



Amtico Signature Bio (Oct 2024G)

| | |
|-----------------------------|------------------|
| LCA project version: | 1.0 |
| License holder: Date | Amtico Ltd |
| report created: | 06 November 2024 |

Product Information

Product description and use

Provide a description of the product and of how it is used once installed. If the project is for an average product state this here and list the products covered.

Description

Amtico Signature is a premium LVT collection, consisting of a range of wood, stone and abstract designs, available in a range of finishes and sizes, including unique laying patterns. Amtico Signature products have a total thickness of 2.5mm with a 1mm wear layer, providing a usage classification (EN ISO 10582) of 1. 23 Heavy Domestic 2. 34 Very Heavy Commercial 3. 43 Heavy Light Industrial The Signature Collection comes with a lifetime wear out warranty for residential installation and 20 years for commercial use. Signature is manufactured from ortho-phthalate free plasticisers, contains up to 14% recycled pre-consumer content and also includes an antimicrobial additive, for enhanced hygiene and protection from bacteria and viruses such as MRSA, E.coli and SARS-CoV-2. Signature is a low VOC product, certified to Eurofins Indoor Air Comfort Gold and Finnish RTS M1.

Manufacturing process description

Provide a description of how the product is manufactured.

Description

The product is constructed by the thermal lamination of the wear layer plies, print film and backing plies. The wear layer and backing plies are all manufactured as follows, Required ply raw materials are blended The ply blend is then heated and calendered on a mill to produce a ply of the required thickness. The plies required to form the end product, along with the print film, are thermally laminated together under pressure, to form the final product. The product is then polyurethane coated, before being cut to size, boxed and dispatched to the customer. For process diagram see attached document.

Technical properties and values

List the most relevant technical properties of the product (with values, units and any relevant standard references). This is not mandatory but is required if you wish to later submit an EPD of the product for verification.

Description

Amtico Signature Technical Specification can be found in the attached Technical Data Sheet document

Explanation of any 'n/a' entries

If you enter any entries as 'n/a' when completing your project, please explain here why you have not entered any values.

Description

Production stage (A1-A3): Emissions to Air: No outputs to air are measured from the manufacturing site. Emissions to Water: No outputs to water are measured from the manufacturing site. Emissions to Soil: No outputs to soil are measured from the manufacturing site. Construction & Installation stage (A4-A5): A5- Fuel/ Energy/water: Premixed adhesives are hand applied to the floor substrate and the tiles installed. Cutting of tiles is typically performed by hand with a knife. No power tools or additional water is required for installation. Emissions to Air/Water/Soil: Amtico Signature should only be installed with zero or very low emission adhesive meeting the GEV EMICODE EC1 Plus requirements. No emissions to air, water or soil expected. Use Stage – Maintenance (B2): Fuel/Energy: No energy is required to manually dry or wet mop. Emissions to Air/Water/Soil: No emission to air, water or soil are expected during wet or dry cleaning of this product. End-of-life Stage (C1-C4): C1 Deconstruction -Ancillary Materials & Water: The floor tiles are mechanically removed without the need of any ancillary materials or the addition of water. C1 Deconstruction- Emissions, Air, Water & Soil: No emissions to air, water or soil are expected from the mechanical removal of the tiles. C1 Deconstruction-; Waste, Material Waste and Water Discharged. In addition to the actual flooring material other wastes maybe created depending on the substrate or under-layments used in the initial construction. As this greatly varies from site to site this was not included in the study. No water discharge is created during the deconstruction. C3 Waste Processing:- Ancillary Materials/Fuel & Energy/Water.: No ancillary materials, fuel, energy or water are required to process the waste material after the initial deconstruction. C3 Waste Processing: - Emissions Air/Water/Soil: No emissions to air, water or soil are measured from the waste processing site. C3 Waste Processing: - Water Discharged: No water discharged during the waste processing site.

Additional information

If you have any further texts that you feel is necessary to support your project, you can add them in this section by adding new text boxes.

[no data]

Related Files

Manufacturing flow process diagram

This should be a high quality image, no bigger than 16 cm wide x 21 cm high, and should match the text description of the process provided in the 'Manufacturing process description' in the previous tab 'Product Information'.

Attachment (Included in downloaded zip folder)

QSF-TEC.0034 Flow Diagrams_Cov Products.jpg

Quantification of energy and material inputs and outputs

This should ideally be a spreadsheet explaining the allocation procedures used and that shows how values entered into LINA were derived. If multiple products are made on the manufacturing site, a spreadsheet where it can clearly be understood how the values added for your product in LINA were derived from total site, needs to be added.

Attachment (Included in downloaded zip folder)

Mass Balance 2022 v.7.xlsx

Documentation supporting the reference service life

If a functional unit has been selected for a 'cradle-to-gate with options' or 'cradle-to-grave' study (and the use stage has been declared), publicly available documentation that supports the entered reference service life must be uploaded. Alternatively, you can reference a publicly accessible document in a web-link in the 'Additional information' section of the previous tab, 'Product Information'. Please note that this evidence is not mandatory if a declared unit has been selected for a 'cradle-to-gate with options' or 'cradle-to-grave' study. However, we recommend that the RSL of your product is added to the EPD for additional transparency.

