Environmental Product Declaration

as per ISO 14025 and EN 15804

Owner of the declaration:	Unifloor B.V.
Publisher:	Kiwa-Ecobility Experts
Programme operator:	Kiwa-Ecobility Experts
Declaration number:	EPD-Unifloor-256-EN
Issue date:	11.11.2022
Valid to:	11.11.2027

Jumpax® Basic / Heat-Pak®

This Environmental Product Declaration (EPD) is based on the life cycle assessment of the Jumpax® Basic / Heat-Pak® flooring system from Unifloor B.V. .

1. General information

Unifloor B.V.

Programme operator:
Kiwa-Ecobility Experts
Voltastr. 5
13355 Berlin
Germany

Declaration number:
EPD-Unifloor-256-EN

Issue date:
11.11.2022

Scope:
This EPD is based on the life cycle assessment of the Jumpax® Basic / Heat-Pak® flooring system from Unifloor B.V.
The declaration holder is liable for the underlying information and evidence. Kiwa-Ecobility Experts is not liable for manufacturer information, life cycle assessment data and evidence.

Frank Huppertz
(Head of Kiwa-Ecobility Experts)

Prof. Dr Frank Heimbecher
(Chairman of the Independent Expert Committee of Kiwa-Ecobility Experts)

Jumpax® Basic / Heat-Pak®

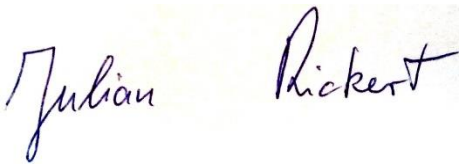
Owner of the declaration:
Unifloor B.V.
Arnsbergstraat 4
7418 EZ Deventer
Netherlands

Declared unit:
1 m^2 Floor system

Valid until:
11.11.2027

Product category rules:
PCR A - Calculation rules for the LCA and requirements for the background report
PCR B - Resilient, textile and laminate floor coverings - Environmental product declarations - Product category rules; EN 16810:2017

Verification:
The CEN standard EN 15804:2012+A2:2019 serves as the core PCR.
Independent verification of the declaration and data according to EN ISO 14025:2011-10.
☐internal ☒external



Julian Rickert
(Third party verifier)

2. Product

2.1 Product description & application

Jumpax® Basic / Heat-Pak® is a floating underfloor system, specially developed as a load distribution layer for all types of underfloor heating systems.

This unique system is an extremely stable subfloor on which many floor coverings can be glued directly. Jumpax® Basic / Heat-Pak® offers a perfectly smooth and seamless subfloor, and the possibility of impact marks in the floor covering is virtually eliminated. This system is therefore ideally suited for bonding carpet, linoleum, design flooring and cork.

Jumpax® Basic / Heat-Pak® is the solution to quickly and easily create a very stable floor without cumbersome and time-consuming trowel work. By using Jumpax® Basic / Heat-Pak®, the floor is created quickly, cleanly, dryly and very conveniently. Due to a very low thermal resistance, the heat from all floor heating systems can easily enter the room. The floor is warm evenly and over a wide area. This means that "hot spots" cannot occur in the first place.

2.2 Technical data

In Table 1 Table 1 the technical specifications of Jumpax® Basic / Heat-Pak® are listed.

Table 1 : Technical data for Jumpax® Basic / Heat-Pak®

Parameter	Value	Unit
Strength	7 / ± 0,2	mm
Format	600 x 1200 / ± 1,5	mm
Weight per m²	5,3	kg
Weight per package	15,5	kg
Bulk density	770	kg/m³
Residual moisture	4-10	%
Swelling in thickness after 24 hours: Water absorption max	< 40	%
Fire class RTF (according to standard EN13501:2007): System check With 2 mm design floor	 Dfl-s1 Bfl-s1	 - -
Thermal conductivity λ value	114	W.m/K
Thermal resistance R value (according to ISO 8302:1991 and EN 12667:2001)	0,072	m².K/W
Flexural strength (according to standard EN 310)	> 40	kg/cm²
Compressive stress, CS (according to standard EN 826 with 0.5 mm overprint)	1000	kPa
Load test (according to the DIN-EN-1991-1-1 standard)	E1, E2 and E3	Class
Impact sound insulation (IS) on screed floor (according to ISO 10140-3 2010 standard): in combination with Heat-Foil and design flooring in combination with Heat-Blok and design floor in combination with Heat-Foil and Linoleum in combination with Heat-Blok and Linoleum	 21 22 21 22	 dB ΔL_w dB ΔL_w dB ΔL_w dB ΔL_w
Impact sound insulation (IS) on wooden ceiling (according to ISO 10140-3 2010 standard basis 64 dB): in combination with 30 mm Ecopearls	 12	 dB ΔL_n
VOC Class	A	-
Formaldehyde content	E-1	-
FSC certified	FSC C154437	-
Ü sign	DIBt Z-158.10-47	-

