Environmental Product Declaration (EPD) According to ISO 14025 and EN 15804

PhoneStrip decoupling strip

EPD-Kiwa-EE-179294-EN 08-04-2025 08-04-2030 Wolf Bavaria GmbH Kiwa-Ecobility Experts Kiwa-Ecobility Experts verified







WOLF.

1 General information

1.1 PRODUCT

PhoneStrip decoupling strip

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-179294-EN

1.3 VALIDITY

Issue date: 08-04-2025

Valid until: 08-04-2030

1.4 PROGRAMME OPERATOR

Kiwa-Ecobility Experts Wattstraße 11-13 13355 Berlin DE

Raoul Mancke

(Head of programme operations, Kiwa-Ecobility Experts) R. Stadie

Dr. Ronny Stadie (Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Manufacturer: Wolf Bavaria GmbH Address: Gutenbergstraße 8, 91560 Heilsbronn, Germany E-mail: info@wolf-bavaria.com Website: https://www.wolf-bavaria.com/ Production location: Wolf Bavaria GmbH Address production location: Gutenbergstrasse 8, 91560 Heilsbronn, Germany

1.6 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804:2012+A2:2019 serves as the core PCR.

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1.7 STATEMENTS

The owner of this EPD shall be liable for the underlying information and evidence. The programme operator Kiwa-Ecobility Experts shall not be liable with respect to manufacturer data, life cycle assessment data and evidence.

1.8 PRODUCT CATEGORY RULES

Kiwa-Ecobility Experts (Kiwa-EE) – General Product Category Rules (2022-02-14)

Kiwa-Ecobility Experts (Kiwa-EE) - PCR B acoustical ceiling, wall and floor solutions (draft) (29.03.2023)

1.9 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804+A2. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of



1 General information

the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPD program operators may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

1.10 CALCULATION BASIS

LCA method R<THINK: Ecobility Experts | EN15804+A2

LCA software*: Simapro 9.1

Characterization method: EN 15804 +A2 Method v1.0

LCA database profiles: Ecolnvent version 3.6

Version database: v3.19 (20250306)

* Simapro is used for calculating the characterized results of the Environmental profiles within R<THINK.

1.11 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report 'PhoneStrip decoupling strip' with the calculation identifier ReTHiNK-79294.



2 Product

2.1 PRODUCT DESCRIPTION

PhoneStrip decoupling strip are made of corrugated cardboard. Its cavities are filled with a mixture of loose dry silica sand. The cut edges are sealed with adhesive tape. The product is also covered by a layer of laminated plastic foil on one side to ensure weather protection. PhoneStrip decoupling strip are used as structure-borne sound insulation and are CEcertified as a decoupling strip for vertical loads.

Material	Composition
corrugated cardboard	~8%
silica sand	~90.5%
laminated plastic foil	~1%
adhesive tape	~0.5%

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

PhoneStrips are used as sound insulation load-bearing decoupling strips. They are highly load-bearing and used for timber and classic solid constructions. Furhter, they are highly resilient and the loose structure of the quartz offers ideal conditions for ensuring high internal friction and reducing structure-borne sound -/ and flanking transmission.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

According to the "Nutzungsdauern von Bauteilen für die Lebenszyklusanalysen nach dem Bewertungssystem Nachhaltiges Bauen BBSR"-table from 2017, the reference service life of acoustic elements is 40 years.

USED RSL (YR) IN THIS LCA CALCULATION:

40

2.4 TECHNICAL DATA

Characteristic	Data	Norm
Thickness	15 mm	
Bulk density		

Characteristic	Data	Norm
	≥ 1300 kg/	
	m³ (± 100	
	kg/m³)	
Fire rating	E	DIN 13501
compressive strength:	23.00 N/	
characteristic (fc, kw)	mm ²	
compressive strength: Design	17.69 N/	
(fc, d)	mm ²	
Partial safety factor	1.3	DIN 1995-1-1/NA
Kmod-value	1	
maximum final deformation fok	3.5 mm	
$= 23.00 \text{ N/mm}^2$	(+/- 0.5	
- 25,00 N/THT	mm)	
maximum final deformation at	1.2 mm (+/-	
2,5 N/MM ²	0.5 mm)	
Joint insulation Kij (L-Joint)	2.3 dB	ISO 10848-1:2006
Joint insulation Kij (T-Joint	26dB/26	
ceiling-lower wall/ceiling-upper	dB/19dB	ISO 10848-1:2006
wall/lower wall-upper wall)		
friction coefficient u (concrete /		DIN 1990:2002+A1:2005+A1:2005/AC:
wood)	0.3 / 0.21	2010, Anhang D.7, according to
		Eurocode
shear stress \mathbf{T} (concrete / wood)		DIN 1990:2002+A1:2005+A1:2005/AC:
[MPa]	1.07 / 0.74	2010, Anhang D.7, according
[2]		to Eurocode
shear modulus Ga (concrete /		DIN 1990:2002+A1:2005+A1:2005/AC:
wood) [MPa]	28.4/19.4	2010, Anhang D.7, according
		to Eurocode



