

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	Gemeinschaft umweltfreundlicher Teppichboden e.V. (GUT)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-GUT-20160019-CCA1-EN
Issue date	11.03.2016
Valid to	10.03.2022

Tufted carpet tiles - luxury class LC1-LC5
- with 1200 g/m² maximum surface pile weight -
pile material made of polyamide 6.6,
bitumen based heavy backing

**Gemeinschaft umweltfreundlicher
Teppichboden e.V. (GUT)**

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



General Information

Gemeinschaft umweltfreundlicher Teppichboden e.V.

Programme holder

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

Declaration number

EPD-GUT-20160019-CCA1-EN

This Declaration is based on the Product Category Rules:

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

Issue date

11.03.2016

Valid to

10.03.2022



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



Dr. Burkhard Lehmann
(Managing Director IBU)

Tufted PA 6.6 carpet tiles luxury class LC1-LC5

1200 g/m² max. surface pile weight,
pile material made of PA 6.6,
bitumen based heavy backing

Owner of the Declaration

Gemeinschaft umweltfreundlicher Teppichboden e.V.
Schönebergstraße 2
52068 Aachen
Germany

Declared product / Declared unit

1 m² tufted carpet tiles, luxury class LC1-LC5, pile material made of PA 6.6, bitumen based heavy backing.

Scope:

The declaration applies to a group of similar products in luxury class LC1-LC5 (max. 1200 g/m² surface pile weight).

It is only valid in conjunction with a valid GUT/PRODIS license.

Average construction elements and data for the production processes are based on data provided by European member companies of Gemeinschaft umweltfreundlicher Teppichboden e.V. The declared product represents a group of products having the characteristics as described in the EPD.

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 pile material of polyamide 6.6 and a bitumen based heavy backing with a textile covering.

Coloring and design of the use layer may be achieved by aqueous dyeing methods or by using solution dyed yarns.

The calculations refer to average construction data based on data provided by member companies of Gemeinschaft umweltfreundlicher Teppichboden e.V. The declaration applies to products in luxury classes LC1 to LC5 with 1200 g/m² as the maximum surface pile weight.

LCA values mentioned in this report (see table 'LCA: Results') refer to LC5 and to the maximum surface pile weight of 1200 g/m² as a worst case approach. More

specific LCA results of products in luxury classes LC1 to LC4 can be taken from the tables of the corresponding annex. These values always refer to the maximum surface pile weight of the corresponding luxury class. Results for products with a surface pile weight between the indicated values in the tables can be calculated by using formula A given in the annex (see annex chapter: 'General Information on the annex').

Application

The use class of the specific product as defined in /EN 1307/ can be found in the Product Information System (PRODIS) using the PRODIS registration number of the product.

Technical Data

Name	Value	Unit
Product Form	Tiles	-
Type of manufacture	Tufted carpet	-
Yarn type	Polyamide 6.6	-
Secondary backing	Bitumen based heavy backing, textile bottom	-
Surface pile weight	max. 1200	g/m ²
Total carpet weight	max. 5200	g/m ²

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)

Base materials / Ancillary materials

Luxury class LC5, surface pile weight 1200 g/m²

Name	Value	Unit
Polyamide 6.6	27.9	%
Polyester	1.1	%
Polypropylene	2.0	%
Limestone	36.6	%
Aluminiumhydroxide	10.5	%
SBR-latex	4.0	%
Bitumen	16.7	%
Glass fibre	0.8	%
Additives	0.4	%

For luxury classes LC1 to LC4 see annex.

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 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 ²
Conversion factor to 1 kg (LC5)	0.19	m ² /kg
Mass reference (LC5)	5.2	kg/m ²

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 floorcovering from factory 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 disposal 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 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 considered (see annex, chapter: 'Information on use stage').

B3 - B7:

The modules are not relevant and therefore not declared.

C1 De-construction:

The floorcovering 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 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 (processing with < 60% efficiency),

D-3: Transport from the reprocessing plant to the cement plant, substitution of material and fuel input in the cement kiln (energetic and substance related 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 refers to the declared modules and is the basis for calculations or can be used for further calculations.

All indicated values refer to the declared functional unit of the product in luxury class LC5. Information on products in luxury class LC1 to LC4 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	%

Installation in the building (A5)

Name	Value	Unit
Auxiliary (fixing agent)	0.2	kg
Material loss	0.16	kg

Cardboard packaging waste leaves the system for recycling.

Installation waste is considered to be incinerated in a municipal waste incineration plant.

Maintenance (B2)

The values are indicated per m² floor covering and per year (see annex, chapter: 'Information on use stage').

Name	Value	Unit
Maintenance cycle (wet cleaning)	0.9	1/year
Maintenance cycle (vacuum cleaning)	156	1/year
Water consumption (wet cleaning)	0.003	m ³
Cleaning agent (wet cleaning)	0.055	kg
Electricity consumption	0.326	kWh

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:

EOL-impact = x% impact (Scenario 1)
+ y% impact (Scenario 2)
+ z% impact (Scenario 3)

Name	Value	Unit
Collected as mixed construction waste (LC5, scenario 1 and 2)	5.2	kg
Collected separately (LC5, scenario 3)	5.2	kg
Landfilling (LC5, scenario 1)	5.2	kg
Energy recovery (LC5, scenario 2)	5.2	kg
Energy recovery (LC5, scenario 3)	2.7	kg
Recycling (LC5, scenario 3)	2.5	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 (60.0%), hard coal (27.4%) and petrol coke (12.6%).