Attachment (Included in downloaded zip folder)

SIG-WR-20180326-04-GB.pdf

Additional documents

If you have any further documents that are necessary to support your project, you can add them in this section.

| Description | Attachment (Included in downloaded zip folder) |
|---|---|
| Commercial Warranty | SIG-WR-20180326-04-GB.pdf |
| Technical Datasheet | SIG-TS-20230224-11-EN.pdf |
| Raw Material Supply Distances | Supply Distances 2022 v.5.xlsx |
| Product Delivery Distances | Signature A4 Delivery Distances v.5.xlsx |
| Adhesive Delivery Distance and Coat Weights | Adhesive delivery distance and coat weight v.5.xlsx |

Goal & Scope

| | |
|---------------------------------------|---|
| Declaration type | Cradle to gate with options |
| Selected modules | A1, A2, A3, A4, A5, B2, C1, C2, C3, C4, D |
| Reference (or estimated) service life | 35 years |
| Study period | 60 years |
| Declared unit | 1m2 Amtico Signature Bio (3.15kg/m2) |
| Weight per declared/functional unit | 3.1500 m² |

Manufacturing sites

| Kingfield Roadk | |
|--|--|
| Name of manufacturer and address of site | The Amtico Company Ltd Kingfield Road, Coventry, CV6 5AA |
| Period covered | 02 January 2021 - 31 December 2021 |
| Total production | x,xxx,xxx- m² |
| Mass balance | 0.00% |

Product

Kingfield Road

Raw material supply (A1)

Raw material supply

| Raw material supply & transport | | | | | | |
|--|--|--------------|-----------------|------------------|------------------|-----------------|
| Please list all materials and their quantities that go into the production of your product under assessment. Entered quantities should relate to the production period previously selected in the 'General' section and to the total production output of the product. | | | | | | |
| Material description | Material | Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea |
| 1,2-Cyclohexane dicarboxylic acid diisononyl ester | Terephthalic acid | xxx,xxx kg | 0 km | 0 km | 942 km | 50 km |
| Epoxidised Soya Bean Oil (ESBO) | Soybean oil | xxx,xxx kg | 0 km | 0 km | 176 km | 0 km |
| Stabiliser | Unspecified organic chemical | xx,xxx kg | 0 km | 0 km | 176 km | 0 km |
| UV Stabiliser | UV Stabiliser/Octabenzone | x,xxx kg | 0 km | 0 km | 1,598 km | 50 km |
| Acrylic Processing Aid | Acrylic binder | xx,xxx kg | 0 km | 0 km | 649 km | 21,868 km |
| Black Pigment Masterbatches | Carbon black | x,xxx kg | 0 km | 0 km | 628 km | 50 km |
| Print Film (Supplier 1) | Polyvinylchloride (PVC) extruded forms | xx,xxx kg | 0 km | 0 km | 255 km | 21,141 km |
| Print Film (Supplier 2) | Polyvinylchloride (PVC) extruded forms | xx,xxx kg | 0 km | 0 km | 257 km | 24,053 km |
| Print film (Supplier 3) | Polyvinylchloride (PVC) extruded forms | xx,xxx kg | 0 km | 0 km | 359 km | 24,053 km |
| Limestone (Supplier 1) | Limestone, crushed | xx,xxx kg | 0 km | 0 km | 198 km | 0 km |
| Limestone (Supplier 2) | Limestone, crushed | xxx,xxx kg | 0 km | 0 km | 140 km | 0 km |
| Limestone (Supplier 3) | Limestone, crushed | xx,xxx kg | 0 km | 0 km | 109 km | 0 km |
| Limestone (Supplier 4) | Limestone, crushed | xx,xxx kg | 0 km | 0 km | 198 km | 0 km |
| Urethane Lacquer | Polyurethane, rigid foam | xx,xxx kg | 0 km | 0 km | 419 km | 50 km |
| Antimicrobial Additive | Unspecified inorganic chemical | xx kg | 0 km | 0 km | 178 km | 0 km |
| White Pigment (Supplier 1) | Titanium dioxide (TiO2) | x,xxx kg | 0 km | 0 km | 175 km | 0 km |
| White Pigment (Supplier 2) | Titanium dioxide (TiO2) | xxx kg | 0 km | 0 km | 680 km | 50 km |
| White Pigment (Supplier 3) | Titanium dioxide (TiO2) | x,xxx kg | 0 km | 0 km | 1,706 km | 50 km |
| PVC Bio attributed | Polyester-complexed starch biopolymer | x,xxx,xxx kg | 0 km | 0 km | 572 km | 50 km |

Manufacturing (A3)