2.3 Production

Jumpax® Basic / Heat-Pak® is manufactured by Unifloor in Deventer in the Netherlands (Arnsbergstraat 4, 7418 EZ Deventer). Here, the individual layers (MDF etc.) are joined together with glue and then packed for transport to the place of use (see Figure 1).

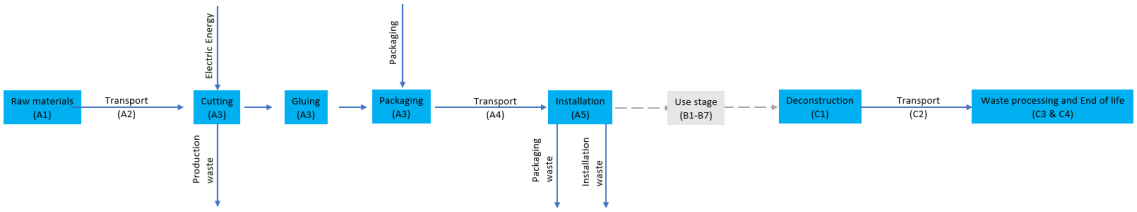


Figure 1 : Process flow diagram

2.4 Raw materials

Jumpax® Basic / Heat-Pak® is made of high-quality MDF material and consists of a bottom panel (3 mm) and a top panel (4 mm). Both boards are already provided with a special interactive glue.

The product does not contain any substances from the candidate list of substances of very high concern for authorisation (SVHC).

2.5 Packaging

The packaging consists of a pallet for transport and a protective film that is removed from the adhesive surfaces during installation.

2.6 Reference service life (RSL)

Since the use phase is not considered, no reference useful life is given.

2.7 Other information

Further information on the product can be found on the manufacturer's website (www.unifloor.info).

3. LCA: Calculation rules

3.1 Declared unit

The declared unit for floor systems is according to "PCR B - Resilient, textile and laminate floor coverings - Environmental product declarations - Product category rules; EN 16810:2017" 1 m^2 .

Table 2: Declared unit

Parameter	Value	Unit
Declared unit	1	m^2
Conversion factor to 1 kg	0,189	m^2 /kg

3.2 System boundary

The EPD was prepared in accordance with DIN EN 15804 and takes into account the manufacturing phase, the construction phase and the disposal phase as well as the credits and loads outside the system boundaries. This corresponds to the modules A1 to A3, A4 and A5 as well as C1 to C4 and D. The type of EPD is therefore "cradle to grave with options".

In this life cycle assessment according to ISO 14025, the following phases of the product life cycle were considered:

- A1: Raw material extraction and processing
- A2: Transport to the manufacturer
- A3: Production
- A4: Transport to the customer
- A5: Installation
- C1: Deconstruction
- C2: Transport
- C3: Waste treatment
- C4: Landfill
- D: Reuse, recovery and recycling potential

For the declared life phases, all inputs (raw materials, intermediate products, energy and auxiliary materials) as well as the waste produced were considered.

3.3 Assumptions and estimates

For data protection reasons, the assumptions made and data used are only explained in the background report accompanying this EPD.

3.4 Period under review

All product- and process-specific data were collected for the operating year 2021 and are thus up-to-date.

3.5 Cut-off criteria

Potential environmental impacts were assigned to the material flows based on the Ecoinvent database version 3.6. All flows contributing to more than 1 percent of the total mass, energy or environmental impacts of the system were considered in the LCA. It can be assumed that the neglected processes would have contributed less than 5 percent to the impact categories considered.