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

LCA: Results

The LCA results refer to luxury class LC5 and are valid for all luxury classes as a worst case approach. More specific LCA results for products in luxury classes LC1 to LC4 can be taken from the corresponding tables of the annex or can be calculated by formula A given in the annex (see annex, chapter: 'General Information on the annex').

The declared result figures in module B2 have to be multiplied by the assumed service time (in years) of the floor covering in the building considered (see annex, chapter: 'Information on use stage B1 to B7').

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	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	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
GWP	[kg CO ₂ -Eq.]	23.30	0.22	1.13	0.00	0.28	0.01	0.03	4.56	9.17	0.00	-0.11	-0.16	-3.75	-0.56
ODP	[kg CFC11-Eq.]	1.19E-7	8.90E-13	1.76E-8	0.00E+0	8.33E-9	4.97E-14	2.54E-11	9.80E-12	7.00E-9	0.00E+0	-3.76E-11	-1.18E-10	-1.25E-9	-1.06E-11
AP	[kg SO ₂ -Eq.]	5.00E-2	9.69E-4	2.85E-3	0.00E+0	1.42E-3	5.41E-5	1.72E-4	1.13E-3	4.87E-3	0.00E+0	-2.94E-4	-7.99E-4	-9.81E-3	-3.07E-3
EP	[kg (PO ₄) ³⁻ -Eq.]	8.46E-3	2.46E-4	6.94E-4	0.00E+0	2.08E-4	1.37E-5	9.32E-6	4.87E-3	1.23E-3	0.00E+0	-2.01E-5	-4.34E-5	-6.70E-4	-2.11E-4
POCP	[kg ethene-Eq.]	7.05E-3	-3.58E-4	3.43E-4	1.11E-4	1.93E-4	-2.00E-5	1.00E-5	1.21E-3	3.22E-4	0.00E+0	-2.44E-5	-4.66E-5	-8.14E-4	-3.79E-4
ADPE	[kg Sb-Eq.]	1.30E-5	8.49E-9	1.45E-6	0.00E+0	7.41E-7	4.74E-10	5.97E-9	5.23E-8	-6.65E-7	0.00E+0	-1.12E-8	-2.78E-8	-3.73E-7	-4.88E-8
ADPF	[MJ]	407.00	2.98	15.50	0.00	5.13	0.17	0.38	3.41	3.20	0.00	-1.58	-1.77	-52.80	-93.10
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	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
PERE	[MJ]	19.24	0.17	2.09	0.00	0.68	0.01	0.13	0.22	0.08	0.00	-0.19	-0.60	-6.32	-0.31
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]	19.24	0.17	2.09	0.00	0.68	0.01	0.13	0.22	0.08	0.00	-0.19	-0.60	-6.32	-0.31
PENRE	[MJ]	342.05	2.99	16.72	0.00	6.29	0.17	0.61	3.56	3.70	0.00	-1.92	-2.83	-64.09	-93.55
PENRM	[MJ]	91.15	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]	433.20	2.99	16.72	0.00	6.29	0.17	0.61	3.56	3.70	0.00	-1.92	-2.83	-64.09	-93.55
SM	[kg]	0.11	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
RSF	[MJ]	5.38E-3	1.99E-5	1.89E-4	0.00E+0	4.60E-5	1.11E-6	8.02E-6	3.00E-3	2.58E-5	0.00E+0	-2.10E-5	-3.74E-5	-6.99E-4	-8.91E-5
NRSF	[MJ]	6.36E-2	2.08E-4	2.26E-3	0.00E+0	5.07E-4	1.16E-5	8.37E-5	6.25E-3	2.47E-4	0.00E+0	-2.19E-4	-3.90E-4	-7.31E-3	-9.30E-4
FW	[m ³]	8.34E-2	2.93E-4	7.46E-3	0.00E+0	3.89E-3	1.64E-5	2.56E-4	4.74E-4	2.18E-2	0.00E+0	-3.83E-4	-1.19E-3	-1.28E-2	-8.81E-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	C3/3	C4/1	C4/2	C4/3	D	D/1	D/2	D/3
HWD	[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	0.00E+0
NHWD	[kg]	6.55E-3	1.13E-2	8.91E-1	0.00E+0	6.43E-1	6.29E-4	1.41E-1	4.51E+0	1.62E+0	0.00E+0	-2.10E-1	-6.57E-1	-6.99E+0	-7.97E+1
RWD	[kg]	9.95E-3	4.09E-6	3.68E-4	0.00E+0	4.11E-4	2.28E-7	9.09E-5	5.98E-5	1.71E-4	0.00E+0	-1.35E-4	-4.24E-4	-4.50E-3	-1.70E-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]	0.05	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	2.50	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	2.70	0.00	0.00	0.00	0.00
EEE	[MJ]	0.00	0.00	0.37	0.00	0.00	0.00	0.00	1.21	12.44	0.00	0.00	0.00	0.00	0.00
EET	[MJ]	0.00	0.00	0.83	0.00	0.00	0.00	0.00	0.00	27.66	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

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

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 2014
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 2014

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Annex

to the

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

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



Additional results
to the declared products in the
ENVIRONMENTAL PRODUCT DECLARATION
for products with a surface pile weight
lower than 1200 g/m²