Inputs

| Ancillary materials | | | | | | |
|--|-----------------------------|----------|-----------------|------------------|------------------|-----------------|
| For the reported production period and output, add any ancillary materials needed to support the production process of the product and their transport distances to the manufacturing site. For fuels delivered to site, add the quantity and supply distance here (select 'Other' as the material family and then 'transport of fuel') as well as in the following 'Fuel/Energy' section. | | | | | | |
| If there are no ancillary materials used, press '+Add' and write 'n/a' in the description box. You may leave the other fields empty. | | | | | | |
| Material description | Material | Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea |
| Roll Cores | 100% recycled graphic paper | x,xxx kg | 0 km | 0 km | 166 km | 0 km |

| Packaging For the reported production period and output, add the quantity of packaging materials used to package the final product and their transport distances to the manufacturing site. If no packaging is used, press '+Add' and write 'n/a' in the description box. You may leave the other fields empty. | | | | | | |
|--|--------------------------------|------------|-----------------|------------------|------------------|-----------------|
| Material description | Material | Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea |
| Wooden Pallets | BRE 15804 Wood pallet | xxx,xxx kg | 0 km | 0 km | 48 km | 0 km |
| Cardboard Cartons | Cardboard | xxx.xxx kg | 0 km | 0 km | 21 km | 0 km |
| Carton Labels | Printed paper | x,xxx kg | 0 km | 0 km | 161 km | 0 km |
| Gripsheets (Supplier 1) | Packaging paper | xx kg | 0 km | 0 km | 48 km | 0 km |
| Gripsheets (Supplier 2) | Packaging paper | xx kg | 0 km | 0 km | 173 km | 0 km |
| Corner Edge Protectors | Cardboard | x,xxx kg | 0 km | 0 km | 113 km | 0 km |
| Stretchwrap | Packaging film, PE | x,xxx kg | 0 km | 0 km | 7 km | 0 km |
| Strapping | Polypropylene strapping / tape | xx kg | 0 km | 0 km | 7 km | 0 km |
| Top cover (Biopolyethylene) | Packaging film, PE | xxx kg | 0 km | 0 km | 7 km | 0 km |
| Packing Tape | Polypropylene strapping / tape | x,xxx kg | 0 km | 0 km | 43 km | 0 km |

| Fuel/Energy For the reported production period and output, add the quantity of energy and fuels used at the manufacturing site. If no fuels or energy is used, press '+Add' and write 'n/a' in the description box. You may leave the other fields empty. | | |
|---|--|---------------|
| Description | Energy Source | Quantity |
| Electricity | Electricity, GB (kWh) | 3,144,324 kWh |
| Natural Gas | Natural gas, at industrial furnace (kWh, GB) | 1,909,767 kWh |

| Water For the reported production period and output, add the quantity of water used at the manufacturing site. If no water is used, press '+Add' and write 'n/a' in the description box. You may leave the other fields empty. | | |
|--|-----------------------------|----------------------|
| Material description | Water Input | Quantity |
| Water | Tap water (m ³) | 3,001 m ³ |

Emissions

| To air | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

| To water | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

| To soil | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

Waste

| Production waste | | |
|---|--|-----------|
| Material description | Waste stream | Quantity |
| Production Waste For off-site Recycling | Polyvinylchloride (PVC) waste to recycling proxy | x,xxx kg |
| Production waste for off-site recycling | Polyvinylchloride (PVC) waste to recycling proxy | xx,xxx kg |

| Other waste | | |
|---|--------------------------------------|-----------|
| Material description | Waste stream | Quantity |
| Paper & Cardboard | Paper/cardboard waste to recycling | xx,xxx kg |
| Plastic Packaging Waste (LDPE/stretch wrap) | Polyethylene (PE) waste to recycling | x,xxx kg |
| Metal | Steel waste recycling treatment | xx,xxx kg |
| General Mixed Waste | General waste to incineration | xx,xxx kg |
| Timber | Wood waste to recycling | xx,xxx kg |

| Water discharged | | |
|----------------------|--------------------------|----------|
| Material description | Waste stream | Quantity |
| Water to Drain | Wastewater to sewer (m³) | 3,001 m³ |

Construction Transport

to site (A4)

Transport to site

Scenario description

Describe the assumptions made for this scenario module that support the data you will enter, such as the assumed location of the construction/installation site and how the product is transported there.

Description

Products manufactured at Coventry are disturbed in the UK, across Europe, Scandinavia , the Middle and Far East. The average distance transported for each geographical market was calculated by multiplying the distance travelled by the percentage sales volume, by square meter. The weighted average distance per 1m² was calculated by further multiplying the average calculated distance by the percentage sales for a region. TSales regions where sales were less than 1% were not considered.

| Transport to site | | |
|--|---------------------------|----------|
| Enter the distance that the product travels on its journey from the manufacturing site to construction/installation site as well as the transport mode used. | | |
| Description | Transport type | Distance |
| Ireland & Channel islands | Lorry, 16 - 32 metric ton | 0.17 km |
| Ireland & Channel islands | Ship, sea | 0.08 km |
| Delivery for Germany | Lorry, 16 - 32 metric ton | 61.76 km |
| Delivery for Germany | Ship, sea | 21 km |
| Delivery for France | Lorry, 16 - 32 metric ton | 2.04 km |
| Delivery for France | Ship, sea | 0.17 km |
| Delivery to Scandinavia | Lorry, 16 - 32 metric ton | 5.02 km |
| Delivery to Scandinavia | Ship, sea | 0.63 km |
| Delivery to Southern Europe | Lorry, 16 - 32 metric ton | 0.81 km |
| Delivery to Southern Europe | Ship, sea | 0.02 km |
| Delivery to Northern Europe | Lorry, 16 - 32 metric ton | 0.06 km |
| Delivery to Northern Europe | Ship, sea | 0.04 km |
| Delivery to Asia Pacific | Lorry, 16 - 32 metric ton | 0.03 km |
| Delivery to Asia Pacific | Ship, sea | 2.61 km |
| Delivery to MENSA | Lorry, 16 - 32 metric ton | 0.07 km |
| Delivery to MENSA | Ship, sea | 3.06 km |
| UK Direct Delivery | Van | 78.13 km |