Other operating resources and the corresponding waste were not considered part of the product system and accordingly not included in the balancing.

3.6 Data quality

To ensure the comparability of the results, only consistent background data from the Ecoinvent database version 3.6 (2019) was used in the LCA (e.g. data sets on energy, transports, auxiliary and operating materials). The database is regularly checked and thus complies with the requirements of EN 15804 (background data not older than 10 years). Almost all consistent data sets contained in the Ecoinvent database version 3.6 are documented and can be viewed in the online documentation.

The raw material data were converted into reference flows (input per declared unit).

The general rule was followed that specific data from specific production processes or average data derived from specific processes must have priority in the calculation of an LCA. Data for processes over which the manufacturer has no influence were assigned generic data.

The LCA calculation was carried out using Nibe's LCA & EPD tool R< THiNK.

3.7 Allocation

Specific information on allocations within the background data can be found in the documentation of the Ecoinvent database version 3.6 datasets.

3.8 Comparability

In principle, a comparison or assessment of the environmental impact of different products is only possible if they have been produced in accordance with EN 15804. For the assessment of comparability, the following aspects in particular must be taken into account: PCR used, functional or declared unit, geographical reference, definition of 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 programme instructions of different EPDs programmes may differ. Comparability must be checked. Further guidance can be found in EN 15804+A2 (5.3 Comparability of EPDs for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

3.9 Data collection

ISO 14044 section 4.3.2 was taken into account in the data collection.

The objective and the scope of the study were defined in consultation with Unifloor B.V. . The data collection took place with the help of an Excel data collection template provided by Kiwa GmbH. The collected data was checked by Kiwa GmbH, for example by critically questioning the assumptions made by Unifloor B.V. . In this way, some errors (e.g. unit errors) could be corrected in cooperation with Unifloor B.V. . Subsequently, the annual values were related to the declared unit of one square metre with the help of corresponding calculations. In addition, suitable assumptions were made and estimates carried out for the missing information and data.

3.10 Calculation method

For the life cycle assessment, the calculation procedures described in ISO 14044 section 4.3.3 were applied. The evaluation is carried out on the basis of the phases lying within the system boundaries and the processes contained therein.

4. LCA: Scenarios and additional technical information

For the transport to the construction site in module A4, a scenario with a distance of 90 km and the environmental profile "market group for transport, freight, lorry, unspecified {GLO}" from Ecoinvent 3.6 was used.

No auxiliary or operating materials or energy were taken into account when installing the product in module A5, as only human muscle power is required for the installation. There are no direct emissions into the ambient air, soil or water. But there is packaging waste in the form of protective film, which is removed from the adhesive surfaces, and a Euro pallet, which was used for transport. As a conservative approach, an additional 3 % installation waste was assumed.

For disposal, a waste scenario for "MDF" based on the NMD waste scenario ID 36 from the Netherlands was adapted and used for Germany. Here, 5 % landfilling and 95 % incineration were assumed. For the distance to waste treatment, 100 km for landfilling and 150 km for incineration were used with "market group for transport, freight, lorry, unspecified {GLO}" (from Ecoinvent 3.6). The energy saving (credit) from incineration was adjusted for the German market. For the landfill loads, "99% Waste wood, un-treated and 1% Waste paint {EU}| treatment of, sanitary landfill" was used and for the incineration "Waste building wood, chrome preserved {CH}| treatment of, municipal incineration".

5. LCA: Results

The following tables show the results of the life cycle assessment, more specifically for the environmental impact indicators, resource consumption, output flows and waste categories. The results presented here refer to the declared unit of 1 m^2 Jumpax® Basic / Heat-Pak®.

The results of the environmental impact indicators ETP- fw, HTP-c, HTP-nc, SQP, ADP-f, ADP-mm and WDP must be used with caution, as the uncertainties in these results are high or there is limited experience with the indicator.

The IRP impact category mainly addresses the potential effect of low dose ionising radiation on human health in the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents and occupational exposure, nor does it consider the disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials is also not measured by this indicator.