General Information on the annex

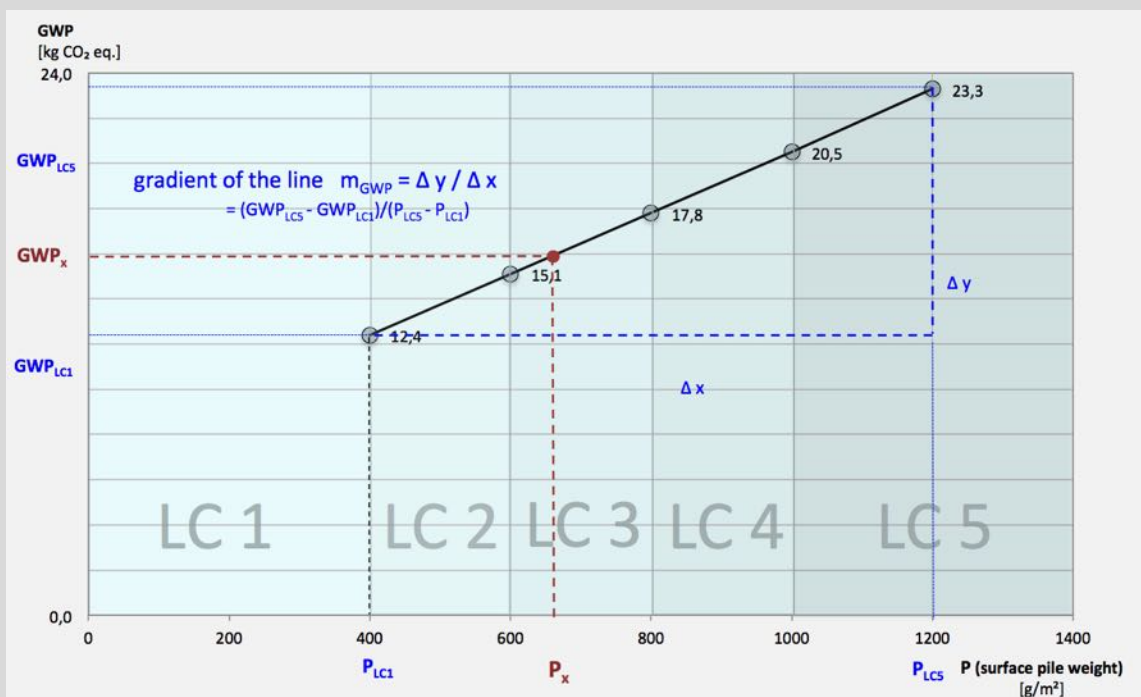
The EPD document refers to products with a maximum surface pile weight of 1200 g/m² as a worst case approach. The LCA results are valid for all luxury classes LC1 to LC5 (with a max. surface pile weight of 1200 g/m²).

This annex indicates more specific LCA results for the declared products with a surface pile weight lower than 1200 g/m².

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

Example for the calculation method:

The linear relationship of the figures in the LCA result tables to the surface 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 surface pile weight according to the formular

$$GWP_x = GWP_{LC1} + m_{GWP} * (P_x - P_{LC1})$$

Formula A:

In general

$$IC_x = IC_{LC1} + m_{IC} * (P_x - P_{LC1})$$

with IC = Impact Category

The LCA result tables for products in luxury class LC1, LC2, LC3 and LC4 are indicated in the annex. They refer to the maximum surface pile weight defined for the respective luxury class.

Definition of luxury classes according to /EN1307/

Luxury classes	LC1	LC2	LC3	LC4	LC5
Surface use layer [g/m²]	< 400	≥ 400	≥ 600	≥ 800	≥ 1000
FCSS symbol					

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 in the first year of life (see LCA: Calculation rules).

Module B2 'maintenance' includes cleaning procedures.

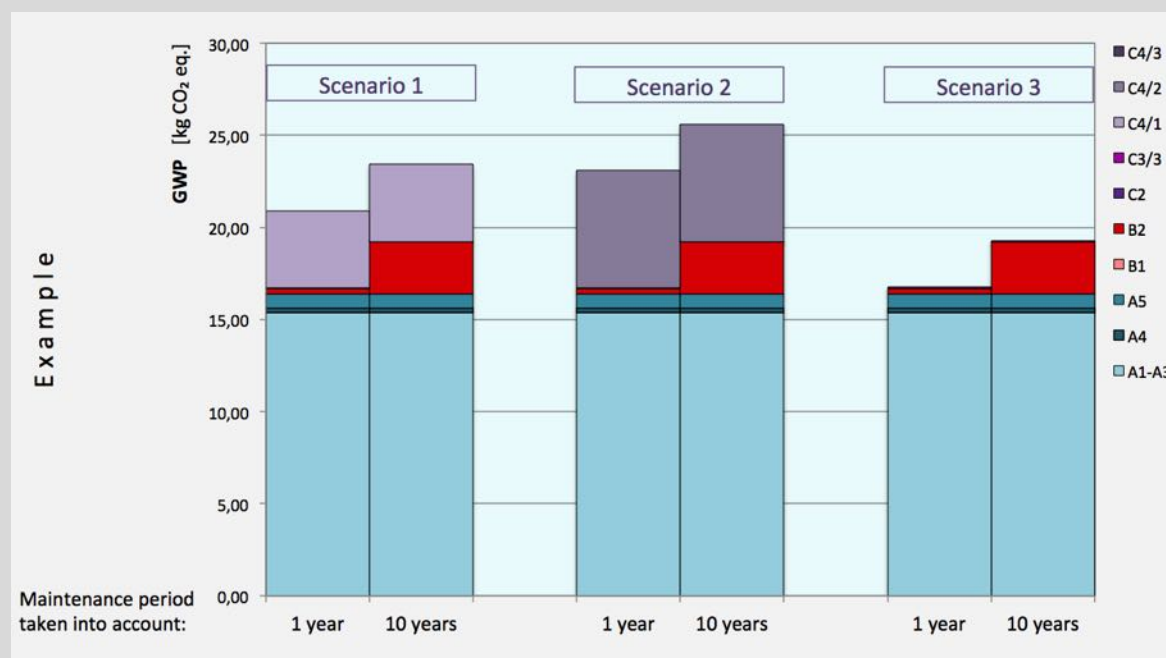
Reference service life

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: Global Warming Potential (GWP) – aggregation of module A to module C - 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.



