated in relation to the total pile weight. The result tables of the annex refer to categories of total pile weights in steps of 100 g/m<sup>2</sup>.

The declaration is only valid in conjunction with a valid GUT/PRODIS licence 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 CEN Norm /EN 15804/ serves as the core PCR

Independent verification of the declaration according to /ISO 14025/

internally  externally

Dr. Eva Schmincke  
(Independent verifier appointed by SVR)

## Product

### Product description

Tufted carpet tiles having a surface pile of 100% recycled polyamide 6, solution dyed, a primary backing with recycled content and a bitumen based heavy backing with recycled filler. Recycled filler includes recycled limestone and recycled production waste ‚B2B‘ (see more information on the website [www.modulyss.com/en/csr/back2back/](http://www.modulyss.com/en/csr/back2back/)).

The declaration applies to a group of products with a maximum pile weight of 800 g/m<sup>2</sup>. Specific LCA results of products having a lower total pile weight can be taken from the corresponding tables of the annex or can be calculated in relation to the total pile weight of the product.

The recycled content out of total weight amount to 65.8 %.

### 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.



## Technical Data

Name	Value	Unit
Product Form	Carpet tiles	-
Type of manufacture	Tufted	-
Yarn type	100% recycled PA 6, solution dyed	-
Secondary backing	Bitumen based heavy backing with recycled filler and textile bottom	-
Total pile weight	max. 800	g/m <sup>2</sup>
Total carpet weight	max. 4800	g/m <sup>2</sup>

Additional product properties and performance ratings 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](http://www.pro-dis.info)) or on the manufacturer's technical information section ([www.modulyss.com](http://www.modulyss.com)).

## Base materials / Ancillary materials

For products with a total pile weight of max. 800 g/m<sup>2</sup>

Name	Value	Unit
Polyamide 6	17.3	%
Polyester	3.4	%
Polypropylene	0.3	%
Limestone	52.8	%
Aluminiumhydroxide	6.5	%
SBR-latex/SBS-copolymer	5.6	%
Bitumen	13.6	%
Glass fibre	0.2	%
Additives	0.3	%

For specific information on products with a total pile weight lower than 700 g/m<sup>2</sup> see annex.

## Reference service life

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	m <sup>2</sup>
Conversion factor to 1 kg	0.21	m <sup>2</sup> /kg
Mass reference	4.8	kg/m <sup>2</sup>

### 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). Credits for electricity and steam from 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, production and transport of auxiliary materials, waste processing 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. Credits for electricity and steam from the incineration of packaging and installation waste leave the product system.

#### 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').

#### 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, C3-2: Landfill disposal and waste incineration need no waste processing.

C3-3: Collection of the carpet waste, waste processing (granulating).

#### C4 Disposal

C4-1, C4-2: Impact from landfill disposal or from waste incineration (credits leave the system boundaries),  
C4-3: The pre-processed carpet waste leaves the system and needs no disposal.

#### D Recycling potential:

D-A5: Energy credits from waste incineration of packaging and installation waste (processing with < 60% efficiency),

D-1, D-2: Energy credits from landfill disposal and from waste incineration of carpet waste at the end-of-life (processing with < 60% efficiency),

D-3: Energetic and substance related credits from recovery of the carpet at the end-of-life in a cement plant (substitution of material and fuel input in the cement kiln), 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.

## LCA: Scenarios and additional technical information

The following information refers to the declared modules and is 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 lower than 800 g/m<sup>2</sup>. Specific information on products having a lower pile weight can be taken from the annex.

#### Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (truck, EURO 0-5 mix)	0.0079	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	640	kg/m <sup>3</sup>

#### Installation in the building (A5)

Name	Value	Unit
Auxiliary (fixing agent)	0.2	kg
Material loss	0.14	kg

Packaging waste and installation waste are considered to be incinerated in a municipal waste incineration plant.

#### Maintenance (B2)

Indication per m<sup>2</sup> 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	m <sup>3</sup>
Cleaning agent (wet cleaning)	0.09	kg
Electricity consumption	0.314	kWh

Further information on cleaning and maintenance see [www.modulyss.com](http://www.modulyss.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)

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:

$$\begin{aligned} \text{EOL-impact} &= x\% \text{ impact (Scenario 1)} \\ &+ y\% \text{ impact (Scenario 2)} \\ &+ z\% \text{ impact (Scenario 3)} \end{aligned}$$

Name	Value	Unit
Collected as mixed construction waste (scenario 1 and 2)	4.8	kg
Collected separately (scenario 3)	4.8	kg
Landfilling (scenario 1)	4.8	kg
Energy recovery (scenario 2)	4.8	kg
Energy recovery (scenario 3)	1.9	kg
Recycling (scenario 3)	2.8	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 3)* VDZ e.V./

The organic material of the carpet is used as secondary fuel in a cement kiln. It mainly substitutes for lignite (64.2%), hard coal (25.4%) and petrol coke (10.4%).

