www.deprojectinrichter.com 088 - 650 12 34

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-20170097-CBC1-EN
Issue date	9-6-2017
Valid to	8-6-2022

Minituft carpet tiles with a maximum total pile weight of 800 g/m², pile material of solution dyed polyamide 6, Back2Back backing

modulyss®



www.ibu-epd.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-20170097-CBC1-EN

This Declaration is based on the Product Category Rules: Floor coverings, 07.2016

(PCR tested and approved by the $\ensuremath{\mathsf{SVR}}\xspace)$

Issue date

9-6-2017

Valid to 8-6-2022

Wermanes

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

MANN

Dr. Burkhart Lehmann (Managing Director IBU)

Product

Product description / Product definition

Minituft carpet tiles having a surface pile of solution dyed polyamide 6 and a Back2Back backing. Back2Back backing: Bitumen based heavy backing with recycled content. Recycled content includes recycled limestone and recycled production waste 'B2B' (see more information on the website www.modulyss.com).

The percentage of the recycled content out of total weight depends on the total pile weight of the product. For a total pile weight of 800 g/m² the recycled content amounts to 47%. For a total pile weight up to 500 g/m² the recycled content amounts to at least 50%.

The declaration applies to a group of products with a maximum total pile weight of 800 g/m^2 .

Minituft carpet tiles

max. total pile weight 800 g/m² solution dyed PA 6, Back2Back backing

Owner of the Declaration

modulyss Zevensterrestraat 21 9240 Zele Belgium

Declared product / Declared unit

1 m^2 mini-tufted carpet tiles with a surface pile of PA 6 and a Back2Back backing.

Scope:

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

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 by using equation 1 given in the annex (see annex chapter: 'General Information on the annex'). The result tables of the annex refer to categories of total pile weights in steps of 100 g/m². The declaration is only valid in conjunction with a valid GUT-/PRODIS/ license 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 x externally

chindle

Angela Schindler (Independent verifier appointed by SVR)

LCA results are calculated for products with the maximum total pile weight.

More specific LCA results of products having a lower total pile weight can be taken from the corresponding tables of the annex. These result tables refer to categories of total pile weights in steps of 100 g/m². The LCA results always refer to the highest total pile weight of the corresponding pile weight category. Results for similar products with any other total pile weight can be calculated by using equation 1 given in the annex (see annex chapter: 'General Information on the annex').



For the placing on the market of the product in the EU/EFTA (with the exception of Switzerland) Regulation (EU) No. 305/2011 /CPR/ applies. The Declaration of Performance of the products taking into consideration /EN 14041/ and the CE-marking of the products can be found on the manufacturer's technical information section (www.modulyss.com).

Application

The products can be used in commercial areas. The use class as defined in /EN 1307/ can be found on the Product Information System /PRODIS/ using the /PRODIS/ registration number of the product (www.pro-dis.info) or on the manufacturer's technical information section.

Technical Data

Constructional data

Name	Value	Unit
Type of manufacture	Minituft tiles	-
Product Form	Tiles 50 cm x 50 cm	-
Secondary backing	Back2Back backing	-
Yarn type	solution dyed Polyamide 6	-
Total pile weight	max. 800	g/m²
Total carpet weight	max. 4900	g/m ²

Additional product properties in accordance with /EN 1307/ and performance data of the product in accordance with the Declaration of Performance with respect to its Essential Characteristics according to /EN 14041/ can be found on the Product Information System /PRODIS/ using the /PRODIS/ registration number of the product (www.pro-dis.info) or on the manufacturer's technical information section (www.modulyss.com).

LCA: Calculation rules

Declared Unit

Name	Value	Unit
Declared unit	1	m ²
Conversion factor to 1 kg	0.20	m²/kg
Mass reference	4.90	kg/m²

The declared unit refers to 1 m^2 produced textile floor covering. Output of module A5 'Assembly' is 1 m^2 installed textile floor covering.

System boundary

Type of EPD: Cradle-to-grave

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

A1-A3 Production:

Energy supply and production of the basic material, processing of secondary material, auxiliary material, transport of the material to the manufacturing site, emissions, waste water treatment, packaging material and waste processing up to the landfill disposal of residual waste (except radioactive waste). Benefits for generated electricity and steam due to the incineration of production waste are aggregated.

Base materials / Ancillary materials

Name	Value	Unit
Polyamide 6	16.3	%
Polyester	3.3	%
Polypropylene	0.5	%
Limestone	52.9	%
Aluminiumhydroxide	7.0	%
SBR-latex/SBS-copolymer	6.0	%
Bitumen	13.5	%
Glass fibre	0.2	%
Additives	0.3	%

The products are registered in the GUT-/PRODIS/ Information System. The /PRODIS/ system ensures the compliance with limitations of various chemicals and VOC-emissions and a ban on use of all substances that are listed as 'Substances of Very High Concern' (SVHC) under /REACH/.

Reference service life

A calculation of the reference service life according to /ISO 15686/ is not possible.

The service life of textile floor coverings strongly depends on the correct installation taking into account the declared use classification and the adherence to cleaning and maintenance instructions. A minimum service life of 10 years can be assumed, technical service life can be considerably longer.

A4 Transport:

Transport of the packed textile floor covering from factory gate to the place of installation.