1 Information on products in luxury class LC1

Product description

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6.6				-
Secondary backing	Bitumen based heavy backing, textile bottom				-
Surface pile weight	lower than 400	lower than 600	lower than 800	lower than 1000	g/m ²
Maximum total carpet weight	4400	4600	4800	5000	g/m ²

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).

Base materials / Ancillary materials

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Polyamide 6.6	14,8	18,5	21,9	25,0	%
Polyester	1,3	1,2	1,1	1,1	%
Polypropylene	2,4	2,3	2,2	2,1	%
Limestone	43,3	41,4	39,7	38,1	%
Aluminiumhydroxide	12,4	11,9	11,4	10,9	%
SBR-latex	4,7	4,5	4,3	4,2	%
Bitumen	19,7	18,8	18,1	17,4	%
Glass fibre	0,9	0,9	0,8	0,8	%
Additives	0,5	0,5	0,5	0,4	%

LCA: Declared Unit

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Declared unit	1,0				m ²
Conversion factor to 1 kg	0.23	0.22	0.21	0.2	m ² /kg
Mass reference	4.4	4.6	4.8	5.0	kg/m ²

LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

Transport to the construction site (A4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
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				Value
	LC1	LC2	LC3	LC4	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.15	kg

Maintenance (B2)

Indication per m² and year (see chapter: 'Information on use stage').

Name	Value				Value
	LC1	LC2	LC3	LC4	
Maintenance cycle (wet cleaning)	0.9				1/year
Maintenance cycle (vacuum cleaning)	156				1/year
Water consumption (wet cleaning)	0.003				m ³
Cleaning agent (wet cleaning)	0.055				kg
Electricity consumption	0.326				kWh

End of Life (C1-C4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.6	4.8	5.0	kg
Collected separately (scenario 3)	4.4	4.6	4.8	5.0	kg
Landfilling (scenario 1)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 2)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 3)	1.9	2.1	2.3	2.5	kg
Recycling (scenario 3)	2.5	2.5	2.5	2.5	kg

LCA: Results for luxury class LC1

The declared result figures in module B2 have to be multiplied by the assumed service time (in years) of the floor covering in the building considered (see chapter: '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 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 m² floor covering

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 ₂ -Eq.]	12,40	0,18	0,72	0,00	0,28	0,01	0,03	3,86	6,39	0,00	-0,08	-0,13	-2,74	-0,42
ODP	[kg CFC11-Eq.]	1,06E-07	7,56E-13	1,72E-08	0,00E+00	8,33E-09	4,20E-14	2,15E-11	8,29E-12	6,99E-09	0,00E+00	-2,76E-11	-1,00E-10	-9,19E-10	-8,10E-12
AP	[kg SO ₂ -Eq.]	3,15E-02	8,24E-04	2,23E-03	0,00E+00	1,42E-03	4,58E-05	1,45E-04	9,55E-04	2,53E-03	0,00E+00	-2,16E-04	-6,76E-04	-7,19E-03	-2,30E-03
EP	[kg (PO ₄) ³ -Eq.]	5,25E-03	2,09E-04	5,79E-04	0,00E+00	2,08E-04	1,16E-05	7,89E-06	4,12E-03	6,28E-04	0,00E+00	-1,47E-05	-3,67E-05	-4,90E-04	-1,59E-04
POCP	[kg ethene-Eq.]	3,98E-03	-3,04E-04	2,50E-04	1,11E-04	1,93E-04	-1,69E-05	8,46E-06	1,02E-03	1,78E-04	0,00E+00	-1,79E-05	-3,94E-05	-5,96E-04	-2,91E-04
ADPE	[kg Sb-Eq.]	9,01E-06	7,22E-09	1,33E-06	0,00E+00	7,41E-07	4,01E-10	5,06E-09	4,42E-08	-6,82E-07	0,00E+00	-8,19E-09	-2,36E-08	-2,73E-07	-3,94E-08
ADPF	[MJ]	237,00	2,53	10,50	0,00	5,13	0,14	0,32	2,89	2,33	0,00	-1,16	-1,50	-38,60	-69,80

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 floor covering

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]	11,14	0,14	1,85	0,00	0,68	0,01	0,11	0,19	0,03	0,00	-0,14	-0,50	-4,64	-0,24
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]	11,14	0,14	1,85	0,00	0,68	0,01	0,11	0,19	0,03	0,00	-0,14	-0,50	-4,64	-0,24
PENRE	[MJ]	183,69	2,54	11,33	0,00	6,29	0,14	0,51	3,01	2,77	0,00	-1,41	-2,40	-46,84	-70,15
PENRM	[MJ]	68,31	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]	252,00	2,54	11,33	0,00	6,29	0,14	0,51	3,01	2,77	0,00	-1,41	-2,40	-46,84	-70,15
SM	[kg]	0,11	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
RSF	[MJ]	2,88E-03	1,69E-05	1,15E-04	0,00E+00	4,60E-05	9,38E-07	6,79E-06	2,54E-03	1,55E-05	0,00E+00	-1,53E-05	-3,16E-05	-5,11E-04	-6,72E-05
NRSF	[MJ]	3,36E-02	1,77E-04	1,37E-03	0,00E+00	5,07E-04	9,83E-06	7,08E-05	5,29E-03	1,46E-04	0,00E+00	-1,60E-04	-3,30E-04	-5,35E-03	-7,00E-04
FW	[m ³]	4,51E-02	2,49E-04	6,19E-03	0,00E+00	3,89E-03	1,39E-05	2,17E-04	4,01E-04	1,72E-02	0,00E+00	-2,81E-04	-1,01E-03	-9,36E-03	-6,67E-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 m² floor covering