Construction - Installation (A5)

Inputs

Scenario description

Describe the assumptions made for this scenario module that support the data you will enter, such as how the product is installed, what inputs (i.e. materials, energy, water) are required and what outputs (i.e. emission, wastes) are generated. Explain the basis upon which these assumptions have been made.

Description

Amtico Signature should be bonded with a suitable low emissions adhesive to an appropriately prepared sub-floor as detailed in BS 8302. Full details on installation can be found at www.amtico.com. The adhesive used per 1m² was calculated by the percentage sold multiplied by the recommended coat weight. The average distance transported for each geographical market was calculated by multiplying the distance travelled by the percentage sales volume by kg. See Adhesive Delivery and Coat Weight Spreadsheet. Vinyl installation off cuts can be disposed of via recycling schemes such as AgPR, or used in energy recovery scheme or landfill. Wherever possible it is recommended that products should always be recycled

| |
|--|
| Installation wastage rate |
| Add the percentage weight of the declared or functional unit of product that is lost during installation for example waste from cutting a tile product to a different size. Remember to also to account for this percentage (as a mass) in the 'waste' tab of this module! |
| 3% |

| Ancillary materials | | | | | | |
|-----------------------------|-----------------------|----------|-----------------|------------------|------------------|-----------------|
| Material description | Material | Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea |
| Acrylic Dispersion Adhesive | Multipurpose adhesive | 0.29 kg | 0 km | 0 km | 507 km | 521 km |

| Fuel/Energy | | |
|----------------------|---------------|----------|
| Material description | Energy Source | Quantity |
| N/A | | |

| Water | | |
|----------------------|-------------|----------|
| Material description | Water Input | Quantity |
| N/A | | |

Emissions

| To air | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

| To water | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

| To soil | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

Waste

| Material wastes | | |
|----------------------|---|----------|
| Material description | Waste stream | Quantity |
| Installation Offcuts | Polyvinylchloride (PVC) waste to landfill | 0.09 kg |
| Packaging | Paper/cardboard waste to recycling | 0.16 kg |
| Plastic Packaging | Polyethylene (PE) waste to recycling | 0.01 kg |
| Wood | Wood waste to recycling | 0.21 kg |

| Water discharged | | |
|----------------------|--------------|----------|
| Material description | Waste stream | Quantity |
| N/A | | |

Use Stage

Maintenance (B2)

Inputs

Scenario description

Describe the assumptions made for this scenario module that support the data you will enter, such as how the product is maintained, what inputs (i.e. materials, energy, water) are required and what outputs (i.e. emission, wastes) are generated. Explain the basis upon which these assumptions have been made.

Description

The required recommended cleaning and maintenance regime is dependent on the place of installation and the foot traffic over the floor. High traffic areas will generally require more cleaning and maintenance than low traffic situations. Dry cleaning may be performed with a dust mop. Wet cleaning can be performed with a mop, detergent and water. The use of power cleaners such as vacuum cleaners/rotary cleaners/scrubber driers was not included. For one year 3.2L/m² water and, 0.0416kg/m² detergent Floor cleaning detergents are locally readily available, assumed distance 10km

Frequency of maintenance

Add the expected number of maintenance cycles required to maintain the product, per year, for example, if a tile requires washing once a week, then the number of cycles per year is 52. If the maintenance takes place less regularly than annually, for example every 4 years, then your frequency of maintenance per year will be: (1 / 4).

52per year

| Ancillary materials | | | | | | |
|--------------------------|-----------------------|-----------|-----------------|------------------|------------------|-----------------|
| Material description | Material | Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea |
| Floor Cleaning Detergent | Detergent, 25% active | 0.0008 kg | 0 km | 0 km | 10 km | 0 km |

| Fuel/Energy | | |
|----------------------|---------------|----------|
| Material description | Energy Source | Quantity |
| N/A | | |

| Water | | |
|----------------------|----------------|-------------|
| Material description | Water Input | Quantity |
| Water | Tap water (m³) | 0.000062 m³ |

Emissions

| To air | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

| To water | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

| To soil | | |
|----------------------|------|----------|
| Material description | Flow | Quantity |
| N/A | | |

Waste

| Material wastes | | |
|----------------------|---|------------|
| Material description | Waste stream | Quantity |
| Detergent Packaging | Polypropylene (PP) waste to recycling proxy | 0.00002 kg |

| Water discharged | | |
|----------------------|--------------------------|-------------|
| Material description | Waste stream | Quantity |
| Cleaning Water | Wastewater to sewer (m3) | 0.000062 m³ |