The inorganic material is substantially integrated in the cement clinker and substitutes for original material input.

## LCA: Results

The results refer to all declared products with a maximum pile weight of 800 g/m<sup>2</sup> as a worse case approach. Specific LCA results of products having a lower total pile weight can be taken from the corresponding result tables of the annex or can be calculated in relation to the total pile weight (see annex, chapter 'General Information on the annex'). The result tables of the annex refer to categories of total pile weight in steps of 100 g/m<sup>2</sup>.

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 considered (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 and C3/2 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.

### 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: 1 m<sup>2</sup> floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
GWP	[kg CO <sub>2</sub> -Eq.]	8.19	0.20	0.76	0.00	0.35	0.01	0.03	4.21	5.26	0.00	-0.15	-0.15	-2.24	-0.78
ODP	[kg CFC11-Eq.]	9.93E-8	8.25E-13	1.71E-8	0.00E+0	1.31E-8	4.59E-14	2.34E-11	9.04E-12	7.82E-9	0.00E+0	-4.84E-11	-1.09E-10	-7.54E-10	-3.89E-8
AP	[kg SO <sub>2</sub> -Eq.]	2.63E-2	8.98E-4	2.16E-3	0.00E+0	1.75E-3	5.00E-5	1.58E-4	1.04E-3	3.70E-3	0.00E+0	-3.80E-4	-7.38E-4	-5.89E-3	-6.48E-3
EP	[kg (PO <sub>4</sub> ) <sup>3-</sup> -Eq.]	5.67E-3	2.28E-4	6.09E-4	0.00E+0	3.05E-4	1.27E-5	8.60E-6	4.50E-3	9.36E-4	0.00E+0	-2.61E-5	-4.01E-5	-4.01E-4	-1.07E-3
POCP	[kg ethene-Eq.]	2.65E-3	-3.32E-4	2.15E-4	1.11E-4	2.75E-4	-1.84E-5	9.23E-6	1.11E-3	2.41E-4	0.00E+0	-3.18E-5	-4.30E-5	-4.87E-4	-5.59E-4
ADPE	[kg Sb-Eq.]	8.72E-5	7.87E-9	3.62E-6	0.00E+0	1.14E-6	4.38E-10	5.52E-9	4.82E-8	-7.65E-7	0.00E+0	-1.45E-8	-2.57E-8	-2.24E-7	-4.43E-7
ADPF	[MJ]	159.00	2.76	8.28	0.00	7.03	0.15	0.35	3.15	2.80	0.00	-2.07	-1.63	-31.50	-71.30

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 m<sup>2</sup> floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
PERE	[MJ]	23.74	0.15	2.22	0.00	0.72	0.01	0.12	0.21	0.03	0.00	-0.24	-0.55	-3.80	-0.35
PERM	[MJ]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERT	[MJ]	23.74	0.15	2.22	0.00	0.72	0.01	0.12	0.21	0.03	0.00	-0.24	-0.55	-3.80	-0.35
PENRE	[MJ]	99.71	2.77	8.90	0.00	8.22	0.15	0.56	3.29	3.27	0.00	-2.51	-2.62	-38.29	-71.73
PENRM	[MJ]	65.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PENRT	[MJ]	165.70	2.77	8.90	0.00	8.22	0.15	0.56	3.29	3.27	0.00	-2.51	-2.62	-38.29	-71.73
SM	[kg]	3.31	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RSF	[MJ]	2.34E-3	1.84E-5	1.02E-4	0.00E+0	5.08E-5	1.02E-6	7.40E-6	2.77E-3	1.81E-5	0.00E+0	-2.73E-5	-3.45E-5	-4.18E-4	-6.38E-5
NRSF	[MJ]	2.60E-2	1.93E-4	1.16E-3	0.00E+0	5.75E-4	1.07E-5	7.73E-5	5.77E-3	1.78E-4	0.00E+0	-2.85E-4	-3.60E-4	-4.37E-3	-6.69E-4
FW	[m <sup>3</sup> ]	3.20E-2	2.72E-4	2.54E-3	0.00E+0	1.65E-3	1.51E-5	2.36E-4	4.37E-4	1.68E-2	0.00E+0	-4.93E-4	-1.10E-3	-7.68E-3	-6.16E-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 m<sup>2</sup> floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
HWD	[kg]	1.72E-5	0.00E+0	5.03E-7	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
NHWD	[kg]	2.30E-2	1.04E-2	4.29E-1	0.00E+0	6.22E-1	5.81E-4	1.30E-1	4.16E+0	1.74E+0	0.00E+0	-2.70E-1	-6.07E-1	-4.20E+0	-5.76E+1
RWD	[kg]	2.25E-3	3.79E-6	1.45E-4	0.00E+0	3.96E-4	2.11E-7	8.39E-5	5.52E-5	1.57E-4	0.00E+0	-1.74E-4	-3.91E-4	-2.70E-3	-1.25E-4
CRU	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MFR	[kg]	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.86	0.00	0.00	0.00	0.00
MER	[kg]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.94	0.00	0.00	0.00	0.00
EEE	[MJ]	0.00	0.00	0.96	0.00	0.00	0.00	0.00	1.12	7.48	0.00	0.00	0.00	0.00	0.00
EET	[MJ]	0.03	0.00	2.19	0.00	0.00	0.00	0.00	0.00	16.44	0.00	0.00	0.00	0.00	0.00

