

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

| | |
|--------------------------|--------------------------------------|
| Owner of the Declaration | Uzin Utz SE |
| Publisher | Institut Bauen und Umwelt e.V. (IBU) |
| Programme holder | Institut Bauen und Umwelt e.V. (IBU) |
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| Valid to | 27.01.2030 |

UZIN U-FIXX
Sifloor AG

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1. General Information

Sifloor AG

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-UZI-20250104-IBC1-EN

This declaration is based on the product category rules:

Dispersion adhesives and primers for floor coverings, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

28.01.2025

Valid to

27.01.2030



Dipl.-Ing. Hans Peters
(Chairman of Institut Bauen und Umwelt e.V.)



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UZIN U-FIXX

Owner of the declaration

Uzin Utz SE
Dieselstraße 3
89079 Ulm
Germany

Declared product / declared unit

1 m² of UZIN U-FIXX

Scope:

This Environmental Product Declaration is a specific EPD for UZIN U-FIXX, which is manufactured at the Sifloor AG plant in Sursee, Switzerland. The primary data for the LCA was collected at the manufacturer's site, while the secondary data originates from the LCA Managed Content Database.

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.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

| | |
|--|------------|
| The standard EN 15804 serves as the core PCR | |
| Independent verification of the declaration and data according to ISO 14025:2011 | |
| <input type="checkbox"/> | internally |
| <input checked="" type="checkbox"/> | externally |



Mr Olivier Muller,
(Independent verifier)

2. Product

2.1 Product description/Product definition

UZIN U-FIXX is a double-sided pressure-sensitive adhesive tape. UZIN U-FIXX is designed with varying adhesive strengths on each side to simplify its application. For the use and application of the product the respective national provisions at the place of use apply, in Germany for example the building codes of the federal states and the corresponding national specifications.

2.2 Application

The adhesive films of the pressure sensitive adhesive are specially adapted to different substrates and floor coverings. UZIN U-FIXX is suitable for the installation of new resilient and textile floor coverings. The product can be applied on new substrates as well as on existing floor coverings.

2.3 Technical Data

Constructional data

| Name | Value | Unit |
|---|---------------------------|------|
| Open time | unlimited | - |
| Minimum application temperature at ground level | 15 | °C |
| Loadable | immediately after bonding | - |

Other constructional data are not relevant for this product. Performance data of the product with respect to its characteristics in accordance with the relevant technical provision (no CE-marking).

The product holds the national technical approval of the Deutsches Institut für Bautechnik (DIBt).

2.4 Delivery status

UZIN U-FIXX is delivered ready to use. The content of one packaging unit is sufficient for 22.5 m².

2.5 Base materials/Ancillary materials

Pressure sensitive adhesives in general consist of a carrier material with a self-adhesive layer on both sides. UZIN U-FIXX is composed as follows:

| Name | Value | Unit |
|----------------------------|-------|------|
| Copolymers (solid content) | 25-40 | % |
| Water | 15-30 | % |
| Additives | <1 | % |
| Liner (protective paper) | 5-20 | % |
| Carrier material | 20-35 | % |

REACH regulation:

Does this product/article/at least one partial article contains substances listed in the candidate list (date: 01.07.2024) exceeding 0.1 percentage by mass?
NO

Does this product/article/at least one partial article contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass?
NO

Were biocide products added to this construction product or has it been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012)?
NO

2.6 Manufacture

UZIN U-FIXX is manufactured by coating a carrier material with a specially formulated aqueous adhesive dispersion. This adhesive formulation is prepared by continuously stirring its components before application. Once the adhesive is coated onto the carrier material, it is dried in an oven. Protective paper is then applied to enable the one-sided tape to be rolled up. This process is repeated for the other side, but without the need for protective paper.

2.7 Environment and health during manufacturing

Compliance with the official measures on occupational safety, accident prevention and environmental protection is checked at regular intervals by internal and external inspectors. The environmental management system is certified according to ISO 14001.

2.8 Product processing/Installation

Pressure-sensitive adhesives are applied manually to properly prepared substrates. The tape is rolled out over the installation area and thoroughly pressed down with a textile cork rubbing board. It is then cut to size with a hook knife. After this, the protective paper on the other side is removed, exposing the second adhesive side. Finally, the floor covering is applied to this adhesive side by pressing it down firmly.