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]	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
NHWD	[kg]	6,55E-03	9,57E-03	5,79E-01	0,00E+00	6,43E-01	5,32E-04	1,19E-01	3,81E+00	1,56E+00	0,00E+00	-1,54E-01	-5,56E-01	-5,12E+00	-5,99E+01
RWD	[kg]	5,60E-03	3,47E-06	2,39E-04	0,00E+00	4,11E-04	1,93E-07	7,70E-05	5,06E-05	1,43E-04	0,00E+00	-9,89E-05	-3,59E-04	-3,30E-03	-1,30E-04
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]	0,02	0,00	0,12	0,00	0,00	0,00	0,00	0,00	0,00	2,50	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	1,90	0,00	0,00	0,00	0,00
EEE	[MJ]	0,00	0,00	0,27	0,00	0,00	0,00	0,00	1,02	9,13	0,00	0,00	0,00	0,00	0,00
EET	[MJ]	0,00	0,00	0,60	0,00	0,00	0,00	0,00	0,00	20,16	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

2 Information on products in luxury class LC2

Product description

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6				-
Secondary backing	Bitumen based heavy backing, textile bottom				-
Surface pile weight	lower than 400	lower than 600	lower than 800	lower than 1000	g/m ²
Maximum total carpet weight	4400	4600	4800	5000	g/m ²

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).

Base materials / Ancillary materials

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Polyamide 6.6	14,8	18,5	21,9	25,0	%
Polyester	1,3	1,2	1,1	1,1	%
Polypropylene	2,4	2,3	2,2	2,1	%
Limestone	43,3	41,4	39,7	38,1	%
Aluminiumhydroxide	12,4	11,9	11,4	10,9	%
SBR-latex	4,7	4,5	4,3	4,2	%
Bitumen	19,7	18,8	18,1	17,4	%
Glass fibre	0,9	0,9	0,8	0,8	%
Additives	0,5	0,5	0,5	0,4	%

LCA: Declared Unit

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Declared unit	1,0				m ²
Conversion factor to 1 kg	0.23	0.22	0.21	0.2	m ² /kg
Mass reference	4.4	4.6	4.8	5.0	kg/m ²

LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

Transport to the construction site (A4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
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				Value
	LC1	LC2	LC3	LC4	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.15	kg

Maintenance (B2)

Indication per m² and year (see chapter: 'Information on use stage').

Name	Value				Value
	LC1	LC2	LC3	LC4	
Maintenance cycle (wet cleaning)	0.9				1/year
Maintenance cycle (vacuum cleaning)	156				1/year
Water consumption (wet cleaning)	0.003				m ³
Cleaning agent (wet cleaning)	0.055				kg
Electricity consumption	0.326				kWh

End of Life (C1-C4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.6	4.8	5.0	kg
Collected separately (scenario 3)	4.4	4.6	4.8	5.0	kg
Landfilling (scenario 1)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 2)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 3)	1.9	2.1	2.3	2.5	kg
Recycling (scenario 3)	2.5	2.5	2.5	2.5	kg

LCA: Results for luxury class LC2

The declared result figures in module B2 have to be multiplied by the assumed service time (in years) of the floor covering in the building considered (see chapter: '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 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 m² floor covering

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 ₂ -Eq.]	15,10	0,19	0,82	0,00	0,28	0,01	0,03	4,03	7,09	0,00	-0,09	-0,14	-3,00	-0,45
ODP	[kg CFC11-Eq.]	1,09E-07	7,89E-13	1,73E-08	0,00E+00	8,33E-09	4,39E-14	2,24E-11	8,67E-12	6,99E-09	0,00E+00	-3,01E-11	-1,05E-10	-1,00E-09	-8,72E-12
AP	[kg SO ₂ -Eq.]	3,61E-02	8,60E-04	2,38E-03	0,00E+00	1,42E-03	4,79E-05	1,52E-04	9,99E-04	3,12E-03	0,00E+00	-2,35E-04	-7,07E-04	-7,85E-03	-2,49E-03
EP	[kg (PO ₄) ³ -Eq.]	6,05E-03	2,18E-04	6,08E-04	0,00E+00	2,08E-04	1,22E-05	8,25E-06	4,31E-03	7,79E-04	0,00E+00	-1,61E-05	-3,84E-05	-5,35E-04	-1,72E-04
POCP	[kg ethene-Eq.]	4,75E-03	-3,17E-04	2,73E-04	1,11E-04	1,93E-04	-1,77E-05	8,85E-06	1,07E-03	2,14E-04	0,00E+00	-1,95E-05	-4,12E-05	-6,50E-04	-3,13E-04
ADPE	[kg Sb-Eq.]	1,00E-05	7,54E-09	1,36E-06	0,00E+00	7,41E-07	4,19E-10	5,29E-09	4,62E-08	-6,78E-07	0,00E+00	-8,94E-09	-2,46E-08	-2,98E-07	-4,17E-08
ADPF	[MJ]	280,00	2,65	11,80	0,00	5,13	0,15	0,34	3,02	2,55	0,00	-1,26	-1,57	-42,10	-75,60