End-of-life

Deconstruction (C1)

Inputs

| |
|--|
| Scenario description |
| Describe the assumptions made for this scenario module that support the data you will enter, such as how the product is dismantled at the end of its life in the building, what inputs (i.e. materials, energy, water) are required and what outputs (i.e. emission, wastes) are generated. Explain the basis upon which these assumptions have been made. |
| Description |
| End of life data for PVC flooring data is limited. In BRE's BREEAM PEP scheme (2008) it was considered that 1. 87% went to landfill 2. 12% for incineration/energy recovery 3. 1% for recycling An Axion report "Post-Zero Avoidable Waste in Flooring-Towards a Circular Economy", published February 2022, also has a 1% for recycling. At the end of the product's life, the flooring is mechanically removed from the sub-floor and disposed of by landfill, or Incineration/energy recovery, or recycled. |

| |
|---|
| Ancillary materials |
| Material descriptionMaterial QuantityDistance by airDistance by railDistance by landDistance by sea |
| N/A |

| |
|---|
| Fuel/Energy |
| Material descriptionEnergy SourceQuantity |
| N/A |

| |
|---|
| Water |
| Material descriptionWater InputQuantity |
| N/A |

Emissions

| |
|----------------------------------|
| To air |
| Material descriptionFlowQuantity |
| N/A |

| |
|----------------------------------|
| To water |
| Material descriptionFlowQuantity |
| N/A |

| |
|----------------------------------|
| To soil |
| Material descriptionFlowQuantity |
| N/A |

Waste

| |
|--|
| Material wastes |
| Material descriptionWaste streamQuantity |
| N/A |

| |
|--|
| Water discharged |
| Material descriptionWaste streamQuantity |
| N/A |

Transport (C2)

Transport

| |
|--|
| Scenario description |
| Enter the distance that the product travels from installation site to the end-of-life destination as well as the transport mode used. |
| Description |
| At the end of the product's life, the flooring is mechanically removed from the sub-floor and disposed of by landfill, Incineration/energy recovery or recycling Landfill, 87%Incineration/energy recovery 12% Recycling 1% It has been assumed that the maximum distance to a landfill disposal, incineration or recycling plant will be 200km. |

| Transport | | | | | | | | | | | | |
|--|---------------------------|----------------|----------|---|---------------------------|--------|--|---------------------------|-------|--|---------------------------|------|
| Enter the distance that the product travels from installation site to the end-of-life destination as well as the transport mode used. Note that if more than one end-of-life destination is selected (i.e. a portion of the declared unit goes to one destination and a portion to another), you will need to multiply the different distances by the percentage of product travelling that distance. You can describe this in the scenario description. | | | | | | | | | | | | |
| <table><tr><th>Description</th><th>Transport type</th><th>Distance</th></tr><tr><td>Disposal from demolition site to landfill</td><td>Lorry, 16 - 32 metric ton</td><td>174 km</td></tr><tr><td>Disposal from demolition site to incinerator</td><td>Lorry, 16 - 32 metric ton</td><td>24 km</td></tr><tr><td>Disposal from demolition site to recycling plant</td><td>Lorry, 16 - 32 metric ton</td><td>2 km</td></tr></table> | Description | Transport type | Distance | Disposal from demolition site to landfill | Lorry, 16 - 32 metric ton | 174 km | Disposal from demolition site to incinerator | Lorry, 16 - 32 metric ton | 24 km | Disposal from demolition site to recycling plant | Lorry, 16 - 32 metric ton | 2 km |
| Description | Transport type | Distance | | | | | | | | | | |
| Disposal from demolition site to landfill | Lorry, 16 - 32 metric ton | 174 km | | | | | | | | | | |
| Disposal from demolition site to incinerator | Lorry, 16 - 32 metric ton | 24 km | | | | | | | | | | |
| Disposal from demolition site to recycling plant | Lorry, 16 - 32 metric ton | 2 km | | | | | | | | | | |

Waste processing (C3)

Inputs

| |
|--|
| Scenario description |
| Describe the assumptions made for this scenario module that support the data you will enter, such as any pre-processing that the product undergoes after being dismantled from the building but before reaching its end-of-life destination, including what inputs (i.e. materials, energy, water) are required and what outputs (i.e. emission, wastes) are generated. Explain the basis upon which these assumptions have been made. |
| Description |
| The floor is mechanically removed from the installation and is then processed as follows, Landfill 87%. No further processing required. Incineration/energy recovery 12%. No further processing required. Recycling 1%. No further processing considered. |

| Ancillary materials | | | | | | | | | | | | |
|--|----------------------|-------------------|------------------|------------------|------------------|-----------------|-----|--|--|--|--|--|
| <table><tr><th>Material description</th><th>Material Quantity</th><th>Distance by air</th><th>Distance by rail</th><th>Distance by land</th><th>Distance by sea</th></tr><tr><td colspan="6">N/A</td></tr></table> | Material description | Material Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea | N/A | | | | | |
| Material description | Material Quantity | Distance by air | Distance by rail | Distance by land | Distance by sea | | | | | | | |
| N/A | | | | | | | | | | | | |

| Fuel/Energy | | | | | | |
|---|----------------------|---------------|----------|-----|--|--|
| <table><tr><th>Material description</th><th>Energy Source</th><th>Quantity</th></tr><tr><td colspan="3">N/A</td></tr></table> | Material description | Energy Source | Quantity | N/A | | |
| Material description | Energy Source | Quantity | | | | |
| N/A | | | | | | |

| Water | | | | | | |
|---|----------------------|-------------|----------|-----|--|--|
| <table><tr><th>Material description</th><th>Water Input</th><th>Quantity</th></tr><tr><td colspan="3">N/A</td></tr></table> | Material description | Water Input | Quantity | N/A | | |
| Material description | Water Input | Quantity | | | | |
| N/A | | | | | | |