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

### Institut Bauen und Umwelt

Institut Bauen und Umwelt e.V., Berlin(pub.):  
Generation of Environmental Product Declarations  
(EPDs);

### General principles

for the EPD range of Institut Bauen und Umwelt e.V.  
(IBU), 2013/04  
[www.bau-umwelt.de](http://www.bau-umwelt.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, April 2013  
[www.bau-umwelt.de](http://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,  
V1.6, July 2013  
[www.bau-umwelt.de](http://www.bau-umwelt.de)

### EN 1307

DIN EN 1307: 2014-07:Textile floor coverings -  
Classification

### EN 14041

DIN EN 14041:2008-05:Resilient, textile and laminate  
floor coverings

### 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

### VDZ e.V.:

Umweltdaten der deutschen Zementindustrie 2013

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# Annex

to the

## ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

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with a maximum pile weight of 800 g/m<sup>2</sup> polyamide 6,  
100% recycled, solution dyed,  
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[www.bau-umwelt.com](http://www.bau-umwelt.com) / <https://epd-online.com>



**Additional information and LCA results  
to the declared products in the  
ENVIRONMENTAL PRODUCT DECLARATION  
for products having a total pile weight  
lower than 800 g/m<sup>2</sup>**



## General Information on the annex

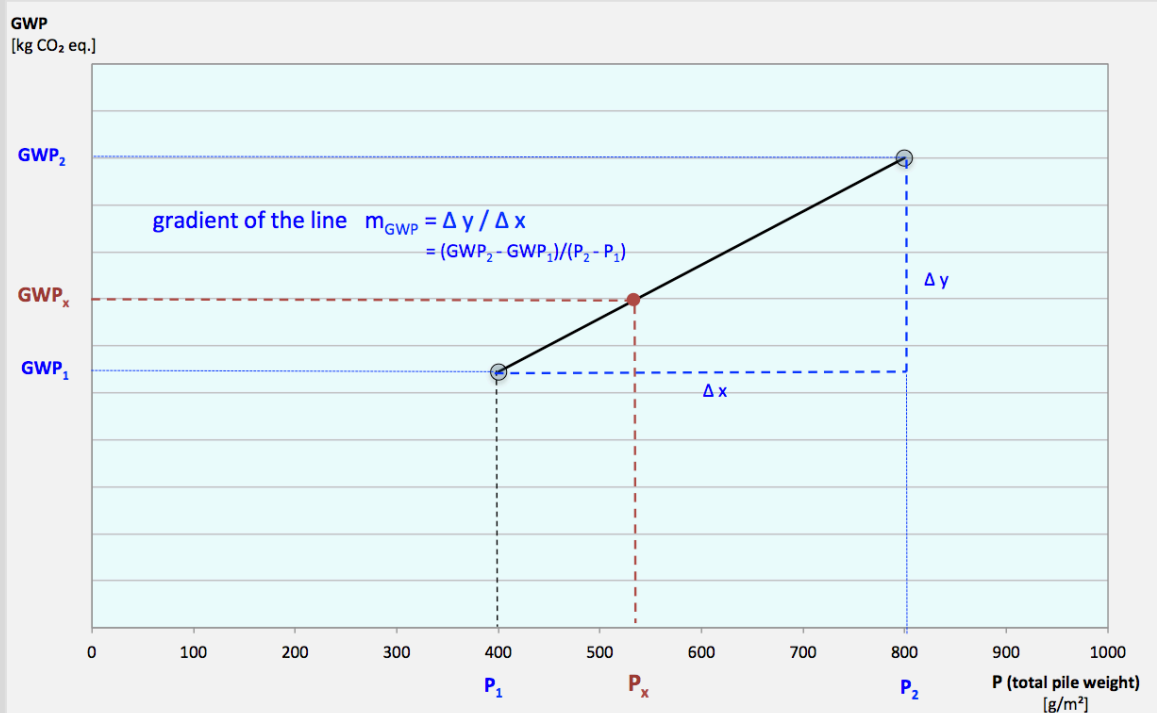
The EPD document is valid for all products with a maximum pile weight of 800 g/m<sup>2</sup> as a worse case approach.