A5 Installation:

Installation of the textile floor covering, processing of installation waste and packaging waste up to the landfill disposal of residual waste (except radioactive waste), the production of the amount of carpet that occurs as installation waste including its transport to the place of installation.

Generated electricity and steam due to the incineration of waste are listed in the result table as exported energy.

Preparing of the floor and auxiliary materials (adhesives, fixing agents, PET connectors) are beyond the system boundaries and not taken into account.

B1 Use:

Indoor emissions during the use stage. After the first year, no product related VOC emissions are relevant due to known VOC decay curves of the product.

B2 Maintenance:

Cleaning of the textile floor covering for a period of 1 year:



Vacuum cleaning – electricity supply Wet cleaning – electricity, water consumption, production of the cleaning agent, waste water treatment.

The declared values in this module have to be multiplied by the assumed service life of the floor covering in the building in question (see annex, chapter 'General information on use stage').

<u>B3 - B7:</u>

The modules are not relevant and therefore not declared.

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: Landfill disposal need no waste processing. C3-2: Impact from waste incineration (plant with R1>0.1), generated electricity and steam are listed in the result table as exported energy.

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

C4 Disposal

C4-1: Impact from landfill disposal, C4-2: The carpet waste leaves the system in module C3-2.

C4-3: The pre-processed carpet waste leaves the system in module C3-3

D Recycling potential:

D-A5: Benefits for generated energy due to incineration of packaging and installation waste (incineration plant with R1 > 0.6),

D-1: Benefits for generated energy due to landfill disposal of carpet waste at the end-of-life,

D-2: Benefits for generated energy due to incineration of carpet waste at the end-of-life (incineration plant with R1 > 0.6),

D-3: Benefits for saved fossil energy and saved inorganic material due to recovery of the carpet in a cement plant at the end-of-life, transport from the reprocessing plant to the cement kiln.

Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific

characteristics of performance, are taken into account. . Background data are taken from the /GaBi database 2017/, service pack 33 and from the /ecoinvent 3.3/ database.

LCA: Scenarios and additional technical information

The following information refer to the declared modules and are the basis for calculations or can be used for further calculations. The indicated values refer to the declared functional unit of all products with a total pile weight up to 800 g/m². Specific information on products having a lower total 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)	0.0089	l/100km
Transport distance	700	km
Capacity utilisation (including empty runs)	85	%

Installation in the building (A5)

Name	Value	Unit				
Material loss	0.15	kg				
Packaging waste and installation waste are considered						

to be incinerated in a municipal waste incineration plant.

Preparation of the floor and auxiliaries (adhesives, fixing agents, PET connectors, etc.) are not taken into account.

Maintenance (B2)

Indication per m² floor covering and per year (see annex, chapter 'General Information on use stage')

Name	Value	Unit
Maintenance cycle (wet cleaning)	1.5	1/year
Maintenance cycle (vacuum cleaning)	208	1/year
Water consumption (wet cleaning)	0.004	m ³
Cleaning agent (wet cleaning)	0.09	kg
Electricity consumption	0.314	kWh

Further information on cleaning and maintenance see 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) with R1>0.6
- Scenario 3: 100% recycling in the cement industry

If combinations of these scenarios have to be calculated this should be done according to the following scheme:

EOL-impact = x% impact (Scenario 1)

- + y% impact (Scenario 2)
- + z% impact (Scenario 3)



Name	Value	Unit
Collected as mixed construction waste (scenario 1 and 2)	4.9	kg
Collected separately (scenario 3)	4.9	kg
Landfilling (scenario 1)	4.9	kg
Energy recovery (scenario 2)	4.9	kg
Energy recovery (scenario 3)	1.95	kg
Recycling (scenario 3)	2.95	kg

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

Recovery or recycling potentials due to the three endof-life scenarios (module C) are indicated separately.

<u>Recycling in the cement industry (scenario 3)</u> /VDZ e.V./

The organic material of the carpet is used as secondary fuel in a cement kiln. It mainly substitutes for lignite (61.9%), hard coal (26.8%) and petrol coke (11.3%).

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



LCA: Results

The results are valid for all declared products with a maximum total pile weight of 800 g/m².

LCA results for product groups having a lower total pile weight can be taken from the corresponding tables of the annex. The LCA results always refer to the highest total pile weight of the corresponding pile weight category. Results for similar products with any other total pile weight can be calculated by using equation 1 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 life (in years) of the floor covering in the building under consideration (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 C4/2 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. The CML characterisation factors version April 2015 are applied.

