Environmental Product Declaration (EPD)

According to ISO 14025 and EN 15804







CASA-Tack

Registration number: EPD-Kiwa-EE-138409-EN

Issue date: 22-05-2024 Valid until: 22-05-2029

DaVent Europe GmbH Declaration owner: Kiwa-Ecobility Experts Publisher: Program operator: Kiwa-Ecobility Experts

Status: verified





1 General information

1.1 PRODUCT

CASA-Tack

1.2 REGISTRATION NUMBER

EPD-Kiwa-EE-138409-EN

1.3 VALIDITY

Issue date: 22-05-2024 Valid until: 22-05-2029

1.4 PROGRAM OPERATOR

Kiwa-Ecobility Experts Wattstraße 11-13 13355 Berlin DE

Raoul Mancke

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

C. Stade

(Verification body, Kiwa-Ecobility Experts)

1.5 OWNER OF THE DECLARATION

Manufacturer: DaVent Europe GmbH

Address: Brunnenstraße 9, 58285 Gevelsberg, Germany

E-mail: info@davent.de

Website: https://www.davent.de/en/

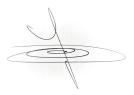
Production location: DaVent Europe GmbH

Address production location: Brunnenstraße 8, 58285 Gevelsberg

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.

☐ Internal ☑ External



Anne Kees Jeeninga, Advieslab

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) – Specific Product Category Rules: Plastic and rubber sheets for roof and wall waterproofing (2021-12-28)

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. 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 the system boundary, declared modules, data selection (primary or secondary data, background



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1 General information

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 EPDs programs 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: v3.16 (2024-02-12)

* 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 'CASA-Tack' with the calculation identifier ReTHiNK-38409.



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2 Product

2.1 PRODUCT DESCRIPTION

CASA-Tack consists of Polyisobuthylene (PIB) reinforced with a complete embedded aluminium grid interlayer and fully butylbased adhesive backing, covered with two-part release paper.

The composition of the product is described in the following table:

| Materials | Weight (%) |
|-------------------------|------------|
| PIB | 23% |
| Aluminium | 4% |
| Liner | 30% |
| Butyl | 23% |
| Others (Packaging etc.) | 20% |

2.2 REFERENCE SERVICE LIFE

RSL PRODUCT

As the service life of product is not taken into account, there is no need to specify a reference service life.

USED RSL (YR) IN THIS LCA CALCULATION:

20

2.3 TECHNICAL DATA

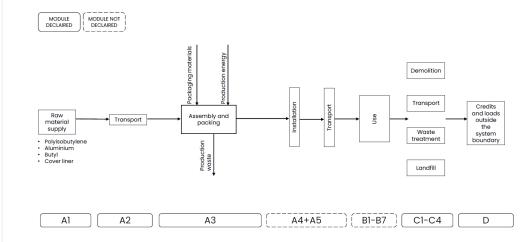
| Thickness total | approx. 2.1mm |
|-----------------------------|-------------------|
| Thickness of Polyisobutylen | approx. 1.2mm |
| (PIB) | арргох. і.2тітт |
| Butyl coating | approx. 0.8mm |
| Temperature resistance | -30°C up to +90°C |
| Processing temperature | +5°C up to +40°C |

| UV-stability | UV-stable according to DIN EN 13859-1/2 and DIN EN | | | | |
|-----------------|--|--|--|--|--|
| OV-Stability | 1297 | | | | |
| Fire resistance | class E (DIN EN 13501) | | | | |
| Colours | red, black, grey | | | | |
| Stretch factor | 15% in width and 60% in length | | | | |
| Roll width | 300mm and 450mm | | | | |
| Roll length | 5m | | | | |

2.4 DESCRIPTION PRODUCTION PROCESS

All components of CASA-Tack are delivered to the manufacturer. All parts are then assembled on the production line. In the first step, the PIB and the aluminum grid are bonded together. In a second step, the PIB-aluminum composite is bonded to the butyl and the liner. Finally, the CASA-Tack is cut into rolls, packaged and labeled.

The assembly and manufacturing of CASA-Tack takes place at an internally audited contract manufacturer.