This annex indicates more specific LCA results for the declared products with a total pile weight lower than 800 g/m<sup>2</sup>.

The LCA results for each life-cycle-stage (A to D) are in linear relationship to the total pile weight of the products.

*Example for the calculation method:*

The linear relationship of the figures in the LCA result tables to the pile weight is shown by the example of the Global Warming Potential (GWP) from the product stage A1-A3. Each LCA result can be calculated in the same way.



The GWP can be calculated for each product with its individual total pile weight according to the formular

$$GWP_x = GWP_1 + m * (P_x - P_1)$$

Formula A:		
In general	$IC_x = IC_1 + m_{IC} * (P_x - P_1)$	with IC = Impact Category

The LCA result tables for products in total pile weight steps of 100 g/m<sup>2</sup> are indicated in the annex. The results refer to the maximum total pile weight of the respective category.

Total pile weight categories [g/m <sup>2</sup> ]			
Category A	Category B	Category C	Category D
max. 400	max. 500	max. 600	max. 700

## General Information on use stage B1 to B7

LCA results indicate environmental impacts resulting from use stage B1 to B7.

For textile floor coverings only modules B1 (use) and B2 (maintenance) are taken into account. Modules B3 (repair), B4 (replacement), B5 (refurbishment), B6 (operational energy use) and B7 (operational water use) are not relevant during the service life of textile floor coverings.

**Module B1 'use'** includes indoor emissions during the use stage. Relevant emissions only occur during the first year of life (see LCA: Calculation rules).

**Module B2 'maintenance'** includes cleaning procedures.

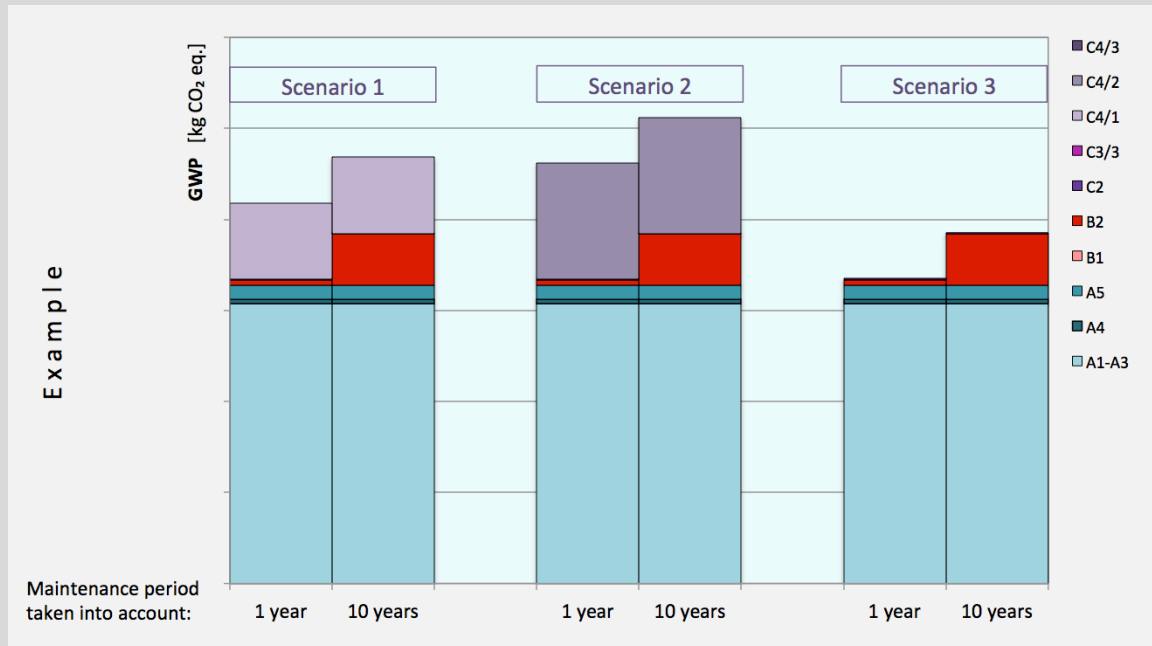
### Reference service life

The actual service life of textile floor coverings depends on a wide range of various impact factors such as the allocation of the application area to the use class, maintenance, intensity of use and most often fashion and building related aspects. Therefore technical service life mostly last much longer than real service life.