2 Product

2.5 SUBSTANCES OF VERY HIGH CONCERN

The product does not contain any substances from the "Candidate List of "Substances of very high concern" (SVHC).

2.6 DESCRIPTION PRODUCTION PROCESS

The corrugated cardboard is cut into the ordered size with a circular saw. Three of the four sides are then taped off by hand. Then, the silica sand is filled into the decoupling strip and then evened out with a vibrating table. The fourth side is taped off and lasty, the laminated plastic is attached to the product using its self-adhesive side.



Figure 1. Simplified process flow chart of the production of PhoneStar



3 Calculation rules

3.1 DECLARED UNIT

m²

One m² of PhoneStrip decoupling strip

Despite being listed in the PCR, no sound absorption class according to EN 11654 can be named due to it not having been classified for the product.

Reference unit: square meter (m2)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	m2
Weight per reference unit	19.593	kg
Conversion factor to 1 kg	0.051039	m2

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with modules C1-C4 and module D EPD. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Х	Х	Х	ND	Х	Х	Х	Х	Х								

The modules of the EN15804 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction -	Madula C2 = Transport
Installation process	Module Cz – Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal
Madula DZ - Danair	Module D = Benefits and loads beyond the
Module B3 – Repair	product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

This EPD is representative for PhoneStrip, a product of Wolf Bavaria GmbH.

3.5 CUT-OFF CRITERIA

Product stage (A1-A3)

All input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. production waste) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass. Specifically, this calculation does not take into account the manufacturing process of the plants, buildings and other capital goods used in the production processes. The transport of personnel to the plant,



3 Calculation rules

within the plant, research and development activities and long-term emissions were also not taken into account. Furthermore, the plastic suspenders used to fixate the product on the pallet have been excluded, as an exact amount used per m² of product couldn't be determined.

End of life stage (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass.

Benefits and loads beyond the system boundary (Module D)

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

3.6 ALLOCATION

Allocations were avoided as far as possible. There are no coproducts or by-product in the manufacturing of the examined product. Based on energy consumption measurements, the energy requirements of the production were allocated to the individual production processes. Specific information about allocations within the background data is included in the documentation of the Ecoinvent datasets.

3.7 DATA COLLECTION & REFERENCE PERIOD

Primary data was collected and provided by Wolf Bavaria internally. The data has been collected for the period of the 1st of January 2023 to the 31st of December 2023.

The transport distances are based on the distances between the production site and the suppliers used in 2023.

Electricity consumption was measured for every production process and then calculated based on the time needed to operate the machine to produce 1 m^2 of the product.

3.8 ESTIMATES AND ASSUMPTIONS

The distances from the place of use to the respective waste treatment (Transport End-of-Life) are taken from the LCA calculation software R<THINK, which works with the distances from the National Environmental Database (NMD) of the Netherlands.

There are no inputs for Cl, as the De-construction of the product is done by hand and energy usage, like the operation of a battery-powered screwdriver, are neglectible.

3.9 DATA QUALITY

The quality level of geographical representativeness can be regarded as "good". The quality level of technical representativeness can be regarded as "good". The time representativeness can also be regarded as "good". The overall data quality for this EPD can therefore be described as "good".

All relevant process-specific data was collected in the internal controlling.

In all possible cases, primary data from customers was used, which is of good quality. In addition, secondary data from the Ecoinvent database (2019, version 3.6) was used when no primary data could be supplied. The database is checked regularly and, therefore, fulfils the requirements of DIN EN ISO 14040/44 (background data not older than 10 years). The background data meets the requirements of EN 15804+A2. The

The quantities of raw materials, consumables and supplies used and the energy were recorded and with this the material usage for the declared unit determined. The general rule that specific data from certain production processes or average data derived from specific processes must have priority when calculating an EPD or LCA, was adhered to. Data for processes over which the manufacturer has no influence were assigned to generic data/scenarios. When selecting these, the data set/scenario that most realistically represents the processes was selected.