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 floor covering

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]	13,17	0,15	1,91	0,00	0,68	0,01	0,11	0,20	0,04	0,00	-0,15	-0,53	-5,06	-0,25
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]	13,17	0,15	1,91	0,00	0,68	0,01	0,11	0,20	0,04	0,00	-0,15	-0,53	-5,06	-0,25
PENRE	[MJ]	223,28	2,66	12,68	0,00	6,29	0,15	0,54	3,15	3,00	0,00	-1,53	-2,51	-51,16	-75,99
PENRM	[MJ]	74,02	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]	297,30	2,66	12,68	0,00	6,29	0,15	0,54	3,15	3,00	0,00	-1,53	-2,51	-51,16	-75,99
SM	[kg]	0,11	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
RSF	[MJ]	3,50E-03	1,76E-05	1,33E-04	0,00E+00	4,60E-05	9,81E-07	7,10E-06	2,65E-03	1,81E-05	0,00E+00	-1,67E-05	-3,31E-05	-5,58E-04	-7,26E-05
NRSF	[MJ]	4,11E-02	1,85E-04	1,59E-03	0,00E+00	5,07E-04	1,03E-05	7,41E-05	5,53E-03	1,71E-04	0,00E+00	-1,75E-04	-3,45E-04	-5,84E-03	-7,57E-04
FW	[m ³]	5,47E-02	2,60E-04	6,51E-03	0,00E+00	3,89E-03	1,45E-05	2,27E-04	1,49E-04	1,84E-02	0,00E+00	-3,06E-04	-1,06E-03	-1,02E-02	-7,20E-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 m² floor covering

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]	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
NHWD	[kg]	6,55E-03	1,00E-02	6,57E-01	0,00E+00	6,43E-01	5,56E-04	1,25E-01	3,99E+00	1,57E+00	0,00E+00	-1,68E-01	-5,81E-01	-5,59E+00	-6,48E+01
RWD	[kg]	6,69E-03	3,63E-06	2,71E-04	0,00E+00	4,11E-04	2,02E-07	8,05E-05	5,29E-05	1,50E-04	0,00E+00	-1,08E-04	-3,75E-04	-3,60E-03	-1,40E-04
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]	0,03	0,00	0,12	0,00	0,00	0,00	0,00	0,00	0,00	2,50	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	2,10	0,00	0,00	0,00	0,00
EEE	[MJ]	0,00	0,00	0,30	0,00	0,00	0,00	0,00	1,07	9,96	0,00	0,00	0,00	0,00	0,00
EET	[MJ]	0,00	0,00	0,66	0,00	0,00	0,00	0,00	0,00	22,04	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

3 Information on products in luxury class LC3

Product description

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6.6				-
Secondary backing	Bitumen based heavy backing, textile bottom				-
Surface pile weight	lower than 400	lower than 600	lower than 800	lower than 1000	g/m ²
Maximum total carpet weight	4400	4600	4800	5000	g/m ²

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).

Base materials / Ancillary materials

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Polyamide 6.6	14,8	18,5	21,9	25,0	%
Polyester	1,3	1,2	1,1	1,1	%
Polypropylene	2,4	2,3	2,2	2,1	%
Limestone	43,3	41,4	39,7	38,1	%
Aluminiumhydroxide	12,4	11,9	11,4	10,9	%
SBR-latex	4,7	4,5	4,3	4,2	%
Bitumen	19,7	18,8	18,1	17,4	%
Glass fibre	0,9	0,9	0,8	0,8	%
Additives	0,5	0,5	0,5	0,4	%

LCA: Declared Unit

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Declared unit	1,0				m ²
Conversion factor to 1 kg	0.23	0.22	0.21	0.2	m ² /kg
Mass reference	4.4	4.6	4.8	5.0	kg/m ²

LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

Transport to the construction site (A4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
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				Value
	LC1	LC2	LC3	LC4	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.15	kg

Maintenance (B2)

Indication per m² and year (see chapter: 'Information on use stage').

Name	Value				Value
	LC1	LC2	LC3	LC4	
Maintenance cycle (wet cleaning)	0.9				1/year
Maintenance cycle (vacuum cleaning)	156				1/year
Water consumption (wet cleaning)	0.003				m ³
Cleaning agent (wet cleaning)	0.055				kg
Electricity consumption	0.326				kWh

End of Life (C1-C4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.6	4.8	5.0	kg
Collected separately (scenario 3)	4.4	4.6	4.8	5.0	kg
Landfilling (scenario 1)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 2)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 3)	1.9	2.1	2.3	2.5	kg
Recycling (scenario 3)	2.5	2.5	2.5	2.5	kg

LCA: Results for luxury class LC3

The declared result figures in module B2 have to be multiplied by the assumed service time (in years) of the floor covering in the building considered (see chapter: '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 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 m² floor covering