DESC	RIPT	ION C	F THE	SYST	EM BO		II 2015 RY (X =	INCLU		LCA: N	IND =	MOD	ULE N		ECLA	RED)
PROE	DUCT S	STAGE	CONST ON PRO	OCESS			USE S	STAGE			END OF LIFE STAGE					FITS AND DADS OND THE STEM IDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse- Recoverv-	Recycling- potential
A1	A2	A3	A4	A5	B1	B2	B3 E	4 B5	B6	B7	C1	C2	C3	C4		D
X	Х	Х	X	Х	Х	X N	NR M	NR MNF	R MND	MND	MND	Х	Х	X		Х
RESU	JLTS	OF TH	IE LCA	- ENV	/IRONN	IENTA	L IMPA	CT: 1 m	² floorc	overin	g					
Param eter	U	nit	A1-A3	A4	A5	B1	B2	C2	C3/2	C3/3	C4/1	C	b	D/1	D/2	D/3
GWP	[ka C	D ₂ -Eq.]	1.07E+1	1 2.05E-	1 7.05E-	1 0.00E-	0 3.32E	-1 1.14E-2	2 5.53E+0) 3.02E-2	2 3.51E-	1 -1.53	3E-1 0.	.00E+0	-2.53E+0	-5.40E-1
ODP		C11-Eq.]	6.25E-9	6.86E-1	4 1.83E-1	0.00E+	0 1.26E	-8 3.82E-1	5 2.03E-12	2 1.34E-1	2 8.62E-	13 -2.86	E-12 0.	.00E+0	-4.69E-11	-1.69E-11
AP		D_2 -Eq.]	1.88E-2											.00E+0	-3.89E-3	-2.14E-3
EP POCP)₄) ³ -Eq.] ene-Eq.]	2.56E-3 2.84E-3	_										.00E+0 .00E+0	-4.12E-4 -3.73E-4	-2.22E-4 -2.70E-4
ADPE		b-Eq.]	6.16E-6	-										.00E+0	-3.73L-4	-2.38E-7
ADPF		<u>~, ,</u> /J]	2.29E+2					H0 1.57E-1				0 -2.14			-3.54E+1	
		·			fossi	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 ² floorcovering										
								001000	enng							
Parame	eter	Unit	A1-A3	A4	A5	B1	B2	C2	C3/2	C3/3	C4/1	D	,	D/1	D/2	D/3
Parame PER			A1-A3 2.67E+1	A4 1.42E-1	A5 8.06E-1			C2		C3/3 1.81E-1	C4/1 3.83E-				D/2 -6.32E+0	D/3 -5.49E-1
PER PER	E M	[MJ] 2 [MJ] (2.67E+1 0.00E+0	1.42E-1 0.00E+0	8.06E-1 0.00E+0	B1 0.00E+0 0.00E+0	B2 9.87E-1 0.00E+0	C2 7.91E-3 0.00E+0	C3/2 4.07E-1 0.00E+0	1.81E-1 0.00E+0	3.83E- 0.00E+	1 -3.85 0 0.00E	E-1 0.0	00E+0 00E+0	-6.32E+0 0.00E+0	-5.49E-1 0.00E+0
PER PER PER	E M	[MJ] 2 [MJ] ([MJ] 2	2.67E+1 0.00E+0 2.67E+1	1.42E-1 0.00E+0 1.42E-1	8.06E-1 0.00E+0 8.06E-1	B1 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1	C2 7.91E-3 0.00E+0 7.91E-3	C3/2 4.07E-1 0.00E+0 4.07E-1	1.81E-1 0.00E+0 1.81E-1	3.83E- 0.00E+ 3.83E-	1 -3.85 0 0.00E 1 -3.85	E-1 0.0 E+0 0.0 E-1 0.0	00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0	-5.49E-1 0.00E+0 -5.49E-1
PERI PERI PERI PENF	E M T RE	[MJ] 2 [MJ] ([MJ] 2 [MJ] 2	2.67E+1 0.00E+0 2.67E+1 1.69E+2	1.42E-1 0.00E+0 1.42E-1 2.84E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0	B1 0.00E+0 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 0.00E+0 9.87E-1 8.05E+0	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1	1.81E-1 0.00E+0 1.81E-1 7.09E+1	3.83E- 0.00E+ 3.83E- 5.23E+	1 -3.85 0 0.00E 1 -3.85 0 -2.58	E-1 0.0 E+0 0.0 E-1 0.0 E+0 0.0	00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1
PERI PERI PER PENF PENF	E M T RE	MJ] 2 MJ] (MJ] 2 MJ] 7 MJ] 7	2.67E+1 0.00E+0 2.67E+1 1.69E+2 7.04E+1	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0	B1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1 8.05E+(0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+	1 -3.85 0 0.00E 1 -3.85 0 -2.58E 0 0.00E	E-1 0.0 E+0 0.0 E-1 0.0 E+0 0.0 E+0 0.0	00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0
PERI PERI PERI PENF	E M T RE RM RT	MJ] 2 MJ] (MJ] 2 MJ] 7 MJ] 7 MJ] 2	2.67E+1 0.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2	1.42E-1 0.00E+0 1.42E-1 2.84E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0	B1 0.00E+0 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1 8.05E+(0.00E+(8.05E+(8.05E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+	-3.85 0 0.00E 1 -3.85 0 -2.58 0 0.00E 0 0.00E 0 -2.58 0 -2.58	E-1 0.0 E+0 0.0 E-1 0.0 E+0 0.0 E+0 0.0 E+0 0.0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1
PER PER PER PENF PENF PENF SM RSF	E M T RE RM RT	MJ 2 MJ (MJ) 2 MJ 7 MJ 7 MJ 7 MJ 2 [kg] 2 MJ (2.67E+1 0.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 0.00E+0	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.28E-2 0.00E+0	B1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 9.87E-1 8.05E+(0.00E+(8.05E+(0.00E+(0.00E+(0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+	1 -3.85 0 0.00E 1 -3.85 0 -2.58 0 0.00E 0 -2.58 0 0.00E 0 -2.58 0 0.00E 0 0.00E 0 0.00E	E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0
PER PER PER PENF PENF SM RSF NRS	E M T RE RM RT F	MJ 2 MJ (MJ) 2 MJ 7 MJ 7 MJ 7 MJ 2 [kg] 2 MJ (MJ) (MJ) (2.67E+1 0.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 0.00E+0 0.00E+0	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 0.00E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.28E-2 0.00E+0 0.00E+0	B1 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	B2 9.87E-1 0.00E+0 9.87E-1 8.05E+0 0.00E+0 8.05E+0 0.00E+0 0.00E+0 0.00E+0	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 0.00E+	1 -3.85 0 0.00E 1 -3.85 0 -2.58I 0 0.00E 0 -2.58I 0 0.00E 0 0.00E 0 0.00E 0 0.00E 0 0.00E	E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1