3.10 POWER MIX

100% of the energy used in production is generated through the PV panels on the company roof. Thus, the energy consumption is measured after the location-based approach. The rest of the generated energy is fed into the power grid. The GWP-total of the applied electricity mix is 0.0267 kg CO2 eqv. per kWh.



4 Scenarios and additional technical information

4.1 DE-CONSTRUCTION, DEMOLITION (C1)

No inputs are needed for the product at the de-construction / demolition phase

4.2 TRANSPORT END-OF-LIFE (C2)

The following distances and transport conveyance are assumed for transportation during end of life for the different types of waste processing.

Waste Scenario	Transport conveyance	Not removed (stays in	Landfill	Incineration	Recycling	Re-use
		work) [km]	[km]	[km]	[km]	[km]
(ei3.6) Corrugated board / Core board (PEF scenario)	(ei3.6) Lorry (Truck), unspecified (default)	0	100	150	FO	0
(u=10%, glue=2%) corr. acc. EN16449	market group for (GLO)	0	100	150	50	0
(oiz 6) cond coil (NMD ID 85)	(ei3.6) Lorry (Truck), unspecified (default)	orry (Truck), unspecified (default)		150	50	0
	market group for (GLO)	0	100	150	50	0
(oiz 6) DVC pipes (NMD ID 64)	(ei3.6) Lorry (Truck), unspecified (default)	0	100	150	50	0
(פוס טו טואט) איע (פוס פא טו טואט)	market group for (GLO)	0	100			0

The transport conveyance(s) used in the scenario(s) for transport during end of life has the following characteristics.

	Value and unit
Vehicle type used for transport	(ei3.6) Lorry (Truck), unspecified (default) market group for (GLO)
Fuel type and consumption of vehicle	not available
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.3 END OF LIFE (C3, C4)

The scenario(s) assumed for end of life of the product are given in the following tables. First the assumed percentages per type of waste processing are displayed, followed by the assumed amounts.



4 Scenarios and additional technical information

Waste Scenario	Region	Not removed (stays in work)	Landfill [%]	Incineration	Recycling	Re-use [%]
		[%]		[%]	[%]	
(ei3.6) Corrugated board / Core board (PEF scenario) (u=10%, glue=2%) corr. acc. EN16449	NL	0	0	25	75	0
(ei3.6) sand, soil (NMD ID 85)	NL	0	1	0	0	99
(ei3.6) PVC, pipes (NMD ID 64)	NL	0	10	20	70	0

Waste Scenario	Not removed (stays in work)	Landfill [kg]	Incineration	Recycling	Re-use [kg]
	[kg]		[kg]	[kg]	
(ei3.6) Corrugated board / Core board (PEF scenario) (u=10%, glue=2%) corr. acc.	0.000	0.000	0 777	1 1 7 1	0.000
EN16449	0.000	0.000	0.377	1.151	0.000
(ei3.6) sand, soil (NMD ID 85)	0.000	0.173	0.000	0.000	17.102
(ei3.6) PVC, pipes (NMD ID 64)	0.000	0.081	0.162	0.567	0.000
Total	0.000	0.254	0.539	1.698	17.102

4.4 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

The presented Benefits and loads beyond the system boundary in this EPD are based on the following calculated Net output flows in kilograms and Energy recovery displayed in MJ Lower Heating Value.

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
(ei3.6) Corrugated board / Core board (PEF scenario) (u=10%, glue=2%) corr. acc. EN16449	1.131	6.002
(ei3.6) sand, soil (NMD ID 85)	17.102	0.000
(ei3.6) PVC, pipes (NMD ID 64)	0.567	3.485
Total	18.800	9.486

For the impact assessment, the characterization factors of the LCIA method EN 15804 +A2 Method v1.0 are used. Long-term emissions (>100 years) are not considered in the impact assessment. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER SQUARE METER