2.9 Packaging

UZIN U-FIXX is delivered in cardboard packaging. Empty cores and the cardboard packaging can be recycled. The attached protective paper can be disposed of with household waste.

2.10 Condition of use

Please refer to the technical data sheet for suitable substrates and their preparation before applying the adhesive. No curing or drying of the adhesive takes place after application, i.e. the adhesive does not change its composition during use.

2.11 Environment and health during use

The product covered by this EPD has been awarded the emission label EMICODE EC 1 PLUS. With the emission label, the pressure sensitive adhesive contribute to preserving a healthy indoor climate. Details on the individual criteria of the EMICODE can be found under point 7 Requisite Evidence. UZIN U-FIXX meet the highest DGNB Quality Level 4. Furthermore, the products contribute to further green building rating systems such as LEED and BREEAM.

2.12 Reference service life

The service life of pressure sensitive adhesives vary with the service life of the floor covering. In turn, the service life of different floor coverings show a high variability (10-50 years according to the table "Service lives of components for life cycle assessment according to Assessment System for Sustainable Building (BNB)"; BBSR: Bundesinstitut für Bau-, Stadt- und Raumforschung; www.nachhaltigesbauen.de/baustoffundgebaeuedaten/nutzungsdauern-von-bauteilen.html). Therefore, the specification of a reference service life according to ISO 15686 is not possible. Please refer to the information on the packaging regarding the warranty.

2.13 Extraordinary effects

Fire

There are no normative requirements for fire protection for this product. The fire behaviour of the floor construction is usually primarily determined by the type and nature of the installed

floor covering or insulation layers. Therefore, the fire resistance class of the floor covering according to EN 13501 must be taken into account when assessing the fire behaviour. The fire classification of the floor covering to be installed should be maintained when installed on pressure sensitive adhesives.

Water

Excessive amounts of water can damage the substrate or floor covering. When the pressure-sensitive adhesive comes into contact with water, its adhesive strength may be weakened but, in less severe cases, returns to full strength after the water has fully evaporated. No hazardous substances are washed out that could pose a risk to water.

Mechanical destruction

Not of relevance.

3. LCA: Calculation rules

3.1 Declared Unit

This EPD refers to 1 m² of UZIN U-FIXX. The declared unit of 1 m² was chosen as the operating data is recorded either per metre [m] or per square metre [m²] and the sales unit is also given in m². Using the conversion factor of the average mass per square metre, the data given can be related to 1 kg.

Declared unit and mass reference

| Name | Value | Unit |
|---|---------|--------------------------------|
| Declared Unit | 1 | m ² |
| Gross Density | 1 - 1.5 | kg/m ³ |
| Productivness (Area that can be installed with 1 m ² product [m ² Floor Covering/1 m ² Product]) | 1 | m ² /m ² |
| Grammage (Conversion factor) | 0.22 | kg/m ² |
| Layer thickness (including liner) | 0.00038 | m |

3.2 System boundary

Type of EPD: Cradle to gate with options, modules C1–C4, and module D (A1–A3 + C + D and additional modules). The additional modules are A4 and A5. The underlying LCA addresses all life cycle stages of the average product. The other life cycle stages are not relevant for the product class and no environmental impacts occur in these. The following activities are covered by the relevant modules:

- A1: Production of raw and auxiliary materials
- A2: Transport of raw and auxiliary materials to the plant
- A3: Production in the plant (incl. provision of energy and waste treatment) and the manufacture of the packaging
- A4: Transport of the packed product to the construction site
- A5: Installation of the product and disposal of the packaging and waste produced during installation (including the protective paper)
- C1: Manual removal of the product
- C2: Transport for disposal
- C3: As a worst-case scenario thermal treatment of the product in an incineration plant is modelled as end-of-life scenario
- C4: Not relevant because the product is incinerated (respective impacts declared in C3)
- D: Credits resulting from thermal utilisation of the product and packaging waste

For the environmental impact, the use of green electricity was calculated taking into account the residual electricity mix for the remaining electricity. The proportion of the on-site electricity demand covered by green electricity in the total on-site electricity demand is 100 %.