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3 Calculation rules

3.1 DECLARED UNIT

m2

One square meter of roofing flashing roll CASA-Tack

reference_unit: square meter (m2)

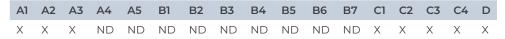
3.2 CONVERSION FACTORS

| Description | Value | Unit |
|---------------------------|----------|------|
| reference_unit | 1 | m2 |
| weight_per_reference_unit | 3.000 | kg |
| Conversion factor to 1 kg | 0.333333 | m2 |

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

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

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



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 C2 = Transport | | | | |
| Module B1 = Use | Module C3 = Waste Processing | | | | |
| Module B2 = Maintenance | Module C4 = Disposal | | | | |
| Madula P7 - Danair | Module D = Benefits and loads beyond the | | | | |
| Module B3 = Repair | product system boundaries | | | | |
| Module B4 = Replacement | | | | | |

3.4 REPRESENTATIVENESS

The input data are representative for CASA-Tack, a product of DaVent Europe GmbH. The data are representative for Europe.

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.



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3 Calculation rules

The following materials are excluded:

· packaging materials for A1 module

The following processes are excluded:

- · Manufacturing of equipment used in production, buildings or any other capital asset
- · Transportation of personnel to the plant
- The transportation of personnel within the plant
- · Research and development activities
- · Long-term emissions

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

Allocation has not been applied in this LCA.

3.7 DATA COLLECTION & REFERENCE TIME PERIOD

All process-specific data was collected for the operating year 2022.

3.8 ESTIMATES AND ASSUMPTIONS

All datasets chosen for the LCA refer to Europe or Germany as the geographic reference.

A data set for a non-specific truck was used for phase A2.

3.9 DATA QUALITY

All process-specific data was collected for the 2022 operating year and is therefore up-to-date. The data is based on the annual average. In order to ensure comparability of the results, only consistent background data of the Ecoinvent database V3.6 was used in the LCA (e.g., records on energy, transportation, supplies and supplies), which refers to reference year 2019. The database is regularly reviewed and thus complies with the requirements of EN 15804 (background data not older than 10 years). All consistent datasets contained in the Ecoinvent database are documented and can be viewed in the online Ecoinvent documentation. The primary data were provided by DaVent Europe GmbH. The life cycle was modelled with the R<THiNK EPD App.

3.10 GUARANTEES OF ORIGIN

The electricity mix was chosen according to the Ecoinvent 3.6 energy grid mix in Germany (reference year 2019). LCA is using location-based approach, therefore no Guarantees of Origin (GO) needs to be taken into account.

No CO2 certificates were counted.



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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] |
| aluminium, cast alloy for buildings (i.a. profiles, | Lorry (Truck), unspecified (default) market | 0 | 100 | 150 | FO | 0 |
| sheets, pipes) (NMD ID 4) | group for (GLO) | O | 100 | 150 | 50 | U |
| planting via rapidus (NIMD ID 77) | Lorry (Truck), unspecified (default) market | 0 | 100 | 150 | F0 | 0 |
| plastics, via residue (NMD ID 43) | group for (GLO) | U | 100 | 150 | 50 | U |

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 | 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.

| Waste Scenario | Region | Not removed (stays in work) [%] | Landfill [%] | Incineration [%] | Recycling [%] | Re-use [%] |
|---|--------|---------------------------------|--------------|------------------|---------------|------------|
| aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | NL | 0 | 3 | 3 | 94 | 0 |
| plastics, via residue (NMD ID 43) | NL | 0 | 20 | 80 | 0 | 0 |



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4 Scenarios and additional technical information

| Waste Scenario | Not removed (stays in work) [kg] | Landfill [kg] | Incineration [kg] | Recycling [kg] | Re-use [kg] |
|---|----------------------------------|---------------|-------------------|----------------|-------------|
| aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | 0.000 | 0.004 | 0.004 | 0.134 | 0.000 |
| plastics, via residue (NMD ID 43) | 0.000 | 0.571 | 2.286 | 0.000 | 0.000 |
| Total | 0.000 | 0.576 | 2.290 | 0.134 | 0.000 |

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] |
|---|----------------------|----------------------|
| aluminium, cast alloy for buildings (i.a. profiles, sheets, pipes) (NMD ID 4) | 0.029 | 0.000 |
| plastics, via residue (NMD ID 43) | 0.000 | 20.985 |
| Total | 0.029 | 20.985 |