Emissions

| To air | | | | | | |
|--|----------------------|----------|----------|-----|--|--|
| <table><tr><th>Material description</th><th>Flow</th><th>Quantity</th></tr><tr><td colspan="3">N/A</td></tr></table> | Material description | Flow | Quantity | N/A | | |
| Material description | Flow | Quantity | | | | |
| N/A | | | | | | |

| To water | | | | | | |
|--|----------------------|----------|----------|-----|--|--|
| <table><tr><th>Material description</th><th>Flow</th><th>Quantity</th></tr><tr><td colspan="3">N/A</td></tr></table> | Material description | Flow | Quantity | N/A | | |
| Material description | Flow | Quantity | | | | |
| N/A | | | | | | |

| To soil | | | | | | |
|--|----------------------|----------|----------|-----|--|--|
| <table><tr><th>Material description</th><th>Flow</th><th>Quantity</th></tr><tr><td colspan="3">N/A</td></tr></table> | Material description | Flow | Quantity | N/A | | |
| Material description | Flow | Quantity | | | | |
| N/A | | | | | | |

Waste

| Material wastes | | |
|--|--|-----------|
| Material description | Waste stream | Quantity |
| BRE BREEAM PEP scheme used a recycling figure of 1% in its calculations. (2008). An Axion report "Post-Zero Avoidable Waste in Flooring-Towards a Circular Economy", published February 2022, also has a figure of 1%. | Polyvinylchloride (PVC) waste to recycling proxy | 0.0315 kg |
| Data for post-consumer recycling rates for vinyl flooring is limited. BRE BREEAM PEP scheme used an energy recovery figure of 12% in its calculations. (2008). | Polyvinylchloride (PVC) waste to incineration | 0.378 kg |

| Water discharged | | |
|----------------------|--------------|----------|
| Material description | Waste stream | Quantity |
| N/A | | |

Disposal (C4)

Disposal

| Scenario description |
|--|
| Describe what are the selected end-of-life destinations of the declared or functional unit at end-of-life, including any splits of the product to different waste routes. Explain the basis upon which these assumptions have been made. |
| Description |
| At the end of the product's life, the flooring is mechanically removed from the sub-floor and disposed of by landfill or Incineration/energy recovery. Landfill 87%Incineration/energy recovery 12% Recycling 1% |

| Disposal | | |
|--------------------------------------|---|-----------|
| Material description | Waste route | Quantity |
| Amtico Signature Post Consumer Waste | Polyvinylchloride (PVC) waste to landfill | 2.7405 kg |

Benefits & loads beyond system Benefits

& loads beyond system (D)

Recycling & Incineration

| Recycling | | |
|--|--|-----------|
| Process description | Process | Quantity |
| BRE BREEAM PEP scheme used a recycling figure of 1% in its calculations. (2008). An Axion report "Post-Zero Avoidable Waste in Flooring-Towards a Circular Economy", published February 2022, also has a figure of 1%. | Benefits due to recycling of Polyvinyl chloride (PVC) suspension | 0.0315 kg |
| Incineration | | |
| Process description | Process | Quantity |
| Data for post-consumer recycling rates for vinyl flooring is limited. BRE BREEAM PEP scheme used an energy recovery figure of 12% in its calculations. (2008). | Benefits due to incineration of waste PVC | 0.378 kg |
| Landfill | | |
| Process description | Process | Quantity |
| N/A | | |