3.3 Estimates and assumptions

2.14 Re-use phase

The re-use of the tape covered by this EPD is not possible. However, the pressure sensitive adhesives are designed for easy removal at the end of the floor covering's service life.

2.15 Disposal

The EWC waste code in accordance with the European Waste Catalogue / List of Waste Ordinance for cured dispersion waste bears the EWC waste code 080410 (adhesive and sealing compound waste). Material residues can be disposed of as household waste.

2.16 Further information

No material loss was assumed in module A5 (installation), as this is strongly dependent on the application procedure. In order to determine the environmental burdens caused by the compensation of the additional material effort due to the material loss, the following scheme can be used: The material loss expressed as a percentage [%] is multiplied by the indicator values from modules A1-A4 and C3 and added to module A5. A subtraction of the indicator values from modules A1-A4 and C3 is not necessary, as only the additional material effort to compensate for the material loss is considered. As end of life assumption for the packaging and the product, a 100 % thermal treatment scenario was chosen, respectively.

3.4 Cut-off criteria

The common rules according to ISO 14044 were applied as cut-off criteria. These apply to the entire product system as well as to individual process modules and take into account mass, energy and environmental relevance. All inputs were included in the LCA that are more than 1 % with regard to the total impact of an impact category. Overall, no more than 5 % of the flows were neglected with regard to the cut-off criteria.

3.5 Background data

Factory-specific data was used for the production processes. For all other life cycle phases, data sets from Sphera Managed LCA Content (Content Version 2024.1) were used. The LCA model was created in the software LCA for Experts (Version 10) (former GaBi).

3.6 Data quality

The data quality can be classified as good. The plant-specific data refer to the year 2023. All remaining data originate from the above-mentioned database, the contents of which are regularly reviewed to ensure their currency. Thus, the data used for the life cycle assessment are representative. For some input materials, proxy datasets had to be used. All background datasets used are less than 10 years old. Data sets are complete and comply with the system boundaries and the cut-off rules for inputs and outputs. The data quality thus meets the requirements of PCR Part A.

3.7 Period under review

The year 2023 is used as the reference year.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

3.9 Allocation

Site-specific operating data was distributed to the different products according to the total amount produced per year.

3.10 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. The background database is used from Sphera

Managed LCA Content. In this EPD, pressure sensitive adhesives are considered. These differ from liquid dispersion adhesives in their specific characteristics of performance and response to (punctual) stresses, so a direct comparison is not possible.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Biogenic carbon content at the gate:

Biogenic carbon in the product is only contained in the protective paper used, which reaches the end of its waste properties in A5 and is therefore fully emitted and booked out in A5 and not in C3.

Information on describing the biogenic carbon content at factory gate

| Name | Value | Unit |
|---|-------|------|
| Biogenic carbon content in product | 0.031 | kg C |
| Biogenic carbon content in accompanying packaging | 0.015 | kg C |

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂.

In the following, the technical scenario information is presented, which enables a better understanding of the declared modules.

Transport to the building site (A4)

The transport was divided into two phases, which best correspond to the actual situation. In the first stage, the product is transported to a wholesaler by a large truck. The second stage represents the transport from the wholesaler to the construction site, which is mostly done by the craftsman with a small truck.

| Name | Value | Unit |
|-------------------------------|----------|-------|
| Transport distance (Stage 1) | 450 | km |
| Gross weight (Stage 1) | 34 - 40 | t |
| Payload capacity (Stage 1) | 27 | t |
| Utilisation by mass (Stage 1) | 0.61 | - |
| ----- | ----- | ----- |
| Transport distance (Stage 2) | 50 | km |
| Gross weight (Stage 2) | 7.5 - 12 | t |
| Payload capacity (Stage 2) | 5 | t |
| Utilisation by mass (Stage 2) | 0.61 | - |

Installation into the building (A5)

| Name | Value | Unit |
|---|-------|----------------|
| Auxiliary | - | kg |
| Water consumption | - | m ³ |
| Other resources | - | kg |
| Electricity consumption | - | kWh |
| Other energy carriers | - | MJ |
| Material loss | - | kg |
| Output substances following waste treatment on site | 0.09 | kg |
| Dust in the air | - | kg |
| VOC in the air | - | kg |