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1-	C1	C2	C3	C4	D
					A3					
GWP-total	kg CO ₂ eq.	2.01E+0	2.66E-1	-3.44E-1	1.93E+0	0.00E+0	2.58E-2	3.14E+0	7.74E-3	-1.02E+0
GWP-f	kg CO ₂ eq.	4.48E+0	2.66E-1	4.01E-1	5.14E+0	0.00E+0	2.58E-2	6.64E-1	7.73E-3	-1.02E+0
GWP-b	kg CO ₂ eq.	-2.48E+0	1.07E-4	-7.47E-1	-3.23E+0	0.00E+0	1.04E-5	2.48E+0	7.66E-6	-3.36E-3
GWP-luluc	kg CO ₂ eq.	1.60E-2	9.76E-5	2.05E-3	1.81E-2	0.00E+0	9.46E-6	3.01E-4	6.65E-7	-1.56E-3
ODP	kg CFC 11 eq.	1.17E-6	5.88E-8	5.71E-8	1.29E-6	0.00E+0	5.70E-9	8.87E-8	6.40E-10	-4.81E-7
AP	mol H+ eq.	2.26E-2	1.54E-3	1.98E-3	2.61E-2	0.00E+0	1.50E-4	1.77E-3	1.62E-5	-4.93E-3
EP-fw	kg P eq.	1.79E-4	2.68E-6	1.76E-5	1.99E-4	0.00E+0	2.60E-7	1.05E-5	2.52E-8	-4.27E-5
EP-m	kg N eq.	5.21E-3	5.44E-4	5.63E-4	6.31E-3	0.00E+0	5.28E-5	4.95E-4	7.12E-6	-1.03E-3
EP-T	mol N eq.	5.29E-2	6.00E-3	5.44E-3	6.43E-2	0.00E+0	5.81E-4	5.41E-3	6.02E-5	-1.25E-2
	kg NMVOC	1/25.2		17/57	1775 0	0.005+0	1665 /	16457	100E E	76757
POCP	eq.	1.425-2	1.7TE-5	1.74E-3	1.776-2	0.00E+0	1.00E-4	1.04E-3	1.00E-3	-3.03E-3
ADP-mm	kg Sb-eq.	5.65E-5	6.75E-6	4.50E-6	6.77E-5	0.00E+0	6.54E-7	7.21E-6	1.75E-8	-2.31E-5
ADP-f	MJ	7.47E+1	4.02E+0	5.93E+0	8.47E+1	0.00E+0	3.89E-1	4.22E+0	4.57E-2	-2.35E+1
WDP	m3 world eq.	2.83E+0	1.44E-2	9.15E-2	2.94E+0	0.00E+0	1.39E-3	1.49E-1	2.01E-3	-2.36E+0

GWP-total=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use change (GWP-luluc) | **ODP**=Depletion potential of the stratosperic ozon layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP**-**m**=Abiotic depletion potential for non fossil resources (ADP mm) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) deprication potential, deprivation-weighted water consumption (WDP)



ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1-	C1	C2	C3	C4	D
					A3					
DM	disease		2705 9	20/5 9	26457	0.005+0	2715.0	2715 0	7 OOF 10	(7CE 9
PIVI	incidence	2.11E-7	2.39E-0	2.940-0	2.04E-7	0.002+0	2.312-9	2.31E-0	3.09E-10	-4.30E-0
IR	kBq U235 eq.	1.28E-1	1.68E-2	1.31E-2	1.58E-1	0.00E+0	1.63E-3	1.57E-2	1.84E-4	-4.90E-2
ETP-fw	CTUe	1.45E+2	3.58E+0	1.55E+1	1.64E+2	0.00E+0	3.47E-1	2.99E+1	3.30E-1	-2.23E+1
HTP-c	CTUh	2.82E-9	1.16E-10	5.27E-10	3.47E-9	0.00E+0	1.13E-11	5.36E-10	9.84E-13	-6.47E-10
HTP-nc	CTUh	6.20E-8	3.93E-9	6.26E-9	7.22E-8	0.00E+0	3.80E-10	1.11E-8	7.39E-11	-2.21E-8
SQP	Pt	8.78E+1	3.48E+0	7.25E+1	1.64E+2	0.00E+0	3.37E-1	2.33E+0	1.01E-1	-1.10E+2

PM=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality idex (SQP)

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
	Global warming potential (GWP)	None
ILCD type / level 1	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
	Acidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment	None
	(EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment	None
ICD type / level 2	(EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
II CD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2