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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 | | | | | |
| AP | mol H+ eqv. | 5.04E-2 | 1.02E-3 | 5.78E-3 | 5.72E-2 | 0.00E+0 | 3.19E-4 | 2.76E-3 | 5.46E-5 | -3.99E-3 |
| GWP-total | kg CO2 eqv. | 1.00E+1 | 1.77E-1 | 1.70E-1 | 1.04E+1 | 0.00E+0 | 5.51E-2 | 6.11E+0 | 7.35E-2 | -1.36E+0 |
| GWP-b | kg CO2 eqv. | -5.19E-2 | 8.16E-5 | -1.10E+0 | -1.16E+0 | 0.00E+0 | 2.54E-5 | 1.11E-3 | 6.33E-5 | 4.32E-3 |
| GWP-f | kg CO2 eqv. | 1.01E+1 | 1.77E-1 | 1.27E+0 | 1.15E+1 | 0.00E+0 | 5.50E-2 | 6.11E+0 | 7.34E-2 | -1.36E+0 |
| GWP-luluc | kg CO2 eqv. | 1.30E-2 | 6.47E-5 | 8.31E-3 | 2.14E-2 | 0.00E+0 | 2.02E-5 | 4.84E-4 | 3.24E-6 | -1.59E-3 |
| EP-m | kg N eqv. | 7.95E-3 | 3.61E-4 | 1.25E-3 | 9.56E-3 | 0.00E+0 | 1.12E-4 | 7.38E-4 | 4.36E-5 | -7.01E-4 |
| EP-fw | kg P eqv. | 3.60E-4 | 1.78E-6 | 1.20E-4 | 4.82E-4 | 0.00E+0 | 5.55E-7 | 1.86E-5 | 1.17E-7 | -1.55E-5 |
| EP-T | mol N eqv. | 8.96E-2 | 3.98E-3 | 1.50E-2 | 1.09E-1 | 0.00E+0 | 1.24E-3 | 8.23E-3 | 1.98E-4 | -7.68E-3 |
| ODP | kg CFC 11 eqv. | 1.62E-6 | 3.90E-8 | 9.18E-8 | 1.75E-6 | 0.00E+0 | 1.21E-8 | 1.86E-7 | 1.89E-9 | -1.25E-7 |
| DOCD | kg NMVOC | 7.505.2 | 11/5 7 | / 015 7 | / 02F 2 | 0.005+0 | 75/5/ | 2105.7 | 7205 5 | 2705.7 |
| POCP | eqv. | 3.50E-2 | 1.14E-3 | 4.01E-3 | 4.02E-2 | 0.00E+0 | 3.54E-4 | 2.19E-3 | 7.29E-5 | -2.36E-3 |
| ADP-f | МЈ | 2.22E+2 | 2.66E+0 | 2.36E+1 | 2.48E+2 | 0.00E+0 | 8.30E-1 | 4.48E+0 | 1.46E-1 | -1.89E+1 |
| ADP-mm | kg Sb-eqv. | 1.01E-3 | 4.48E-6 | 7.39E-6 | 1.02E-3 | 0.00E+0 | 1.39E-6 | 7.83E-6 | 6.65E-8 | 5.42E-4 |
| WDP | m3 world eqv. | 8.76E+0 | 9.53E-3 | 5.24E-1 | 9.29E+0 | 0.00E+0 | 2.97E-3 | 3.04E-1 | 6.21E-3 | -5.47E-3 |

AP=Acidification (AP) | GWP-total=Global warming potential (GWP-total) | GWP-b=Global warming potential - Biogenic (GWP-b) | GWP-f=Global warming potential - Fossil (GWP-f) | GWP-luluc=Global warming potential - Land use and land use change (GWP-luluc) | EP-m=Eutrophication marine (EP-m) | EP-fw=Eutrophication, freshwater (EP-fw) | EP-T=Eutrophication, terrestrial (EP-T) | ODP=Ozone depletion (ODP) | POCP=Photochemical ozone formation - human health (POCP) | ADP-f=Resource use, fossils (ADP-f) | ADP-mm=Resource use, minerals and metals (ADP-mm) | WDP=Water use (WDP)