No material loss was assumed in module A5 (installation), as this is strongly dependent on the application procedure. In order to determine the environmental burdens caused by the compensation of the additional material effort due to the material loss, the following scheme can be used: The material loss expressed as a percentage [%] is multiplied by the indicator values from modules A1-A4 and C3 and added to module A5. A subtraction of the indicator values from modules A1-A4 and C3 is not necessary, as only the additional material effort to compensate for the material loss is considered. The protective paper, attached to the product is disposed of during the installation phase. Thermal treatment was assumed as a worst-case scenario.

End of life (C1-C4)

| Name | Value | Unit |
|---------------------------------------|-------|------|
| Collected as mixed construction waste | - | kg |
| Reuse | - | kg |
| Recycling | - | kg |
| Energy recovery | 0.13 | kg |
| Landfilling | - | kg |

The difference in mass between the product shipped and the product installed and thus to be disposed of in C3 differs due to the protective paper which is removed during installation. The waste treatment of the protective paper is declared in module A5.

5. LCA: Results

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

| Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Benefits and loads beyond the system boundaries |
|---------------------|-----------|---------------|-------------------------------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|---|
| Raw material supply | Transport | Manufacturing | Transport from the gate to the site | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| X | X | X | X | X | MND | MND | MNR | MNR | MNR | MND | MND | X | X | X | X | X |

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² UZIN U-FIXX

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|----------------|-----------------------|-----------|----------|----------|----|----------|----------|----|-----------|
| GWP-total | kg CO ₂ eq | 6.89E-01 | 1.1E-02 | 1.8E-01 | 0 | 2.82E-04 | 1.57E-01 | 0 | -8.02E-02 |
| GWP-fossil | kg CO ₂ eq | 8.49E-01 | 1.08E-02 | 1.19E-02 | 0 | 2.77E-04 | 1.57E-01 | 0 | -7.98E-02 |
| GWP-biogenic | kg CO ₂ eq | -1.61E-01 | 2.73E-05 | 1.68E-01 | 0 | 6.99E-07 | 0 | 0 | -3.44E-04 |
| GWP-luluc | kg CO ₂ eq | 1.34E-03 | 1.84E-04 | 9.78E-06 | 0 | 4.71E-06 | 1.04E-05 | 0 | -7.23E-06 |
| ODP | kg CFC11 eq | 4.05E-09 | 1.1E-15 | 2.98E-14 | 0 | 2.82E-17 | 3.15E-14 | 0 | -7.06E-13 |
| AP | mol H ⁺ eq | 1.65E-03 | 3.71E-05 | 7.5E-05 | 0 | 9.41E-07 | 8.29E-05 | 0 | -8.35E-05 |
| EP-freshwater | kg P eq | 3.76E-06 | 4.67E-08 | 1.42E-08 | 0 | 1.2E-09 | 1.61E-08 | 0 | -1.32E-07 |
| EP-marine | kg N eq | 5.25E-04 | 1.71E-05 | 2.9E-05 | 0 | 4.33E-07 | 3.24E-05 | 0 | -2.55E-05 |
| EP-terrestrial | mol N eq | 5.66E-03 | 1.92E-04 | 3.36E-04 | 0 | 4.87E-06 | 3.69E-04 | 0 | -2.74E-04 |
| POCP | kg NMVOC eq | 1.71E-03 | 3.46E-05 | 7.61E-05 | 0 | 8.78E-07 | 8.48E-05 | 0 | -7.23E-05 |
| ADPE | kg Sb eq | 2.82E-06 | 9.32E-10 | 3.35E-10 | 0 | 2.39E-11 | 3.5E-10 | 0 | -6.89E-09 |
| ADPF | MJ | 1.66E+01 | 1.43E-01 | 7.1E-02 | 0 | 3.66E-03 | 7.46E-02 | 0 | -1.42E+00 |
| WDP | m³ world eq deprived | 7.09E-02 | 1.63E-04 | 2.04E-02 | 0 | 4.17E-06 | 1.96E-02 | 0 | -8.65E-03 |

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; WDP = Water (user) deprivation potential)