### Total environmental impacts from module B2

The total environmental impacts have to be calculated by taking into account the service life of textile floor coverings. As a fixed reference service life cannot be defined for textile floorcoverings the assumed real service life has to be used for the calculation of total environmental impacts. Module B2 (maintenance) is depending on the service life. Values for module B2 given in the result tables are indicated for the period of one year. They have to be multiplied by the assumed real service life of the textile floor covering taking into account building related aspects.

*Example: Total Global Warming Potential (GWP) - taking into account a maintenance period of 1 year compared to a maintenance period of 10 years - for the three declared end-of-life scenarios.*



### Formula B:

The total LCA results of the textile floor covering - taking into account the real service life (SL) - have to be calculated according to the following method

$$TIC_{SL} = TIC_{A1-A3} + TIC_{A4} + TIC_{A5} + TIC_{B1} + SL \times TIC_{B2} + TIC_{C2} + TIC_{C3/p} + TIC_{C4/p}$$

with TIC = Total Impact Category  
SL = real service life  
p = end-of-life scenario

# 1 Information on products in total pile weight category A (max 400 g/m<sup>2</sup>)

## Product description

Name	Value for category				Unit
	A	B	C	D	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6 , 100% recycled, solution dyed				-
Secondary backing	Heavy backing bitumen based with recycled filler and textile bottom				-
Use class according to /EN 1307/	33				-
Maximum total pile weight	400	500	600	700	g/m <sup>2</sup>
Maximum total carpet weight	4400	4500	4600	4700	g/m <sup>2</sup>
Recycled content out of total weight	62.7	63.5	64.3	65.1	%

## Base materials / Ancillary materials

Name	Value for category				Unit
	A	B	C	D	
Polyamide 6	9.6	11.7	13.6	15.5	%
Polyester	3.8	3.7	3.6	3.5	%
Polypropylene	0.3	0.3	0.3	0.3	%
Limestone	57.6	56.3	55.1	53.9	%
Aluminiumhydroxide	7.1	6.9	6.8	6.6	%
SBR-latex	6.1	6.0	5.9	5.8	%
Bitumen	14.9	14.5	14.2	13.9	%
Glass fibre	0.3	0.3	0.2	0.2	%
Additives	0.3	0.3	0.3	0.3	%

## LCA: Declared Unit

Name	Value for category				Unit
	A	B	C	D	
Declared unit	1,0				m <sup>2</sup>
Conversion factor to 1 kg	0.23	0.22	0.22	0.21	m <sup>2</sup> /kg
Mass reference	4.4	4.5	4.6	4.7	kg/m <sup>2</sup>

## LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

### Transport to the construction site (A4)

Name	Value for category				Value
	A	B	C	D	
Litres of fuel (truck, EURO 0-5 mix)	0.0079				l/100km
Transport distance	700				km
Capacity utilisation (including empty runs)	85				%

### Installation in the building (A5)

Name	Value for category				Value
	A	B	C	D	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.14	kg

### Maintenance (B2)

Indication per m<sup>2</sup> and year

Name	Value for category				Value
	A	B	C	D	
Maintenance cycle (wet cleaning)	1.5				1/year
Maintenance cycle (vacuum cleaning)	208				1/year
Water consumption (wet cleaning)	0.004				m <sup>3</sup>
Cleaning agent (wet cleaning)	0.09				kg
Electricity consumption	0.314				kWh

### End of Life (C1-C4)

Name	Value for category				Value
	A	B	C	D	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.5	4.6	4.7	kg
Collected separately (scenario 3)	4.4	4.5	4.6	4.7	kg
Landfilling (scenario 1)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 2)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 3)	1.5	1.6	1.7	1.8	kg
Recycling (scenario 3)	2.9	2.9	2.9	2.9	kg



## 2 Information on products in total pile weight category B (max 500 g/m<sup>2</sup>)

### Product description

Name	Value for category				Unit
	A	B	C	D	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6 , 100% recycled, solution dyed				-
Secondary backing	Heavy backing bitumen based with recycled filler and textile bottom				-
Use class according to /EN 1307/	33				-
Maximum total pile weight	400	500	600	700	g/m <sup>2</sup>
Maximum total carpet weight	4400	4500	4600	4700	g/m <sup>2</sup>
Recycled content out of total weight	62.7	63.5	64.3	65.1	%