Description of the system boundary (X = module declared; MND = module not declared)																
Production stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Production	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction	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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Table 3: LCA results - environmental impact indicators: 1 m^2 Jumpax® Basic / Heat-Pak®

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
AP	mol H+-eq.	2,89E-02	1,91E-03	2,15E-03	3,77E-04	1,06E-03	0,00E+00	6,17E-04	1,59E-03	2,46E-05	-7,13E-03
GWP-total	kg CO2-eq.	6,69E-01	3,30E-01	8,75E-01	6,50E-02	2,91E-01	0,00E+00	1,06E-01	7,41E+00	2,98E-02	-3,98E+00
GWP-b	kg CO2-eq.	-3,49E+00	1,52E-04	-5,12E-02	3,00E-05	1,20E-01	0,00E+00	4,91E-05	7,36E+00	2,66E-02	-1,85E-01
GWP-f	kg CO2-eq.	4,16E+00	3,29E-01	9,26E-01	6,49E-02	1,71E-01	0,00E+00	1,06E-01	4,65E-02	3,18E-03	-3,79E+00
GWP-luluc	kg CO2-eq.	5,90E-03	1,21E-04	3,08E-04	2,38E-05	1,94E-04	0,00E+00	3,90E-05	1,27E-05	1,39E-06	-2,74E-03
ETP-fw	CTUe	1,03E+02	4,43E+00	8,24E+00	8,73E-01	3,59E+00	0,00E+00	1,43E+00	1,38E+00	6,71E-02	-2,06E+01
PM	Occurrence of diseases	4,32E-07	2,96E-08	2,12E-08	5,84E-09	1,52E-08	0,00E+00	9,57E-09	1,28E-08	4,66E-10	-2,52E-08
EP-m	kg N-eq.	4,89E-03	6,73E-04	4,85E-04	1,33E-04	2,12E-04	0,00E+00	2,17E-04	7,39E-04	1,58E-05	-1,31E-03
EP-fw	kg PO4-eq.	1,87E-04	3,32E-06	1,65E-05	6,55E-07	6,58E-06	0,00E+00	1,07E-06	9,53E-07	5,91E-08	-3,43E-04
EP-t	mol N-eq.	8,15E-02	7,42E-03	6,26E-03	1,46E-03	3,21E-03	0,00E+00	2,40E-03	8,48E-03	9,09E-05	-1,93E-02
HTP-c	CTUh	4,32E-08	1,44E-10	2,07E-09	2,83E-11	1,96E-09	0,00E+00	4,64E-11	1,97E-08	1,86E-12	-4,68E-10
HTP-nc	CTUh	8,35E-08	4,84E-09	5,80E-09	9,55E-10	3,04E-09	0,00E+00	1,56E-09	4,84E-09	7,17E-11	-1,70E-08
IRP	kBq U235-eq.	2,06E-01	2,08E-02	1,78E-02	4,10E-03	7,68E-03	0,00E+00	6,72E-03	1,23E-03	2,62E-04	-1,07E-01
SQP	-	3,50E+02	4,31E+00	2,54E+01	8,49E-01	1,14E+01	0,00E+00	1,39E+00	1,64E-01	1,58E-01	-6,04E+00
ODP	kg CFC11-eq.	5,43E-07	7,27E-08	1,06E-07	1,43E-08	2,29E-08	0,00E+00	2,35E-08	5,98E-09	8,76E-10	-3,05E-07
POCP	kg NMVOC eq.	1,97E-02	2,12E-03	1,77E-03	4,18E-04	8,01E-04	0,00E+00	6,84E-04	2,22E-03	3,24E-05	-4,15E-03
ADP-f	MJ	7,19E+01	4,97E+00	1,42E+01	9,79E-01	2,85E+00	0,00E+00	1,60E+00	4,74E-01	6,70E-02	-5,56E+01
ADP-mm	kg Sb-eq.	7,44E-05	8,34E-06	4,26E-06	1,65E-06	2,71E-06	0,00E+00	2,69E-06	2,91E-07	3,03E-08	-7,02E-06
WDP	m3 World eq. withdrawn	4,67E+00	1,78E-02	1,83E-01	3,50E-03	1,47E-01	0,00E+00	5,74E-03	1,66E-02	2,87E-03	-8,34E-02