Amtico Signature Bio (Oct 2024G) - Average values

| Indicator | Unit | A1 | A2 | A3 | A4 | A5 | B2 |
|--|--------------|---------------------|-----------|---------------|-------------------|-----------------------------|-------------|
| | | Raw material supply | Transport | Manufacturing | Transport to site | Construction - Installation | Maintenance |
| Core Environmental impact indicators | | | | | | | |
| GWP-total | kg CO2 eq | 4.26e+0 | 1.83e-1 | 1.55e+0 | 4.98e-1 | 1.14e+0 | 1.27e+0 |
| GWP-fossil | kg CO2 eq | 4.33e+0 | 1.83e-1 | 1.78e+0 | 4.97e-1 | 7.47e-1 | 1.22e+0 |
| GWP-biogenic | kg CO2 eq | -7.03e-1 | 1.53e-4 | -2.39e-1 | 1.09e-3 | 3.08e-1 | 4.76e-2 |
| GWP-luluc | kg CO2 eq | 6.31e-1 | 7.38e-5 | 2.63e-3 | 3.09e-4 | 8.63e-2 | 1.12e-3 |
| ODP | kg CFC11 eq | 8.59e-6 | 4.27e-8 | 1.38e-7 | 1.05e-7 | 3.46e-7 | 1.21e-7 |
| AP | mol H+ eq | 3.72e-2 | 1.36e-3 | 4.67e-3 | 2.75e-3 | 4.42e-3 | 9.03e-3 |
| EP-freshwater | kg P eq | 4.59e-3 | 1.08e-5 | 2.67e-4 | 7.15e-5 | 7.00e-4 | 5.25e-4 |
| EP-marine | kg N eq | 9.46e-3 | 3.75e-4 | 1.43e-3 | 8.31e-4 | 1.38e-3 | 5.20e-3 |
| EP-terr | mol N eq | 8.16e-2 | 4.13e-3 | 1.32e-2 | 9.13e-3 | 9.64e-3 | 1.60e-2 |
| POCP | kg NMVOC eq | 1.66e-2 | 1.21e-3 | 3.37e-3 | 2.96e-3 | 2.89e-3 | 5.22e-3 |
| ADPE | kg Sb eq | 6.50e-5 | 4.09e-7 | 4.40e-6 | 7.15e-6 | 1.06e-5 | 1.74e-5 |
| ADPF | MJ | 1.21e+2 | 2.78e+0 | 4.01e+1 | 7.37e+0 | 1.77e+1 | 3.55e+1 |
| WDP | m3 depriv. | 2.83e+0 | 1.27e-2 | 3.61e-1 | 5.30e-2 | 8.77e-1 | 1.55e+0 |
| Additional Environmental impact indicators | | | | | | | |
| PM | p inc. | 2.79e-7 | 1.94e-8 | 3.81e-8 | 5.32e-8 | 4.36e-8 | 1.05e-7 |
| IR | kBq U-235 eq | 6.01e-1 | 1.39e-2 | 1.03e+0 | 4.63e-2 | 1.17e-1 | 7.26e-2 |
| ETP-fw | CTUe | 1.56e+2 | 2.13e+0 | 1.91e+1 | 7.33e+0 | 2.16e+1 | 1.01e+2 |
| HTP-c | CTUh | 4.66e-9 | 6.75e-11 | 7.72e-10 | 7.75e-10 | 5.77e-10 | 3.35e-9 |
| HTP-nc | CTUh | 9.32e-8 | 2.25e-9 | 1.16e-8 | 9.35e-9 | 1.42e-8 | 6.36e-8 |
| SQP | Pt | 8.01e+1 | 2.85e+0 | 3.85e+1 | 3.61e+0 | 9.76e+0 | 5.56e+0 |
| Resource use | | | | | | | |
| PERE | MJ | -1.62e+1 | 3.38e-2 | 5.68e+0 | 1.97e-1 | -2.59e+0 | 1.59e+0 |
| PERM | MJ | 4.26e+1 | 0.00e+0 | 4.80e+0 | 0.00e+0 | 6.23e+0 | 0.00e+0 |
| PERT | MJ | 2.64e+1 | 3.38e-2 | 1.05e+1 | 1.97e-1 | 3.64e+0 | 1.59e+0 |
| PENRE | MJ | 1.08e+2 | 2.73e+0 | 3.52e+1 | 7.25e+0 | 8.59e+0 | 1.30e+1 |
| PENRM | MJ | 1.28e+1 | 0.00e+0 | 5.05e+0 | 0.00e+0 | 7.26e+0 | 2.09e+1 |
| PENRT | MJ | 1.21e+2 | 2.73e+0 | 4.02e+1 | 7.25e+0 | 1.58e+1 | 3.39e+1 |
| SM | kg | 3.50e-2 | 0.00e+0 | 1.47e-1 | 0.00e+0 | 5.51e-3 | 3.95e-3 |
| RSF | MJ | 0.00e+0 | 0.00e+0 | 3.63e-7 | 0.00e+0 | 1.09e-8 | 0.00e+0 |
| NRSF | MJ | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| FW | m3 | 6.75e-2 | 3.14e-4 | 8.98e-3 | 1.32e-3 | 2.07e-2 | 3.66e-2 |
| Waste categories | | | | | | | |
| HWD | kg | 4.00e-1 | 3.01e-3 | 7.28e-2 | 1.51e-2 | 5.64e-2 | 9.13e-2 |
| NHWD | kg | 9.45e+0 | 4.90e-2 | 1.16e+0 | 3.09e-1 | 1.29e+0 | 1.61e+0 |
| RWD | kg | 4.04e-4 | 1.60e+1 | 2.83e-4 | 4.50e+1 | 4.82e-1 | 2.37e-1 |
| Output flows | | | | | | | |
| CRU | kg | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| MFR | kg | 0.00e+0 | 0.00e+0 | 1.60e-1 | 0.00e+0 | 3.26e-1 | 5.65e-2 |
| MER | kg | 0.00e+0 | 0.00e+0 | 2.34e-8 | 0.00e+0 | 6.03e-9 | 0.00e+0 |
| EEE | MJ | 0.00e+0 | 0.00e+0 | 1.08e-4 | 0.00e+0 | 3.25e-6 | 0.00e+0 |
| EET | MJ | 0.00e+0 | 0.00e+0 | 6.08e-4 | 0.00e+0 | 1.82e-5 | 0.00e+0 |
| Information on biogenic carbon content | | | | | | | |
| Product C content | kg C | -9.75e-1 | 0.00e+0 | 7.86e-3 | 0.00e+0 | -1.59e-2 | 0.00e+0 |
| Packaging C content | kg C | 0.00e+0 | 0.00e+0 | -1.26e-1 | 0.00e+0 | 6.81e-2 | 0.00e+0 |