### Base materials / Ancillary materials

Name	Value for category				Unit
	A	B	C	D	
Polyamide 6	9.6	11.7	13.6	15.5	%
Polyester	3.8	3.7	3.6	3.5	%
Polypropylene	0.3	0.3	0.3	0.3	%
Limestone	57.6	56.3	55.1	53.9	%
Aluminiumhydroxide	7.1	6.9	6.8	6.6	%
SBR-latex	6.1	6.0	5.9	5.8	%
Bitumen	14.9	14.5	14.2	13.9	%
Glass fibre	0.3	0.3	0.2	0.2	%
Additives	0.3	0.3	0.3	0.3	%

### LCA: Declared Unit

Name	Value for category				Unit
	A	B	C	D	
Declared unit	1,0				m <sup>2</sup>
Conversion factor to 1 kg	0.23	0.22	0.22	0.21	m <sup>2</sup> /kg
Mass reference	4.4	4.5	4.6	4.7	kg/m <sup>2</sup>

### LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

#### Transport to the construction site (A4)

Name	Value for category				Value
	A	B	C	D	
Litres of fuel (truck, EURO 0-5 mix)	0.0079				l/100km
Transport distance	700				km
Capacity utilisation (including empty runs)	85				%

#### Installation in the building (A5)

Name	Value for category				Value
	A	B	C	D	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.14	kg

#### Maintenance (B2)

Indication per m<sup>2</sup> and year

Name	Value for category				Value
	A	B	C	D	
Maintenance cycle (wet cleaning)	1.5				1/year
Maintenance cycle (vacuum cleaning)	208				1/year
Water consumption (wet cleaning)	0.004				m <sup>3</sup>
Cleaning agent (wet cleaning)	0.09				kg
Electricity consumption	0.314				kWh

#### End of Life (C1-C4)

Name	Value for category				Value
	A	B	C	D	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.5	4.6	4.7	kg
Collected separately (scenario 3)	4.4	4.5	4.6	4.7	kg
Landfilling (scenario 1)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 2)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 3)	1.5	1.6	1.7	1.8	kg
Recycling (scenario 3)	2.9	2.9	2.9	2.9	kg



### 3 Information on products in total pile weight category C (max 600 g/m<sup>2</sup>)

#### Product description

Name	Value for category				Unit
	A	B	C	D	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6 , 100% recycled, solution dyed				-
Secondary backing	Heavy backing bitumen based with recycled filler and textile bottom				-
Use class according to /EN 1307/	33				-
Maximum total pile weight	400	500	600	700	g/m <sup>2</sup>
Maximum total carpet weight	4400	4500	4600	4700	g/m <sup>2</sup>
Recycled content out of total weight	62.7	63.5	64.3	65.1	%

#### Base materials / Ancillary materials

Name	Value for category				Unit
	A	B	C	D	
Polyamide 6	9.6	11.7	13.6	15.5	%
Polyester	3.8	3.7	3.6	3.5	%
Polypropylene	0.3	0.3	0.3	0.3	%
Limestone	57.6	56.3	55.1	53.9	%
Aluminiumhydroxide	7.1	6.9	6.8	6.6	%
SBR-latex	6.1	6.0	5.9	5.8	%
Bitumen	14.9	14.5	14.2	13.9	%
Glass fibre	0.3	0.3	0.2	0.2	%
Additives	0.3	0.3	0.3	0.3	%

#### LCA: Declared Unit

Name	Value for category				Unit
	A	B	C	D	
Declared unit	1,0				m <sup>2</sup>
Conversion factor to 1 kg	0.23	0.22	0.22	0.21	m <sup>2</sup> /kg
Mass reference	4.4	4.5	4.6	4.7	kg/m <sup>2</sup>

#### LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

##### Transport to the construction site (A4)

Name	Value for category				Value
	A	B	C	D	
Litres of fuel (truck, EURO 0-5 mix)	0.0079				l/100km
Transport distance	700				km
Capacity utilisation (including empty runs)	85				%

##### Installation in the building (A5)

Name	Value for category				Value
	A	B	C	D	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.14	kg

##### Maintenance (B2)

Indication per m<sup>2</sup> and year

Name	Value for category				Value
	A	B	C	D	
Maintenance cycle (wet cleaning)	1.5				1/year
Maintenance cycle (vacuum cleaning)	208				1/year
Water consumption (wet cleaning)	0.004				m <sup>3</sup>
Cleaning agent (wet cleaning)	0.09				kg
Electricity consumption	0.314				kWh