AP = Acidification potential, accumulated exceedance; GWP-total = Global warming potential, total; GWP-b = Global warming potential, biogenic; GWP-f = Global warming potential, fossil; GWP-luluc = Global warming potential, land use and land use change; ETP-fw = Ecotoxicity potential, freshwater; PM = Particulate matter emissions; EP-m =

Eutrophication potential, fraction of nutrients reaching marine saltwater end compartment; EP-fw = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-t = Eutrophication potential, accumulated potential; HTP-c = Human toxicity potential, cancer effects; HTP-nc = Human toxicity potential, non-cancer effects; IRP = Ionizing radiation potential, human health; SQP = Soil quality potential; ODP = Depletion potential of the stratospheric ozone layer; POCP = Formation potential of tropospheric ozone; ADP-f = Abiotic depletion potential for fossil resources; ADP-mm = Abiotic depletion potential for non-fossil resources, minerals and metals; WDP = Water deprivation potential, deprivation-weighted water consumption

Table 4: LCA results - resource consumption, output streams & waste categories: 1 m^2 Jumpax® Basic / Heat-Pak®

Parameter	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	-6,90E+00	6,22E-02	2,19E+00	1,23E-02	-1,35E-01	0,00E+00	2,01E-02	2,20E-02	1,43E-03	-3,90E+00
PERM	MJ	7,31E+01	0,00E+00	2,19E+00	0,00E+00	2,26E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,45E-03
PERT	MJ	6,62E+01	6,22E-02	4,38E+00	1,23E-02	2,12E+00	0,00E+00	2,01E-02	2,19E-02	1,18E-03	-3,90E+00
PENRE	MJ	7,78E+01	5,27E+00	1,55E+01	1,04E+00	3,09E+00	0,00E+00	1,70E+00	7,25E-01	7,22E-02	-6,06E+01
PENRM	MJ	0,00E+00	0,00E+00	4,96E-02	0,00E+00	1,49E-03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-6,78E-05
PENRT	MJ	7,78E+01	5,27E+00	1,56E+01	1,04E+00	3,08E+00	0,00E+00	1,70E+00	5,10E-01	7,12E-02	-6,06E+01
SM	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
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m3	1,25E-01	6,05E-04	6,50E-03	1,19E-04	4,05E-03	0,00E+00	1,95E-04	2,48E-03	6,99E-05	-1,32E-02
HWD	kg	8,03E-05	1,26E-05	1,72E-05	2,48E-06	3,56E-06	0,00E+00	4,06E-06	3,03E-06	1,03E-07	-4,08E-05
NHWD	kg	6,71E-01	3,15E-01	6,04E-02	6,21E-02	4,44E-02	0,00E+00	1,02E-01	2,67E-01	2,68E-01	-1,29E-01
RWD	kg	2,20E-04	3,26E-05	1,96E-05	6,43E-06	8,66E-06	0,00E+00	1,05E-05	1,46E-06	3,98E-07	-1,40E-04
CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,78E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,08E+00	0,00E+00	0,00E+00
EET	MJ	0,00E+00	0,00E+00	-1,02E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-3,50E+01
EEE	MJ	0,00E+00	0,00E+00	-6,46E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,26E+01	0,00E+00	-2,22E+01

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; 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; EET = Exported energy, thermic; EEE = Exported energy, electric

6. LCA: Interpretation

For easier understanding, the results are presented graphically in order to be able to see correlations and connections between the data more clearly.

The following figure shows the shares of the different product life phases in the environmental impacts.