PER PER PER PENF PENF PENF SM RSF	E M T RE RM RT F	MJ] 2 MJ] 0 MJ] 2 MJ] 2 MJ] 7 MJ] 7 MJ] 2 MJ] 7 MJ] 7 MJ] 2 MJ] 2 MJ] 0 MJ] 0 MJ] 0 MJ] 0 MJ] 0	2.67E+1 0.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 0.00E+0 0.00E+0 3.29E-2	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.28E-2 0.00E+0 0.00E+0 2.13E-3	B1 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	B2 9.87E-1 0.00E+(9.87E-1 8.05E+(0.00E+(0.00E+(0.00E+(0.00E+(0.00E+(0.00E+(4.25E-3	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 1.58E-1 0.00E+0 1.47E-5	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 2.58E-4	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 0.00E+ 0.00E+ 1.25E-	-3.85 0 0.00E -3.85 -3.85 0 -2.58 0 -2.58 0 -2.58 0 -2.58 0 0.00E 0 -2.58 0 0.00E 0 0.00E 0 0.00E 0 0.00E 0 0.00E 0 0.00E	E-1 0.0 E+0 0.0 E+1 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 -9.02E-3	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3
PERI PERI PENF PENF PENF SM RSF NRS FW	E M T RE RE RE RE RE RE RE RE RE RE RE RE RE R	MJ 2 MJ 2 MJ 2 MJ 7 MJ 7 MJ 2 MJ 7 MJ 2 (kg) 2 MJ 0 (m ³ 3 ERE = wable pi on-rene wable pi condary	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 1.00E+0 1.0	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4 newable nergy res imary en nergy res	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e ources us ergy exclusiources us use of re	B1 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 a srawding nor sed as raw	B2 9.87E-1 9.87E-1 9.87E-1 8.05E+(0.00E+(0.0E	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.47E-5 s; PERT = le primary ls; PENRT y fuels; NR wa	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary energy re = Total use = Total use	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources is se of non-re	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 1.25E- urces us vable prinused as r- r-renewable	I -3.85 O 0.00E I -3.85 O -2.588 O -2.588 O -2.588 O 0.00E Solo -5.50 ed as ra range mark and the prime	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 erials; F sources PENRM ergy res	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 PERM = L s; PENRE 1 = Use of ources; S	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- SM = Use
PERI PERI PENF PENF SM RSF NRS FW Captio	E M M T N R R R T R R T F F F F F R r ene of se	MJ 2 MJ 2 MJ 2 MJ 7 MJ 7 MJ 2 MJ 7 MJ 2 (kg) 2 MJ 0 (m ³ 3 ERE = wable pi on-rene wable pi condary	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 1.00E+0 1.0	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4 newable nergy res imary en nergy res	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e ources us ergy exclusiources us use of re	B1 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 a srawding nor sed as raw	B2 9.87E-1 9.87E-1 9.87E-1 8.05E+(0.00E+(0.0E	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 1.47E-5 mewable p s; PERT = s; PERT = le primary ls; PENRT y fuels; NR	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary energy re = Total use = Total use	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources is se of non-re	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 1.25E- urces us able prinused as r- r-renewable	I -3.85 O 0.00E I -3.85 O -2.588 O -2.588 O -2.588 O 0.00E Solo -5.50 ed as ra range mark and the prime	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 erials; F sources PENRM ergy res	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 PERM = L s; PENRE 1 = Use of ources; S	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- SM = Use
PERI PERI PENF PENF SM RSF NRS FW Captio	E M T RE RE RM RT F I F I rene of se JLTS	MJ 2 MJ 2 MJ 2 MJ 2 MJ 7 MJ 2 MJ 2	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 1.00E+0 1.0	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 2.63E-4 newable ergy res imary en nergy res l; RSF =	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e ources us ergy exclusiources us use of re	B1 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 a srawding nor sed as raw	B2 9.87E-1 9.87E-1 9.87E-1 8.05E+(0.00E+(0.0E	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.47E-5 s; PERT = le primary ls; PENRT y fuels; NR wa	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary energy re = Total use = Total use	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources is se of non-re	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 1.25E- urces us able prinused as r- r-renewable	I -3.85 O 0.00E I -3.85 O -2.588 O -2.588 O -2.588 O 0.00E S -5.50 ed as ray enary enary aw mat ble prim	E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 erials; F sources PENRM ergy res	-6.32E+0 0.00E+0 -6.32E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 PERM = L s; PENRE 1 = Use of ources; S	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- SM = Use