##### End of Life (C1-C4)

Name	Value for category				Value
	A	B	C	D	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.5	4.6	4.7	kg
Collected separately (scenario 3)	4.4	4.5	4.6	4.7	kg
Landfilling (scenario 1)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 2)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 3)	1.5	1.6	1.7	1.8	kg
Recycling (scenario 3)	2.9	2.9	2.9	2.9	kg





## 4 Information on products in total pile weight category D (max 700 g/m<sup>2</sup>)

### Product description

Name	Value for category				Unit
	A	B	C	D	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6 , 100% recycled, solution dyed				-
Secondary backing	Heavy backing bitumen based with recycled filler and textile bottom				-
Use class according to /EN 1307/	33				-
Maximum total pile weight	400	500	600	700	g/m <sup>2</sup>
Maximum total carpet weight	4400	4500	4600	4700	g/m <sup>2</sup>
Recycled content out of total weight	62.7	63.5	64.3	65.1	%

### Base materials / Ancillary materials

Name	Value for category				Unit
	A	B	C	D	
Polyamide 6	9.6	11.7	13.6	15.5	%
Polyester	3.8	3.7	3.6	3.5	%
Polypropylene	0.3	0.3	0.3	0.3	%
Limestone	57.6	56.3	55.1	53.9	%
Aluminiumhydroxide	7.1	6.9	6.8	6.6	%
SBR-latex	6.1	6.0	5.9	5.8	%
Bitumen	14.9	14.5	14.2	13.9	%
Glass fibre	0.3	0.3	0.2	0.2	%
Additives	0.3	0.3	0.3	0.3	%

### LCA: Declared Unit

Name	Value for category				Unit
	A	B	C	D	
Declared unit	1,0				m <sup>2</sup>
Conversion factor to 1 kg	0.23	0.22	0.22	0.21	m <sup>2</sup> /kg
Mass reference	4.4	4.5	4.6	4.7	kg/m <sup>2</sup>

### LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

#### Transport to the construction site (A4)

Name	Value for category				Value
	A	B	C	D	
Litres of fuel (truck, EURO 0-5 mix)	0.0079				l/100km
Transport distance	700				km
Capacity utilisation (including empty runs)	85				%

#### Installation in the building (A5)

Name	Value for category				Value
	A	B	C	D	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.14	kg

#### Maintenance (B2)

Indication per m<sup>2</sup> and year

Name	Value for category				Value
	A	B	C	D	
Maintenance cycle (wet cleaning)	1.5				1/year
Maintenance cycle (vacuum cleaning)	208				1/year
Water consumption (wet cleaning)	0.004				m <sup>3</sup>
Cleaning agent (wet cleaning)	0.09				kg
Electricity consumption	0.314				kWh

#### End of Life (C1-C4)

Name	Value for category				Value
	A	B	C	D	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.5	4.6	4.7	kg
Collected separately (scenario 3)	4.4	4.5	4.6	4.7	kg
Landfilling (scenario 1)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 2)	4.4	4.5	4.6	4.7	kg
Energy recovery (scenario 3)	1.5	1.6	1.7	1.8	kg
Recycling (scenario 3)	2.9	2.9	2.9	2.9	kg

## LCA: Results

The declared result figures in module B2 have to be multiplied by the real service life (in years) of the floor covering in the building considered. The calculation formula is given in the annex (page 3, formular B).

### 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 C3/2 cause no additional impact and are therefore not declared.

Module C2 represents the transport for scenarios 1, 2 and 3.