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 ₂ -Eq.]	17,80	0,20	0,92	0,00	0,28	0,01	0,03	4,21	7,79	0,00	-0,10	-0,15	-3,25	-0,49
ODP	[kg CFC11-Eq.]	1,12E-07	8,23E-13	1,74E-08	0,00E+00	8,33E-09	4,59E-14	2,34E-11	9,04E-12	7,00E-09	0,00E+00	-3,26E-11	-1,09E-10	-1,09E-09	-9,34E-12
AP	[kg SO ₂ -Eq.]	4,08E-02	8,96E-04	2,54E-03	0,00E+00	1,42E-03	5,00E-05	1,58E-04	1,04E-03	3,70E-03	0,00E+00	-2,55E-04	-7,38E-04	-8,50E-03	-2,68E-03
EP	[kg (PO ₄) ³ -Eq.]	6,86E-03	2,28E-04	6,37E-04	0,00E+00	2,08E-04	1,27E-05	8,60E-06	4,50E-03	9,30E-04	0,00E+00	-1,74E-05	-4,01E-05	-5,80E-04	-1,85E-04
POCP	[kg ethene-Eq.]	5,52E-03	-3,31E-04	2,97E-04	1,11E-04	1,93E-04	-1,84E-05	9,23E-06	1,11E-03	2,50E-04	0,00E+00	-2,12E-05	-4,30E-05	-7,05E-04	-3,35E-04
ADPE	[kg Sb-Eq.]	1,10E-05	7,85E-09	1,39E-06	0,00E+00	7,41E-07	4,38E-10	5,52E-09	4,82E-08	-6,74E-07	0,00E+00	-9,69E-09	-2,57E-08	-3,23E-07	-4,41E-08
ADPF	[MJ]	322,00	2,76	13,00	0,00	5,13	0,15	0,35	3,15	2,77	0,00	-1,37	-1,63	-45,70	-81,50

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 floor covering

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]	15,19	0,15	1,97	0,00	0,68	0,01	0,12	0,21	0,05	0,00	-0,16	-0,55	-5,48	-0,27
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]	15,19	0,15	1,97	0,00	0,68	0,01	0,12	0,21	0,05	0,00	-0,16	-0,55	-5,48	-0,27
PENRE	[MJ]	262,87	2,77	14,02	0,00	6,29	0,15	0,56	3,29	3,24	0,00	-1,66	-2,62	-55,49	-81,86
PENRM	[MJ]	79,73	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]	342,60	2,77	14,02	0,00	6,29	0,15	0,56	3,29	3,24	0,00	-1,66	-2,62	-55,49	-81,86
SM	[kg]	0,11	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
RSF	[MJ]	4,13E-03	1,84E-05	1,52E-04	0,00E+00	4,60E-05	1,02E-06	7,40E-06	2,77E-03	2,07E-05	0,00E+00	-1,82E-05	-3,45E-05	-6,05E-04	-7,81E-05
NRSF	[MJ]	4,86E-02	1,92E-04	1,81E-03	0,00E+00	5,07E-04	1,07E-05	7,73E-05	4,77E-03	1,97E-04	0,00E+00	-1,90E-04	-3,60E-04	-6,33E-03	-8,15E-04
FW	[m ³]	6,42E-02	2,71E-04	6,83E-03	0,00E+00	3,89E-03	1,51E-05	2,36E-04	5,37E-04	1,95E-02	0,00E+00	-3,32E-04	-1,11E-03	-1,11E-02	-7,74E-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 m² floor covering

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]	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
NHWD	[kg]	6,55E-03	1,04E-02	7,35E-01	0,00E+00	6,43E-01	5,81E-04	1,30E-01	4,16E+00	1,59E+00	0,00E+00	-1,82E-01	-6,07E-01	-6,06E+00	-6,98E+01
RWD	[kg]	7,77E-03	3,78E-06	3,03E-04	0,00E+00	4,11E-04	2,11E-07	8,39E-05	5,52E-05	1,57E-04	0,00E+00	-1,17E-04	-3,91E-04	-3,90E-03	-1,50E-04
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]	0,04	0,00	0,12	0,00	0,00	0,00	0,00	0,00	0,00	2,50	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	2,30	0,00	0,00	0,00	0,00
EEE	[MJ]	0,00	0,00	0,32	0,00	0,00	0,00	0,00	1,12	10,79	0,00	0,00	0,00	0,00	0,00
EET	[MJ]	0,00	0,00	0,72	0,00	0,00	0,00	0,00	0,00	23,92	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

4 Information on products in luxury class LC4

Product description

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Product Form	Tiles				-
Type of manufacture	Tufted carpet				-
Yarn type	Polyamide 6.6				-
Secondary backing	Bitumen based heavy backing, textile bottom				-
Surface pile weight	lower than 400	lower than 600	lower than 800	lower than 1000	g/m ²
Maximum total carpet weight	4400	4600	4800	5000	g/m ²

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).

Base materials / Ancillary materials

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Polyamide 6.6	14,8	18,5	21,9	25,0	%
Polyester	1,3	1,2	1,1	1,1	%
Polypropylene	2,4	2,3	2,2	2,1	%
Limestone	43,3	41,4	39,7	38,1	%
Aluminiumhydroxide	12,4	11,9	11,4	10,9	%
SBR-latex	4,7	4,5	4,3	4,2	%
Bitumen	19,7	18,8	18,1	17,4	%
Glass fibre	0,9	0,9	0,8	0,8	%
Additives	0,5	0,5	0,5	0,4	%

LCA: Declared Unit

Name	Value				Unit
	LC1	LC2	LC3	LC4	
Declared unit	1,0				m ²
Conversion factor to 1 kg	0.23	0.22	0.21	0.2	m ² /kg
Mass reference	4.4	4.6	4.8	5.0	kg/m ²

LCA: Scenarios and additional technical information

All indicated values refer to the declared functional unit.

Transport to the construction site (A4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
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				Value
	LC1	LC2	LC3	LC4	
Auxiliary (fixing agent)	0.2				kg
Material loss	0.13	0.14	0.14	0.15	kg

Maintenance (B2)

Indication per m² and year (see chapter: 'Information on use stage').