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ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15084+A2

| Abbr. | Unit | Al | A2 | A3 | A1- | C1 | C2 | C3 | C4 | D |
|--------|-------------------|---------|----------|----------|---------|---------|----------|---------|----------|-----------|
| | | | | | A3 | | | | | |
| ETP-fw | CTUe | 1.89E+2 | 2.38E+0 | 3.11E+1 | 2.23E+2 | 0.00E+0 | 7.40E-1 | 7.74E+1 | 3.20E+0 | -9.27E+0 |
| PM | disease incidence | 4.15E-7 | 1.59E-8 | 6.04E-8 | 4.92E-7 | 0.00E+0 | 4.95E-9 | 2.15E-8 | 1.02E-9 | -4.45E-8 |
| HTP-c | CTUh | 5.87E-9 | 7.71E-11 | 7.99E-10 | 6.75E-9 | 0.00E+0 | 2.40E-11 | 1.13E-9 | 4.30E-12 | -6.76E-10 |
| HTP-nc | CTUh | 1.38E-7 | 2.60E-9 | 1.32E-8 | 1.54E-7 | 0.00E+0 | 8.10E-10 | 2.45E-8 | 1.72E-10 | -9.55E-9 |
| IR | kBq U235 eqv. | 4.83E-1 | 1.12E-2 | 6.88E-2 | 5.63E-1 | 0.00E+0 | 3.48E-3 | 1.91E-2 | 5.72E-4 | -6.54E-3 |
| SQP | Pt | 4.60E+1 | 2.31E+0 | 1.08E+2 | 1.56E+2 | 0.00E+0 | 7.20E-1 | 1.57E+0 | 3.42E-1 | -3.92E-1 |

ETP-fw=Ecotoxicity, freshwater (ETP-fw) | PM=Particulate Matter (PM) | HTP-c=Human toxicity, cancer (HTP-c) | HTP-nc=Human toxicity, non-cancer (HTP-nc) | IR=Ionising radiation, human health (IR) | SQP=Land use (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 | |
| | AAcidification potential, Accumulated Exceedance (AP) | None | |
| | Eutrophication potential, Fraction of nutrients reaching freshwater end compartment | Nana | |
| | (EP-freshwater) | None | |
| ILCD type / level 2 | Eutrophication potential, Fraction of nutrients reaching marine end compartment | None | |
| ILCD type / level 2 | (EP-marine) | Notice | |
| | Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | None | |
| | Formation potential of tropospheric ozone (POCP) | None | |
| | Potential Human exposure efficiency relative to U235 (IRP) | 1 | |
| ILCD 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 | |
| | Potential Comparative Toxic Unit for ecosystems (ETP-fw) | 2 | |





| ILCD classification | Indicator | Disclaimer |
|---------------------|--|------------|
| | 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 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 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 | A1 | A2 | A3 | A1- | C1 | C2 | C3 | C4 | D |
|-------|------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| | | | | | A3 | | | | | |
| PERE | MJ | 1.33E+1 | 3.34E-2 | 1.09E+1 | 2.42E+1 | 0.00E+0 | 1.04E-2 | 4.87E-1 | 2.74E-3 | -4.91E-1 |
| PERM | MJ | 0.00E+0 | 0.00E+0 | 1.08E+1 | 1.08E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 |
| PERT | MJ | 1.33E+1 | 3.34E-2 | 2.16E+1 | 3.50E+1 | 0.00E+0 | 1.04E-2 | 4.87E-1 | 2.74E-3 | -4.91E-1 |
| PENRE | MJ | 2.12E+2 | 2.83E+0 | 2.10E+1 | 2.36E+2 | 0.00E+0 | 8.81E-1 | 4.76E+0 | 1.56E-1 | -2.08E+1 |
| PENRM | MJ | 2.62E+1 | 0.00E+0 | 4.19E+0 | 3.04E+1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 |
| PENRT | MJ | 2.38E+2 | 2.83E+0 | 2.52E+1 | 2.66E+2 | 0.00E+0 | 8.81E-1 | 4.76E+0 | 1.56E-1 | -2.08E+1 |
| SM | Kg | 1.05E-1 | 0.00E+0 | 0.00E+0 | 1.05E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.92E-3 |
| RSF | MJ | 0.00E+0 |
| NRSF | MJ | 0.00E+0 |
| FW | M3 | 2.37E-1 | 3.25E-4 | 1.57E-2 | 2.53E-1 | 0.00E+0 | 1.01E-4 | 9.03E-3 | 1.52E-4 | -6.83E-4 |