### 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: 1 m<sup>2</sup> floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/3	C4/1	C4/2	C4/3	D/A5	D/1	D/2	D/3
GWP	[kg CO <sub>2</sub> -Eq.]	7,54E+00	1,97E-01	7,33E-01	0,00E+00	3,46E-01	1,09E-02	3,08E-02	4,12E+00	5,05E+00	0,00E+00	-1,44E-01	-1,43E-01	-2,15E+00	-7,58E-01
ODP	[kg CFC11-Eq.]	9,40E-08	8,08E-13	1,69E-08	0,00E+00	1,31E-08	4,49E-14	2,29E-11	8,86E-12	7,82E-09	0,00E+00	-4,76E-11	-1,07E-10	-7,25E-10	-3,89E-08
AP	[kg SO <sub>2</sub> -Eq.]	2,43E-02	8,80E-04	2,09E-03	0,00E+00	1,75E-03	4,89E-05	1,55E-04	1,02E-03	3,32E-03	0,00E+00	-3,74E-04	-7,22E-04	-5,67E-03	-6,38E-03
EP	[kg (PO <sub>4</sub> ) <sup>3-</sup> -Eq.]	5,18E-03	2,23E-04	5,92E-04	0,00E+00	3,05E-04	1,24E-05	8,42E-06	4,41E-03	8,38E-04	0,00E+00	-2,56E-05	-3,93E-05	-3,86E-04	-1,06E-03
POCP	[kg ethene-Eq.]	2,48E-03	-3,25E-04	2,10E-04	1,11E-04	2,75E-04	-1,81E-05	9,04E-06	1,09E-03	2,19E-04	0,00E+00	-3,12E-05	-4,21E-05	-4,69E-04	-5,48E-04
ADPE	[kg Sb-Eq.]	7,68E-05	7,71E-09	3,31E-06	0,00E+00	1,14E-06	4,29E-10	5,40E-09	4,72E-08	-7,67E-07	0,00E+00	-1,42E-08	-2,52E-08	-2,15E-07	-4,41E-07
ADPF	[MJ]	1,50E+02	2,71E+00	8,00E+00	0,00E+00	7,03E+00	1,51E-01	3,43E-01	3,08E+00	2,66E+00	0,00E+00	-2,04E+00	-1,60E+00	-3,03E+01	-6,83E+01

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 m<sup>2</sup> floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/3	C4/1	C4/2	C4/3	D/A5	D/1	D/2	D/3
PERE	[MJ]	2,25E+01	1,50E-01	2,18E+00	0,00E+00	7,20E-01	1,00E-02	1,20E-01	2,00E-01	2,00E-02	0,00E+00	-2,40E-01	-5,40E-01	-3,66E+00	-3,40E-01
PERM	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	[MJ]	2,25E+01	1,50E-01	2,18E+00	0,00E+00	7,20E-01	1,00E-02	1,20E-01	2,00E-01	2,00E-02	0,00E+00	-2,40E-01	-5,40E-01	-3,66E+00	-3,40E-01
PENRE	[MJ]	9,28E+01	2,72E+00	8,60E+00	0,00E+00	8,22E+00	1,50E-01	5,50E-01	3,22E+00	3,13E+00	0,00E+00	-2,46E+00	-2,56E+00	-3,68E+01	-6,88E+01
PENRM	[MJ]	6,31E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	[MJ]	1,56E+02	2,72E+00	8,60E+00	0,00E+00	8,22E+00	1,50E-01	5,50E-01	3,22E+00	3,13E+00	0,00E+00	-2,46E+00	-2,56E+00	-3,68E+01	-6,88E+01
SM	[kg]	2,60E+00	0,00E+00	8,00E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	2,15E-03	1,80E-05	9,60E-05	0,00E+00	5,08E-05	1,00E-06	7,25E-06	2,71E-03	1,66E-05	0,00E+00	-2,68E-05	-3,38E-05	-4,02E-04	-6,11E-05
NRSF	[MJ]	2,39E-02	1,89E-04	1,10E-03	0,00E+00	5,75E-04	1,05E-05	7,57E-05	5,65E-03	1,62E-04	0,00E+00	-2,80E-04	-3,53E-04	-4,21E-03	-6,40E-04
FW	[m <sup>3</sup> ]	2,88E-02	2,66E-04	2,43E-03	0,00E+00	1,65E-03	1,48E-05	2,32E-04	4,28E-04	1,63E-02	0,00E+00	-4,85E-04	-1,08E-03	-7,39E-03	-5,89E-03

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 m<sup>2</sup> floorcovering

Parameter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/3	C4/1	C4/2	C4/3	D/A5	D/1	D/2	D/3
HWD	[kg]	1,54E-05	0,00E+00	4,49E-07	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NHWD	[kg]	2,27E-02	1,02E-02	4,12E-01	0,00E+00	6,22E-01	5,69E-04	1,27E-01	4,07E+00	1,73E+00	0,00E+00	-2,65E-01	-5,94E-01	-4,04E+00	-5,51E+01
RWD	[kg]	2,11E-03	3,71E-06	1,41E-04	0,00E+00	3,96E-04	2,06E-07	8,22E-05	5,40E-05	1,53E-04	0,00E+00	-1,71E-04	-3,83E-04	-2,60E-03	-1,20E-04
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	9,14E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,86E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,84E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	0,00E+00	0,00E+00	9,40E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,09E+00	7,20E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EET	[MJ]	2,00E-02	0,00E+00	2,15E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,58E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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