PER PER PEN PEN SM RSF NRS FW Captio	E M I T I RE I RM I RT I F I F I renee of see JLTS flooro	MJ 2 MJ 2 MJ 2 MJ 7 MJ 2 MJ 7 MJ 2 Kg 2 MJ (MJ (m ³ 2 ERE = wable p on-rene wable p condary OF TH OVERING	2.67E+1 2.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 Use of re rimary er wable pr rimary er wable pr rimary er y materia	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4 mewable bergy res imary en hergy res imary en	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 2.13E-3 9 primary 6 ources us volume of re TPUT F	B1 0.00E+0	B2 9.87E-1 9.00E+(9.87E-1 8.05E+(0.00E+(8.05E+(0.00E+(0.00	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.47E-5 prewable p s; PERT = ple primary yfuels; NR wa VASTE C2	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary end Total use energy re = Total us SF = Use ter CATEG	1.81E-1 0.00E+0 1.81E-1 7.09E+1 -7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources i se of non-re of non-re ORIES C3/3 2.15E-10	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 0.00E+ 1.25E- vable prinused as r r-renewable call of the second se	1 -3.85 0 0.000 1 -3.85 0 -2.58 0 0.000 ed as ranary end as econd 0 second 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 PENRM ergy res els; FW	-6.32E+0 0.00E+0 -6.32E+0 4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 2ERM = L s; PENRE 1 = Use of ources; S = Use of	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- M = Use net fresh
PERI PERI PENF PENF SM SM SFW Caption Caption RESU 1 m ² 1 Parama HWU NHW	E M I T I RE I RM I RT I F I F I rene of set JLTS floor	MJ 2 MJ 2 MJ 2 MJ 2 MJ 7 MJ 2 MJ 2 MJ 2 MJ 2 MJ 2 MJ 2 MJ 0 No 0 OF TH Overint 0 MJ 0 N 0 N	2.67E+1 1.69E+2 7.04E+1 2.49E+2 2.49E+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 1.69E+2 1.6	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4 enewable bergy res imary en hergy res imary en hergy res imary en hergy res 1; RSF =	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+2 0.00E+0 0.00E+0 2.13E-3 primary e ources us ergy excl ources us Use of re TPUT F A5 4.84E-7 5.26E-2	B1 0.00E+0 B1 0.00E+0 0.00E+0	B2 9.87E-1 9.00E+(9.87E-1 9.87	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 s.PERT = wa VASTE C2 8.28E-9 1.21E-5	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary end Total use energy re = Total use SF = Use ter CATEG(C3/2 2.01E-8 1.31E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 7.09E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources is sources is sources is sources is sources is sources is sources is sources is sources is sources is source	3.83E- 3.83E- 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 0.00E+ 1.25E- varces us vable prin used as n -renewable c4/1 2.02E- 4.89E+	1 -3.85 0 0.000 1 -3.85 0 -2.58 0 0.000 0 0.000 0 -2.58 0 0.000 0 -9.13	E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 PENRM ergy res els; FW	-6.32E+0 0.00E+0 -6.32E+0 4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 2ERM = L S; PENRE 1 = Use of 0.00Ce+0 -1.03E-8 -1.50E-2	-5.49E-1 0.00E+0 5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 2.95E+0 0.00E+0 7.04E+1 = 0.60E-3 Jse of = Use of f non- M = Use net fresh D/3 -2.40E-9 -1.63E-1
PERI PERI PENF PENF PENF SMRS FW Caption Caption RESU 1 m ² 1 Parame HW/L NH/W RW/L	F I I I I I I I I I I I I I I I I I I I	MJ 2 MJ 2 MJ 2 MJ 7 PERE = wable p wable p pecondary OF TH covering 1 Unit [kg] [kg] 2	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+1 2.40E+0 1.0	1.42E-1 0.00E+0 1.42E-1 2.84E+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 1.43E-7 2.17E-4 3.87E-6	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e ources us usus of re TPUTF A5 4.84E-7 5.26E-2 1.28E-4	B1 0.00E+0 sed as rainewable LOWS B1 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1 8.05E+(0.00E+(0.00	C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 1.47E-5 2.15E-7	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 c.00E+2 rrimary end Total use energy re = Total us SF = Use ter CATEG C3/2 2.01E-8 1.31E+0 1.42E4	1.81E-1 0.00E+0 1.81E-1 7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources is se of non-re ORIES 2.15E-10 3.49E-4 8.24E-5	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+	1 -3.85 0 0.00E 1 -3.85 0 -2.58 0 0.00E 0 -2.58 0 0.00E	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 PENRM ergy res bels; FW D/1 00E+0 00E+0 00E+0 00E+0	-6.32E+0 -6.32E+0 -4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 PERM = L s; PENRE 1 = Use of D/2 -1.03E-8 -1.50E-2 -2.89E-3	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 6.69E-3 Jse of = Use of f non- SM = Use of f non- S