ILCD classification	Indicator	Disclaimer
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2
Disclaimer 1 – This impact category deals mainly with	h the eventual impact of low dose ionizing radiation on human health of the nuclear fue	cycle. It does not consider effects due to possible
pueleer eesidente, eesunetienel eveesure ner due te	radioactive wasta disposal in underground facilities. Detential ionizing radiation from the	a cail from radam and from come construction

nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 - The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbr.	Unit	Al	A2	A3	A1-	C1	C2	C3	C4	D
					A3					
PERE	MJ	-8.89E+0	5.03E-2	3.36E+0	-5.47E+0	0.00E+0	4.87E-3	2.86E-1	5.55E-4	-2.05E+1
PERM	MJ	2.40E+1	0.00E+0	7.47E+0	3.15E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	1.51E+1	5.03E-2	1.08E+1	2.60E+1	0.00E+0	4.87E-3	2.86E-1	5.55E-4	-2.05E+1
PENRE	MJ	6.30E+1	4.26E+0	6.02E+0	7.33E+1	0.00E+0	4.13E-1	4.49E+0	4.85E-2	-1.71E+1
PENRM	MJ	1.74E+1	0.00E+0	3.64E-1	1.78E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-8.17E+0
PENRT	MJ	8.04E+1	4.26E+0	6.38E+0	9.11E+1	0.00E+0	4.13E-1	4.49E+0	4.85E-2	-2.52E+1
SM	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
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m ³	6.54E-2	4.89E-4	3.30E-3	6.92E-2	0.00E+0	4.74E-5	4.27E-3	4.83E-5	-3.80E-2

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 | PENRM=Use of non-renewable primary energy resources used as raw materials | PENRM=Use of non-renewable primary energy resources used as raw materials | PENRM=Use of non-renewable primary energy resources used as raw materials | PENRM=Use of non-renewable primary energy resources | SM=Use of secondary material | RSF=Use of renewable secondary fuels | NRSF=Use of non-renewable primary energy resources | SM=Use of non-renewable secondary fuels | FW=Net use of fresh water



OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbr.	Unit	A1	A2	A3	A1-	C1	C2	C3	C4	D
					A3					
HWD	Kg	7.38E-5	1.02E-5	1.13E-5	9.53E-5	0.00E+0	9.86E-7	7.77E-6	6.88E-8	-2.27E-5
NHWD	Kg	6.70E-1	2.55E-1	1.14E-1	1.04E+0	0.00E+0	2.47E-2	6.81E-1	2.54E-1	-1.04E-1
RWD	Kg	1.29E-4	2.64E-5	1.47E-5	1.70E-4	0.00E+0	2.56E-6	1.77E-5	2.88E-7	-4.59E-5

HWD=Hazardous waste disposed | NHWD=Non-hazardous waste disposed | RWD=Radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbr.	Unit	ΓA	A2	A3	A1-	C1	C2	C3	C4	D
					A3					
CRU	Kg	0.00E+0	0.00E+0	1.71E-3	1.71E-3	0.00E+0	0.00E+0	1.71E+1	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	6.76E-2	6.76E-2	0.00E+0	0.00E+0	1.70E+0	0.00E+0	0.00E+0
MER	Kg	0.00E+0								
EET	МЈ	0.00E+0	0.00E+0	1.17E-1	1.17E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.94E+0
EEE	MJ	0.00E+0	0.00E+0	6.79E-2	6.79E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.71E+0

CRU=Components for re-use | MFR=Materials for recycling | MER=Materials for energy recovery | EET=Exported Energy, Thermic | EEE=Exported Energy, Electric

5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER SQUARE METER

BIOGENIC CARBON CONTENT

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per square meter:

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0.6855	kg C
Biogenic carbon content in accompanying packaging	0.2045	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

Uptake Biogenic Carbon dioxide	Amount	Unit
product	2.513	kg CO2 (biogenic)
Packaging	0.75	kg CO2 (biogenic)



6 Interpretation of results



The main driver is almost all impact categories is Al with is corrugated cardboard and the silica sand. It is responsible for between 30% up to close to 80% of environmental impact. Another significant impactor is A3, with an especially high value in land use (SQP). Stemming from the palet and the usage of cardboard in the product and packaging, D has a significant negative impact for land use (SQP) and water depletion potential (WDP). Due to cardboard being a main component of the product, global warming potential - biogenic (GWP-b), is also shown to be -40%. This is then evened out due to the waste processing in C3. The other biogenic carbon emissions originate from the packaging. Since the module A5, which includes the waste processing of packaging, is not declared there seems to be a disbalance of biogenic CO2 emissions.



7 References

ISO 14040

ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

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ISO 14025

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ISO 10848-1:2006

Acoustics — Laboratory measurement of the flanking transmission of airborne and impact sound between adjoining rooms

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7 References

NMD

NATIONAL ENVIRONMENTAL DATABASE

ecoinvent database version 3.6



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