Name	Value				Value
	LC1	LC2	LC3	LC4	
Maintenance cycle (wet cleaning)	0.9				1/year
Maintenance cycle (vacuum cleaning)	156				1/year
Water consumption (wet cleaning)	0.003				m ³
Cleaning agent (wet cleaning)	0.055				kg
Electricity consumption	0.326				kWh

End of Life (C1-C4)

Name	Value				Value
	LC1	LC2	LC3	LC4	
Collected as mixed construction waste (scenario 1 and 2)	4.4	4.6	4.8	5.0	kg
Collected separately (scenario 3)	4.4	4.6	4.8	5.0	kg
Landfilling (scenario 1)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 2)	4.4	4.6	4.8	5.0	kg
Energy recovery (scenario 3)	1.9	2.1	2.3	2.5	kg
Recycling (scenario 3)	2.5	2.5	2.5	2.5	kg

LCA: Results for luxury class LC4

The declared result figures in module B2 have to be multiplied by the assumed service time (in years) of the floor covering in the building considered (see chapter: '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 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 m² floor covering

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 ₂ -Eq.]	20,50	0,21	1,03	0,00	0,28	0,01	0,03	4,38	8,48	0,00	-0,11	-0,15	-3,50	-0,52
ODP	[kg CFC11-Eq.]	1,15E-07	8,56E-13	1,75E-08	0,00E+00	8,33E-09	4,78E-14	2,44E-11	9,42E-12	7,00E-09	0,00E+00	-3,51E-11	-1,14E-10	-1,17E-09	-9,96E-12
AP	[kg SO ₂ -Eq.]	4,54E-02	9,33E-04	2,70E-03	0,00E+00	1,42E-03	5,20E-05	1,65E-04	1,09E-03	4,28E-03	0,00E+00	-2,75E-04	-7,69E-04	-9,16E-03	-2,88E-03
EP	[kg (PO ₄) ³ -Eq.]	7,66E-03	2,37E-04	6,65E-04	0,00E+00	2,08E-04	1,32E-05	8,96E-06	4,69E-03	1,08E-03	0,00E+00	-1,88E-05	-4,18E-05	-6,25E-04	-1,98E-04
POCP	[kg ethene-Eq.]	6,29E-03	-3,44E-04	3,20E-04	1,11E-04	1,93E-04	-1,92E-05	9,61E-06	1,16E-03	2,86E-04	0,00E+00	-2,28E-05	-4,48E-05	-7,60E-04	-3,57E-04
ADPE	[kg Sb-Eq.]	1,20E-05	8,17E-09	1,42E-06	0,00E+00	7,41E-07	4,56E-10	5,74E-09	5,02E-08	-6,70E-07	0,00E+00	-1,04E-08	-2,68E-08	-3,48E-07	-4,64E-08
ADPF	[MJ]	365,00	2,87	14,30	0,00	5,13	0,16	0,37	3,28	2,98	0,00	-1,48	-1,70	-49,20	-87,30

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 m² floor covering

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]	17,22	0,16	2,03	0,00	0,68	0,01	0,12	0,22	0,06	0,00	-0,18	-0,57	-5,90	-0,29
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]	17,22	0,16	2,03	0,00	0,68	0,01	0,12	0,22	0,06	0,00	-0,18	-0,57	-5,90	-0,29
PENRE	[MJ]	302,46	2,88	15,37	0,00	6,29	0,16	0,58	3,42	3,47	0,00	-1,79	-2,72	-59,78	-87,69
PENRM	[MJ]	85,44	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]	387,90	2,88	15,37	0,00	6,29	0,16	0,58	3,42	3,47	0,00	-1,79	-2,72	-59,78	-87,69
SM	[kg]	0,11	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
RSF	[MJ]	4,75E-03	1,91E-05	1,70E-04	0,00E+00	4,60E-05	1,07E-06	7,71E-06	2,89E-03	2,32E-05	0,00E+00	-1,96E-05	-3,59E-05	-6,52E-04	-8,36E-05
NRSF	[MJ]	5,61E-02	2,00E-04	2,04E-03	0,00E+00	5,07E-04	1,12E-05	8,05E-05	6,01E-03	2,22E-04	0,00E+00	-2,05E-04	-3,75E-04	-6,82E-03	-8,73E-04
FW	[m ³]	7,38E-02	2,82E-04	7,14E-03	0,00E+00	3,89E-03	1,57E-05	2,46E-04	4,56E-04	2,07E-02	0,00E+00	-3,58E-04	-1,15E-03	-1,19E-02	-8,27E-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 m² floor covering

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]	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
NHWD	[kg]	6,55E-03	1,08E-02	8,13E-01	0,00E+00	6,43E-01	6,05E-04	1,36E-01	4,33E+00	1,61E+00	0,00E+00	-1,96E-01	-6,32E-01	-6,52E+00	-7,47E+01
RWD	[kg]	8,86E-03	3,94E-06	3,35E-04	0,00E+00	4,11E-04	2,20E-07	8,74E-05	5,75E-05	1,64E-04	0,00E+00	-1,26E-04	-4,07E-04	-4,20E-03	-1,60E-04
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]	0,04	0,00	0,12	0,00	0,00	0,00	0,00	0,00	0,00	2,50	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	2,50	0,00	0,00	0,00	0,00
EEE	[MJ]	0,00	0,00	0,35	0,00	0,00	0,00	0,00	1,16	11,62	0,00	0,00	0,00	0,00	0,00
EET	[MJ]	0,00	0,00	0,77	0,00	0,00	0,00	0,00	0,00	25,79	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