PERI PERI PENF PENF PENF SM RSF WW Caption Caption RESU 1 m ² 1 Parame HWU NHW RWU CRU	Image: state	MJ 2 MJ 2 MJ 2 MJ 1 MJ 1 MJ 2 MJ 2 MJ 1 MJ 2 Kg 2 VERE = wable p wable pcondary 0 OF The 0 covering 1 Unit 1 [kg] 2 [kg] 2	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.00E+0 1.04E-5 1.64E-5 2.96E-1 4.11E-3 0.00E+0	1.42E-1 0.00E+0 1.42E-1 2.84E+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 2.63E-4 anewable bergy res imary energy res imary energy res imary energy res 1; RSF = A A 1.49E-7 2.17E-4 3.87E-6 0.00E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e ources us ergy exclu- ources us Use of re TPUT F A5 4.84E-7 5.26E-2 1.28E-4 0.00E+0	B1 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1 8.05E+(0.00E+(wateria -renewat wmateria -renewat wmateria -renewat wmateria -renewat MND V B2 1.13E-(8.17E-3 3.81E-4 0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 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 1.47E-5 mewable p s; PERT = le primary y fuels; NR wa VASTE 8.28E-9 1.21E-5 2.15E-7 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+2 0.00E+2 rimary end Total use energy re = Total use sF = Use ter CATEG(C3/2 2.01E-8 1.31E+0 1.42E-4 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renews sources is se of non-ref ORIES 2.15E-10 3.49E-4 8.24E-5 0.00E+0	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+ 0.00E+ 1.25E- 0.00E+ 0.00E+ 1.25E- 0.00E+	1 -3.85 0 0.000 1 -3.85 0 -2.58 0 -2.58 0 0.000 0 -2.58 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 -3.13 0 -1.76 0 0.000	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 4.27E+1 0.00E+0 4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 9.02E-3 PERRE 1 = Use of ources; S e Use of D/2 -1.03E-8 -1.50E-2 -2.89E-3 0.00E+0	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- SM = Use of f non-
PER PER PEN PEN PEN SM RSF NRS FW Caption RESU 1 m ² 1 Parama HWE NHW RWE RWE	E	MJ 2 MJ 2 MJ 2 MJ 7 Wable p 0 on-rene wable p wable p 0 OF Th 0 Coverin 1 Unit 1 [kg] 2 [kg] 2 [kg] 1	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 1.000E+0 1.00E+0 1.00E+0 1.64E-5 2.96E-1 4.11E-3 1.00E+0 1.00E+0 1.03E-2	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4 mergy res imary en mergy res imary en mergy res imary en mergy res 1.42E-1 2.87E-6 0.00E+0 0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.28E4 4.84E-7 5.26E-2 1.28E4 0.00E+0 3.01E-4	B1 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1 9.87E-1 0.00E+(9.87E-1 0.00E+(8.17E-3 3.81E-4 0.00E+(0.00E+(0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 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 1.47E-5 newable p s; PERT = le primary yfuels; NR wa VASTE 8.28E-9 1.21E-5 2.15E-7 0.00E+0 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.35E+1 -7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 SF = Use ter C3/2 2.01E-8 1.31E+0 1.42E-4 0.00E+0 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 7.04E+1 5.30E-1 0.00E+0 0.0	3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+	1 -3.85 0 0.000 1 -3.85 0 -2.58 0 0.000 0 -2.58 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 -9.13 5 -1.76 0 0.000 0 0.000	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E-4 0.0 E-10 0.0 E-10 0.0 E-10 0.0 E-4	00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.28PL3 D/2 -1.03E-8 -1.50E-2 -2.89E-3 0.00E+0 0.00E+0 0.00E+0	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 0.00E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of f non- SM = Use of f non- SM = Use of f non- SM = Use net fresh D/3 -2.40E-9 -1.63E-1 -1.85E-4 0.00E+0 0.00E+0 0.00E+0
PERI PERI PENF PENF PENF SM RSF WW Caption Caption RESU 1 m ² 1 Parame HWU NHW RWU CRU	M M T J RE J RE J RT J RT J RT J RT J RT J F J F J P reneer N reneer N reneer JLTS Floorer C D J Z R R	MJ 2 MJ 2 MJ 2 MJ 7 Wable p 0 on-rene wable p wable p 0 condary 0 OF Th 0 coverin 1 Junit [kg] [kg] 6 [kg] 6 [kg] 6	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 1.000E+0 1.00E+0 1.00E+0 1.64E-5 2.96E-1 4.11E-3 1.00E+0 1.00E+0 1.03E-2	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 2.63E-4 mewable bergy res imary en hergy res imary en hergy res 1; RSF = A -OU A 4 1.49E-7 2.17E-4 3.87E-6 0.00E+0 0.00E+0 0.00E+0 0.00E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e ources us ergy exclu- ources us Use of re TPUT F A5 4.84E-7 5.26E-2 1.28E-4 0.00E+0	B1 0.00E+0	B2 9.87E-1 0.00E+(9.87E-1 0.00E+(9.87E-1 0.00E+(1.13E-(8.17E-3 3.81E-4 0.00E+(0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.47E-5 PERT = primary yfuels; NR wa VASTE 8.28E-9 1.21E-5 2.15E-7 0.00E+0 0.00E+0 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 7.36E+1 7.36E+1 7.36E+1 7.36E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary end Total use energy re = Total us SF = Use ter C3/2 2.01E-8 1.31E+0 1.42E-4 0.00E+0 0.00E+0 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 7.04E+1 5.30E-1 0.00E+0 0.0	3.83E- 3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 0.00E+ 0.00E+ 1.25E- UTCES US rable prinused as n renewable C4/1 2.02E- 4.89E+ 7.92E- 0.00E+	1 -3.85 0 0.000 1 -3.85 0 -2.58 0 0.000 0 -2.58 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 -9.13 5 -1.76 0 0.000 0 0.000	E-10 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E+0 0.0 E-4 0.0 E-4 0.0 E-10 0.0 E-10 0.0 E-10 0.0 E-4 0.0 E-10 0.0 E-4 0.0 E-10 0.0 E-4 0.0 E-10 0.0 E-10 0.0 E-10 0.0 E-4 0.0 E-10 0.0 E-1	00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 4.27E+1 0.00E+0 4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 9.02E-3 PERRE I = Use of 0.0rces; S e Use of 0.0rces; S e Use of 0.0rces; S 1 = 0.0rces; S 0.0rces; S 1.50E-2 -1.50E-2 -2.89E-3 0.00E+0	-5.49E-1 0.00E+0 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.669E-3 Jse of f non- SM = Use of f non- SM = Use of f non- SM = Use net fresh D/3 -2.40E-9 -1.63E-1 -1.85E-4 0.00E+0 0.00E+0 0.00E+0