PERE=renewable primary energy ex. raw materials | PERM=renewable primary energy used as raw materials | PERT=renewable primary energy total | PERRE=non-renewable primary energy ex. raw materials | PENRM=non-renewable primary energy used as raw materials | PENRT=non-renewable primary energy total | SM=use of secondary material | RSF=use of renewable secondary fuels | NRSF=use of non-renewable secondary fuels | FW=use of net fresh water





OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

| Abbr. | Unit | Αī | A2 | A3 | A1- | C1 | C2 | C3 | C4 | D |
|-------|------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| | | | | | A3 | | | | | |
| HWD | Kg | 1.62E-3 | 6.75E-6 | 2.05E-5 | 1.64E-3 | 0.00E+0 | 2.10E-6 | 8.95E-4 | 2.21E-7 | 1.08E-3 |
| NHWD | Kg | 8.59E-1 | 1.69E-1 | 1.32E-1 | 1.16E+0 | 0.00E+0 | 5.26E-2 | 9.99E-2 | 5.77E-1 | -9.57E-2 |
| RWD | Kg | 5.27E-4 | 1.75E-5 | 7.47E-5 | 6.20E-4 | 0.00E+0 | 5.45E-6 | 1.63E-5 | 8.61E-7 | -1.06E-5 |

HWD=hazardous waste disposed | NHWD=non hazardous waste disposed | RWD=radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

| Abbr. | Unit | A1 | A2 | A3 | A1- | C1 | C2 | C3 | C4 | D |
|-------|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | | | | | A3 | | | | | |
| CRU | Kg | 0.00E+0 |
| MFR | Kg | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 1.34E-1 | 0.00E+0 | 0.00E+0 |
| MER | Kg | 0.00E+0 |
| EET | МЈ | 0.00E+0 | 0.00E+0 | 1.30E-1 | 1.30E-1 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 6.51E+0 |
| EEE | МЈ | 0.00E+0 | 0.00E+0 | 7.55E-2 | 7.55E-2 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 0.00E+0 | 3.78E+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 | kg C |
| Biogenic carbon content in accompanying packaging | 0.3074 | kg C |

UPTAKE OF BIOGENIC CARBON DIOXIDE

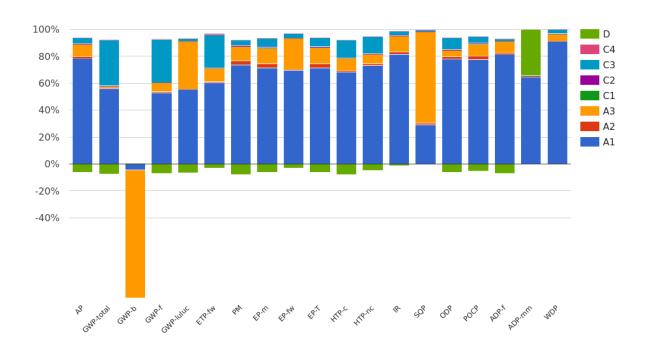
The following amount of uptake of carbon dioxide is account in module A1 by the main parts of the product. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results.

| Uptake Biogenic Carbon dioxide | Amount | Unit |
|--------------------------------|--------|-------------------|
| Packaging | 1.127 | kg CO2 (biogenic) |





6 Interpretation of results



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

As can be seen in the graph, raw material provision (module A1) dominates in almost all environmental impacts, sometimes followed by waste processing for reuse, recovery and/or recycling (C3) or by Manufacturing (A3). The highest influence on the Global Warming Potential have modules A1 and C3.

Note: The majority of the CO2 emissions within the impact category GWP-biogenic 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. Therefore, the alleged disbalance can be explained by the fact that module A5 is not included in the EPD declaration.





7 References

ISO 14040

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

ISO 14044

ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14040:2006

ISO 14025

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

EN 15804+A2

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

General PCR Ecobility Experts

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

Specific PCR Ecobility Experts

Kiwa-Ecobility Experts (Kiwa-EE) – Plastic and rubber sheets for roof and wall waterproofing (2021-12-28)





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