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² UZIN U-FIXX

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|-----------|----|----------|-----------|----|-----------|
| PERE | MJ | 4.14E+00 | 1.21E-02 | 1.62E+00 | 0 | 3.09E-04 | 1.89E-02 | 0 | -4.73E-01 |
| PERM | MJ | 1.6E+00 | 0 | -1.6E+00 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 5.74E+00 | 1.21E-02 | 1.81E-02 | 0 | 3.09E-04 | 1.89E-02 | 0 | -4.73E-01 |
| PENRE | MJ | 1.19E+01 | 1.43E-01 | 3.82E-01 | 0 | 3.66E-03 | 4.5E+00 | 0 | -1.42E+00 |
| PENRM | MJ | 4.73E+00 | 0 | -3.17E-01 | 0 | ND | -4.42E+00 | 0 | 0 |
| PENRT | MJ | 1.66E+01 | 1.43E-01 | 6.48E-02 | 0 | 3.66E-03 | 7.46E-02 | 0 | -1.42E+00 |
| SM | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | m³ | 4.29E-03 | 1.36E-05 | 4.81E-04 | 0 | 3.47E-07 | 4.63E-04 | 0 | -3.63E-04 |

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² UZIN U-FIXX

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|------|----------|----------|----------|----|----------|----------|----|-----------|
| HWD | kg | 1.95E-06 | 4.62E-12 | 3.75E-11 | 0 | 1.18E-13 | 7.45E-03 | 0 | -9.57E-10 |
| NHWD | kg | 4.23E-02 | 2.22E-05 | 1.74E-02 | 0 | 5.69E-07 | 2.14E-02 | 0 | -7.39E-04 |
| RWD | kg | 2E-04 | 1.85E-07 | 3E-06 | 0 | 4.73E-09 | 3.06E-06 | 0 | -1.04E-04 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EEE | MJ | 0 | 0 | 2E-01 | 0 | 0 | 1.74E-01 | 0 | 0 |
| EET | MJ | 0 | 0 | 3.71E-01 | 0 | 0 | 3.27E-01 | 0 | 0 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

**RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional:
1 m² UZIN U-FIXX**

| Parameter | Unit | A1-A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|-----------|-------------------|-------|----|----|----|----|----|----|----|
| PM | Disease incidence | ND | ND | ND | ND | ND | ND | ND | ND |
| IR | kBq U235 eq | ND | ND | ND | ND | ND | ND | ND | ND |
| ETP-fw | CTUe | ND | ND | ND | ND | ND | ND | ND | ND |
| HTP-c | CTUh | ND | ND | ND | ND | ND | ND | ND | ND |
| HTP-nc | CTUh | ND | ND | ND | ND | ND | ND | ND | ND |
| SQP | SQP | ND | ND | ND | ND | ND | ND | ND | ND |

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

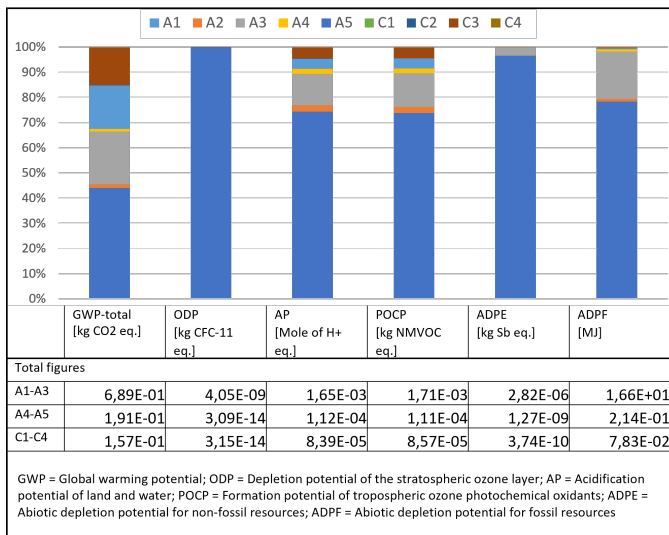
Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

Disclaimer 3: Additional environmental impact indicators (EN 15804, Table 4) are not declared in the EPD. The results of these environmental impact indicators should be used with caution as the uncertainties in these results are high and there is limited experience with the indicators (see ILCD classification in EN 15804, Table 5). For this reason, the results based on these indicators are not reported.