PERI PERI PENF PENF PENF SM RSF NRS FW Caption RESU 1 m ² 1 Paramo HW/ NH/W RV/ CAL MEF	E	MJ 2 MJ 2 MJ 2 MJ 1 MJ 2 MJ 7 MJ 2 MJ 7 MJ 2 Kg 2 Wall 7 MJ 0 OF TH Scondary 0 OF TH OVerin 1 Kg 0 Kg 0 Kg 0 Kg 0	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.49E+2 2.49E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.00E+2 Vse of re- rimary er- wable pr rimary er- y material 1.64E-5 2.96E-1 4.11E-3 0.00E+0 1.03E-2 0.00E+0 0.00E+0 0.00E+0	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 2.84E+0 0.00E+0 0.00E+0 2.63E-4 mergy res imary en mergy res imary en mergy res imary en Mergy res imary en Mergy res 1.49E-7 2.17E-4 3.87E-6 0.00E+0	8.06E-1 0.00E+0 8.06E-1 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 8.00E+1 7.24E+4 0.00E+0 3.01E-4 0.00E+0	B1 0.00E+0 as rannewable LOWS B1 0.00E+0	B2 9.87E-1 9.00E+(9.87E-1 9.87E-1 8.05E+(0.00E+(8.05E+(0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.47E-5 enewable p s; PERT = be primary ys pengr ys pengr wa VASTE C2 8.28E-9 1.21E-5 2.15E-7 0.000E+0 0.00E+0 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 7.04E+1 3.16E+0 0.00E+0 0.00E+0 0.00E+0 2.00E-2 rimary energy re = Total us SF = Use ter CATEGO 2.01E-8 1.31E+0 1.42E-4 0.00E+0 0.00E+0 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 3.49E+1000000000000000000000000000000000000	3.83E- 3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 0.00E+ 0.00E+ 1.25E- urces us vable prinused as no renewable c4/11 2.02E- 4.89E+ 7.92E- 0.00E+ 0.0E	I -3.85 0 0.000 I -3.85 0 -2.58 0 0.000 0 -2.58 0 0.000 0 -2.58 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 0 0.000 3 -6.238 0 -9.13 5 -1.76 0 0.0000 0 0.0000 0 0.0000	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.0 E-4 0.0 E-4 0.0 E-10 0.0 E-4 0	00E+0 00E+0	-6.32E+0 0.00E+0 -6.32E+0 4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 PERM = L 5; PENRE 1 = Use of 0.00E+0 -1.03E-8 -1.50E-2 -2.89E-3 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0	-5.49E-1 0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- SM = Use of f non- SM = Use net fresh D/3 -2.40E-9 -1.63E-1 -1.85E-4 0.00E+0 0.00E+0 0.00E+0 0.00E+0
PERI PERI PERI PENI PENI SM RSF NRS FW Caption RESU 1 m ² 1 Paramo HWD NHW RWD CRU MEF MEF	E M I M I T I RE I R	MJ 2 MJ 2 MJ 1 MJ 2 MJ 2 MJ 2 Kg 2 Wall 2 Wall 2 Wall 2 Wall 2 Wall 0 MJ 0 OF TH Init [kg] [kg] 0	2.67E+1 1.00E+0 2.67E+1 1.69E+2 7.04E+1 2.40E+2 2.49E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.03E+2 Vue of re- rimary er- wable pr- rimary er- wable pr- rimary er- y material 1.64E-5 2.96E-1 4.11E-3 0.00E+0 1.03E+2 0.00E+0 1.03E+2 0.00E+0 1.03E+2 0.00E+0 1.03E+2 0.00E+0 0.	1.42E-1 0.00E+0 1.42E-1 2.84E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.63E-4 anewable bergy res imary en hergy res it, RSF = A - OU A 4 1.49E-7 2.17E-4 3.87E-6 0.00E+0 0.00E+	8.06E-1 0.00E+0 8.06E-1 7.24E+0 0.00E+0 7.24E+0 7.24E+0 0.00E+0 0.00E+0 0.00E+0 2.13E-3 primary e 0urces us ergy exclu- ources us Use of re TPUT F A5 4.84E-7 5.26E-2 1.28E-4 0.00E+0 3.01E-4 0.00E+0 5.04E-1 1.20E+0 0 0.00E+0 5.04E-1	B1 0.00E+0 as ravalding nor sed as ravalding nor 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0	B2 9.87E-1 9.00E+(9.87E-1 9.00E+(0.00E+(0.00E 817E-2 8.17E-3 3.81E-4 0.00E+(C2 7.91E-3 0.00E+0 7.91E-3 1.58E-1 0.00E+0 1.58E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.47E-5 enewable p s; PERT = be primary ys pengr ys pengr wa VASTE C2 8.28E-9 1.21E-5 2.15E-7 0.000E+0 0.00E+0 0.00E+0	C3/2 4.07E-1 0.00E+0 4.07E-1 7.35E+1 3.16E+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 2.00E-2 rrimary end Total use SF = Use ter CATEGO CATEGO 0.00E+0 0.00E+0	1.81E-1 0.00E+0 1.81E-1 7.09E+1 7.04E+1 5.30E-1 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 2.58E-4 ergy resc of renew sources is se of non-res ORIES 2.15E-10 3.49E-4 8.24E-5 0.00E+0 2.95E+0 1.96E+0 0.00E+0 0.00E+0 8.24E-5 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0 1.96E+0 0.00E+0 0	3.83E- 3.83E- 0.00E+ 3.83E- 5.23E+ 0.00E+ 5.23E+ 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+ 1.25E- 0.00E+ 0.00E+ 1.25E- 0.00E+	I -3.85 I -3.85 O 0.00E I -3.85 O -2.58 O 0.00E O 2.58 O 0.00E O 0.00E O 0.00E O 0.00E O 0.00E O 0.00E S -5.50 ed as ranary end aw mat able prim second B -6.23E O -9.13 5 -1.76 O 0.00E O 0.00E O 0.00E O 0.00E O 0.00E	E-1 0.0 E-1 0.0 E-1 0.0 E-1 0.0 E+0 0.	00E+0 00E+0	-6.32E+0 -6.32E+0 -6.32E+0 -4.27E+1 0.00E+0 -4.27E+1 0.00E+0 0.00E+0 0.00E+0 -9.02E-3 PERM = L s; PENRE 1 = Use of D/2 -1.03E-8 -1.50E-2 -2.89E-3 0.00E+0 0.	-5.49E-1 -0.00E+0 -5.49E-1 -7.36E+1 0.00E+0 -7.36E+1 2.95E+0 0.00E+0 7.04E+1 -6.69E-3 Jse of = Use of f non- MM = Use net fresh D/3 -2.40E-9 -1.63E-1 -1.83E-4 0.00E+0 0.00E+0 0.00E+0 0.00E+0 0.00E+0