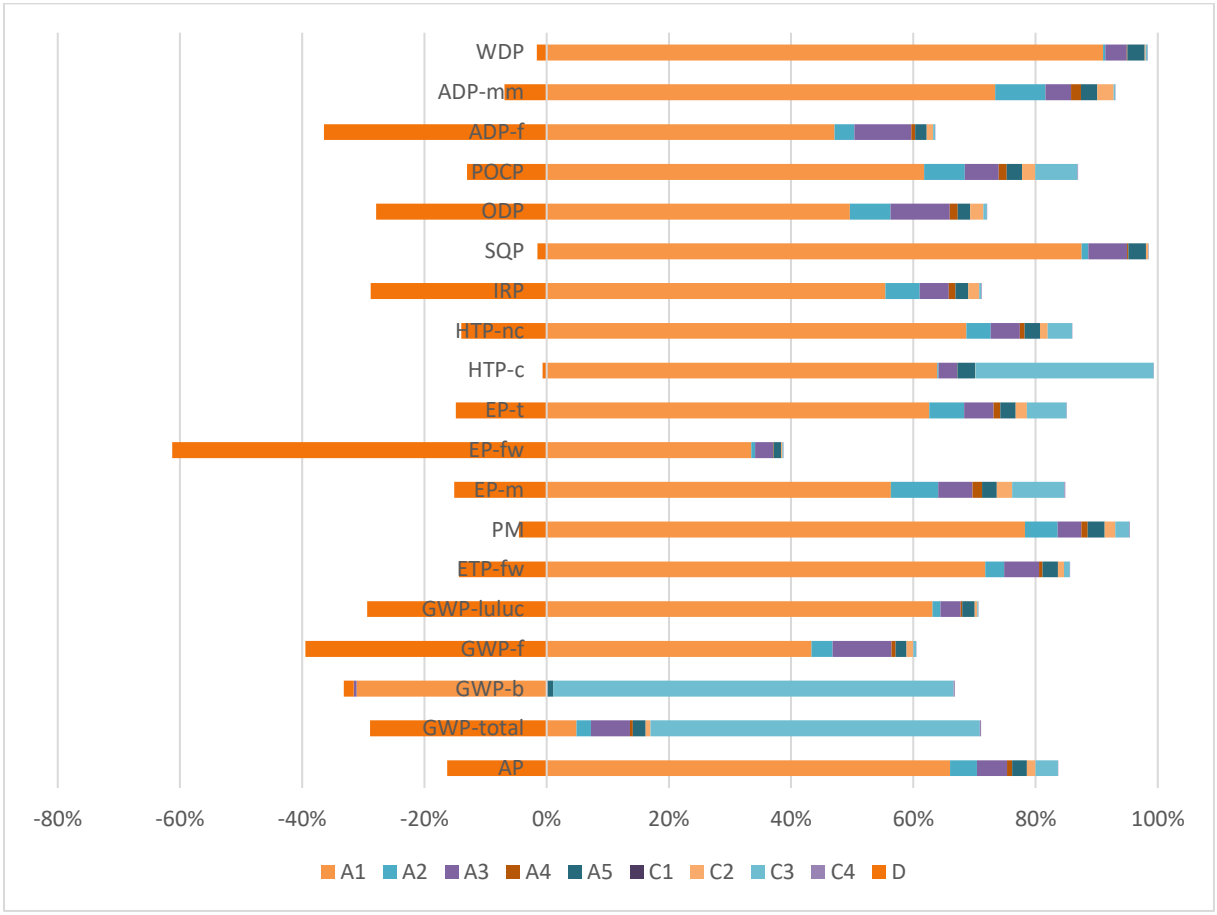


Figure 2: Shares of the product life phases in the environmental impacts for Jumpax® Basic / Heat-Pak®

As can be seen in the graph, raw material provision A1 dominates in the production phase in almost all environmental impacts. Furthermore, it can be seen from the negative values that the credits outside the system boundaries in module D predominate.

For the "Eutrophication potential, fraction of nutrients reaching freshwater end compartment", the credits from Module D (negative value) outweigh the sum of the loads from the other modules (positive values).

7. References

Ecoinvent, 2019	Ecoinvent database version 3.6, 2019
EN 15804:	EN 15804:2012+A2:2019: Sustainability of construction works - Environmental product declarations - Basic rules for the product category construction products
ISO 14025:	DIN EN ISO 14025:2011-10: Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 14040:	DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006
ISO 14044:	DIN EN ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14040:2006
PCR A:	General product category rules for building products from the EPD programme of Ecobility Experts GmbH: Calculation rules for the LCA and requirements for the background report
PCR B:	Resilient, textile and laminate floor coverings - Environmental product declarations - Product category rules; EN 16810:2017
R< THiNK, 2022	R< THiNK; Online LCA & EPD tool from Nibe; 2022

	Publisher: Kiwa-Ecobility Experts Voltastrasse 5 13355 Berlin Germany	Mail Web	DE.Ecobility.Experts@ kiwa.com www.kiwa.com/de/de/the- mes/ecobility-experts/
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