Disclaimer 4:

The global warming potential (GWP) for the gas mix balanced in modules A1-A3 was 0.07 kg CO₂ eq./MJ. A GWP of 0.30 kg CO₂ eq/kWh was applied for grey electricity, and 0.007 kg CO₂ eq/kWh for green electricity from hydropower.

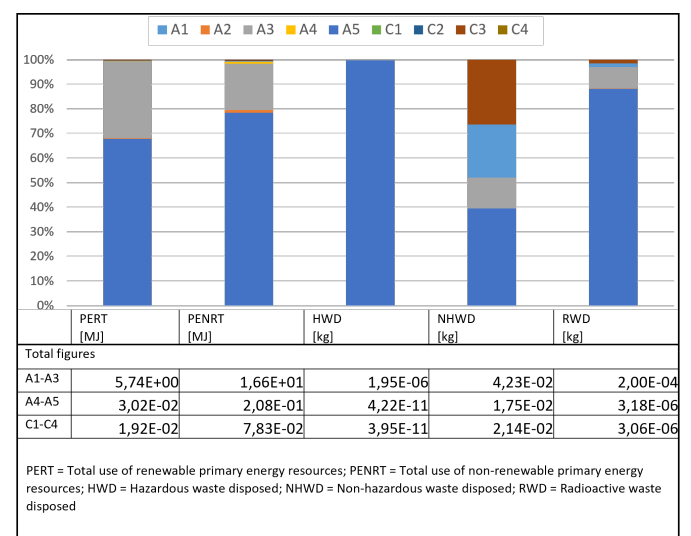
6. LCA: Interpretation



The dominance analysis of the impact assessment indicators shows a large contribution from the manufacturing phase (A1-A3). A large proportion of the environmental impact originates from the raw materials used (A1), with the synthetic polymer dispersions making the highest contributions (with regard to the impact indicator Climate Change -total, an average of 50% of the impact in A1 is attributable to this component).

In addition, manufacturing, the waste treatment of the packaging and the product (A3, A5, C3) plays a major role for the Climate Change - total impact assessment indicator. Within the modules A5 and C3, thermal utilisation was modelled as a worst-case scenario. The large proportion in module A5 in

particular can be explained by the fact that in addition to the waste treatment of the packaging, the waste treatment of the protective paper is also declared in this module, which accounts for approximately 40% of the total mass of the product. Furthermore, both the packaging and the protective paper contain biogenic carbon, which is accounted for in Module A5 in the form of biogenic CO₂ emissions.



In relation to the life cycle inventory indicators Total use of renewable primary energy resources (PERT) and Total use of non-renewable primary energy resources (PENRT), the largest share of energy consumption in the life cycle occurs in the manufacturing phase (A1-A3). Significant contributions to primary energy demand - non-renewable (PENRT) come from the energy resources contained in the raw materials. The

largest contribution to primary energy demand - renewable (PERT) is the consumption of renewable energy resources needed to generate and provide electricity, as well as the renewable energy resources contained in the raw materials and packaging materials with biogenic content.

The assumptions used to determine the reported impact indicator results are presented in Chapter 3.3. Specific data was used for operational activities in phases A2-A3. Raw material inputs (A1) were mainly modelled using generic background data sets. Raw material inputs in particular have a major influence on all the indicators shown, so care was taken

here to use data sets that are representative in terms of technological aspects. In order to achieve this, also data sets were used whose reference year was up to 10 years in the past, which led to an overall medium temporal representativeness. With regard to geographical aspects, the results presented in this EPD are representative for Europe. Activities in the downstream life cycle phases (A4-A5; C1-C4) were modelled using scenarios, whereby assumptions were made regarding transport distance, for example. However, these life cycle phases are not dominant for the reported impact indicators.