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.ibu-epd.de

/ISO 14025/

DIN EN /ISO 14025:2011-10/, Environmental labels and declarations — Type III environmental declarations — Principles and procedures

/EN 15804/

/EN 15804:2012-04+A1 2013/, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

PCR Part A

Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report, V1.5 August 2016 www.bau-umwelt.de

PCR Part B

Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part B: Requirements on the EPD for floor coverings,

V1.4, September 2016

www.bau-umwelt.de

EN 1307

DIN EN 1307: 2014+A1:2016: Textile floor coverings - Classification

EN 14041

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

ISO 10874

DIN EN ISO 10874:2012-04: Resilient, textile and laminate floor coverings - Classification

EN 13501-1

DIN EN 13501-1:2010-01: Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests

ISO 15686

ISO 15686: Buildings and constructed assets -Service life planning

ISO 15686-1: 2011-05: Part 1: General principles and framework

ISO 15686-2: 2012-05: Part 2: Service life prediction procedures

ISO 15686-7: 2006-03: Part 7: Performance evaluation for feedback of service life data from practice ISO 15686-8: 2008-06: Part 8: Reference service life and service-life estimation

VDZ e.V.

Umweltdaten der deutschen Zementindustrie 2015

CPR

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

PRODIS

Product Information System (PRODIS) of the European Carpet Industry, Gemeinschaft umweltfreundlicher Teppichboden e.V (GUT) and European Carpet and Rug Association (ECRA), http://www.pro-dis.info

REACH

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

GaBi database 2017

GaBi Software-System and Database for Life Cycle Engeneering, thinkstep AG, Leinfelden-Echterdingen, service pack 33, 2017

ecoinvent 3.3

ecoinvent, Zurich, Switzerland, Database Version 3.3 $15^{\rm th}$ August 2016

Institut Bauen und Umwelt e.V.	Publisher Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	Tel Fax Mail Web	+49 (0)30 3087748- 0 +49 (0)30 3087748- 29 info@ibu-epd.com www.ibu-epd.com
Institut Bauen und Umwelt e.V.	Programme holder Institut Bauen und Umwelt e.V. Panoramastr 1 10178 Berlin Germany	Tel Fax Mail Web	+49 (0)30 - 3087748- 0 +49 (0)30 – 3087748 - 29 info@ibu-epd.com www.ibu-epd.com
UNICONFRETS TO THE PERSON AND THE PE	Author of the Life Cycle Assessment Gemeinschaft umweltfreundlicher Teppichboden (GUT) e.V. Schönebergstraße 2 52068 Aachen Germany	Tel Fax Mail Web	+49 (0)241 96843 410 +49 (0)241 96843 400 mail@gut-ev.de www.gut-ev.org
modu lyss [®]	Owner of the Declaration modulyss Zevensterrestraat 21 9240 Zele Belgium	Tel Fax Mail Web	+32 (0)52 45 72 11 +32 (0)52 45 72 11 info@modulyss.com www.modulyss.com