7. Requisite evidence

TVOC* limit values EMICODE following the AgBB scheme for EMICODE EC1 Plus (28 days [µg/m³])

| Name | Value | Unit |
|-------------------------|-------|-------|
| TVOC (C6 - C16) | ≤ 60 | µg/m³ |
| Sum SVOC (C16 - C22) | ≤ 40 | µg/m³ |
| R (dimensionless) | ≤ 1 | - |
| VOC without NIK | ≤ 40 | µg/m³ |
| Carcinogenic Substances | ≤ 1 | µg/m³ |

Test institute: WESSLING GmbH, Germany, 48341 Altenberge

Measuring process: GEV test method for determining the emissions of volatile organic compounds from building products

according to ISO 16000-11 in a test chamber. Testing for carcinogenic, mutagenic, reprotoxic (CMR) substances and TVOC/TSVOC after 3 and 28 days.

Date of test report: Test report dated 04. December 2023;

Result: The product complies with the requirements according to the GEV test method for 'EMICODE EC 1 PLUS' classification.

AgBB scheme

The requirements on emission performance according to AgBB for the ü-mark are automatically regarded as satisfied for products availing of EMICODE EC 1 PLUS classification.

8. References

Standards:

EN 13501-1

DIN EN 13501-1:2019, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests.

EN 15804

EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

EN ISO 14025:2011, Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

ISO 14040

DIN EN ISO 14040: 2006, Environmental management – Life cycle assessment – Principles and framework (ISO 14040:2006); German and English versions EN ISO 14040:2006.

ISO 14044

DIN EN ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines (ISO 14044:2006); German and English versions EN ISO 14044:2006.

ISO 15686

DIN ISO 15686:2017, Buildings and constructed assets -- Service life planning. DIN EN 13501.

ISO 16000-11

DIN EN ISO 16000-11:2006-06, Indoor air – Part 11: Determination of the emission of volatile organic compounds from building products and furnishings – Sampling, storage of

samples and preparation of test specimens.

Further References:

BNB

Assessment System for Sustainable Building; <https://www.bnb-nachhaltigesbauen.de/en/assessment-system/> [2024]

BREEAM

BREEAM (Building Research Establishment Environmental Assessment Methodology); <https://bregroup.com/products/breeam> [2024]

Candidate list

List of substances of very high concern for Authorisation, published in accordance with Article 59(10) of the REACH Regulation, ECHA, www.echa.europa.eu/candidate-list-table [2024]

DGNB

DGNB – German Sustainable Building Council; www.dgnb.de [2024]

EMICODE

GEV (Gemeinschaft Emissionskontrollierte Verlegewerkstoffe, Klebstoffe und Bauprodukte e.V. Düsseldorf); www.emicode.com/en [2024]

EWG

European Waste Catalog established by Commission decision 2000/532/EC. <http://www.environment-agency.gov.uk/> [2024]

German AgBB

Committee for Health-related Evaluation of Building Products: health-related evaluation of emissions of volatile organic compounds (VOC and SVOC) from building products; www.umweltbundesamt.de/produkte/bauprodukte/agb_b.htm

[2012]

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Institut Bauen und Umwelt e.V.: General Instructions for the EPD programme of Institut Bauen und Umwelt e.V., Version 2.0, Berlin: Institut Bauen und Umwelt e.V., www.ibu-epd.com [2024]

LCA For Experts Software

LCA For Experts Software system (Version 10) and Database for Life Cycle Engineering (Content Version 2024.1). Sphera Solutions GmbH, Leinfelden-Echterdingen [2024]

LEED

LEED (Leadership in Energy and Environmental Design); <https://worldgbc.org/> [2024]

Ordinance on Biocide Products No. 528/2012

Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products [2012]

PCR Part A

Product Category Rules for Building-Related Products and Services, Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project report, Version 1.4, Institut Bauen und Umwelt e.V. [04/2024]

PCR Part B

Product Category Rules for Construction Products. Part B: Dispersion adhesives and primers for floor coverings, Version 11, [08/2024]

REACH

Directive (EG) No. 1907/2006 of the European Parliament and of the Council dated 18 December 2006 on the registration, evaluation, approval and restriction of chemical substances (REACH), for establishing a European Agency for chemical substances, for amending Directive 1999/45/EC and for annulment of Directive (EEC) No. 793/93 of the Council, Directive (EC) No. 1488/94 of the Commission, Guideline 76/769/EEC of the Council and Guidelines 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC of the Commission [2006]



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