| Indicator | Unit | C1 | C2 | C3 | C4 | D |
|--|--------------|----------------|-----------|------------------|----------|--------------------------------|
| | | Deconstruction | Transport | Waste processing | Disposal | Benefits & loads beyond system |
| Core Environmental impact indicators | | | | | | |
| GWP-total | kg CO2 eq | 0.00e+0 | 1.05e-1 | 8.10e-1 | 2.31e-1 | -2.96e-1 |
| GWP-fossil | kg CO2 eq | 0.00e+0 | 1.05e-1 | 8.08e-1 | 2.31e-1 | -2.93e-1 |
| GWP-biogenic | kg CO2 eq | 0.00e+0 | 8.93e-5 | 1.70e-3 | 2.90e-4 | -3.18e-3 |
| GWP-luluc | kg CO2 eq | 0.00e+0 | 4.11e-5 | 1.18e-4 | 3.03e-5 | -3.03e-4 |
| ODP | kg CFC11 eq | 0.00e+0 | 2.42e-8 | 2.59e-8 | 8.79e-9 | -5.13e-8 |
| AP | mol H+ eq | 0.00e+0 | 4.25e-4 | 6.26e-4 | 2.52e-4 | -1.61e-3 |
| EP-freshwater | kg P eq | 0.00e+0 | 6.74e-6 | 3.64e-5 | 4.22e-6 | -1.41e-4 |
| EP-marine | kg N eq | 0.00e+0 | 1.28e-4 | 1.85e-4 | 1.08e-3 | -2.53e-4 |
| EP-terr | mol N eq | 0.00e+0 | 1.40e-3 | 1.68e-3 | 9.22e-4 | -2.51e-3 |
| POCP | kg NMVOC eq | 0.00e+0 | 4.28e-4 | 4.72e-4 | 3.14e-4 | -7.39e-4 |
| ADPE | kg Sb eq | 0.00e+0 | 3.64e-7 | 9.14e-7 | 9.62e-8 | -1.31e-6 |
| ADPF | MJ | 0.00e+0 | 1.58e+0 | 1.35e+0 | 6.84e-1 | -5.07e+0 |
| WDP | m3 depriv. | 0.00e+0 | 7.12e-3 | 1.51e+0 | 3.06e-2 | -1.35e-1 |
| Additional Environmental impact indicators | | | | | | |
| PM | p inc. | 0.00e+0 | 9.04e-9 | 5.40e-9 | 4.98e-9 | -1.20e-8 |
| IR | kBq U-235 eq | 0.00e+0 | 8.14e-3 | 8.98e-3 | 3.23e-3 | -6.02e-2 |
| ETP-fw | CTUe | 0.00e+0 | 1.24e+0 | 4.45e+1 | 1.06e+1 | -4.64e+0 |
| HTP-c | CTUh | 0.00e+0 | 4.00e-11 | 1.75e-10 | 2.33e-11 | -1.00e-10 |
| HTP-nc | CTUh | 0.00e+0 | 1.30e-9 | 1.25e-8 | 2.05e-9 | -2.95e-9 |
| SQP | Pt | 0.00e+0 | 1.09e+0 | 7.89e-1 | 1.62e+0 | -1.24e+0 |
| Resource use | | | | | | |
| PERE | MJ | 0.00e+0 | 2.23e-2 | 1.15e-1 | 1.22e-2 | -4.37e-1 |
| PERM | MJ | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| PERT | MJ | 0.00e+0 | 2.23e-2 | 1.15e-1 | 1.22e-2 | -4.37e-1 |
| PENRE | MJ | 0.00e+0 | 1.55e+0 | -8.23e+0 | -5.83e+1 | -2.41e+0 |
| PENRM | MJ | 0.00e+0 | 0.00e+0 | 9.47e+0 | 5.89e+1 | 6.77e-1 |
| PENRT | MJ | 0.00e+0 | 1.55e+0 | 1.24e+0 | 6.72e-1 | -1.74e+0 |
| SM | kg | 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 |
| NRSF | MJ | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| FW | m3 | 0.00e+0 | 1.76e-4 | 3.52e-2 | 7.20e-4 | -3.32e-3 |
| Waste categories | | | | | | |
| HWD | kg | 0.00e+0 | 1.75e-3 | 2.09e-1 | 1.36e-3 | -8.33e-3 |
| NHWD | kg | 0.00e+0 | 3.10e-2 | 5.15e-1 | 2.77e+0 | -6.38e-1 |
| RWD | kg | 0.00e+0 | 1.07e-5 | 6.16e-6 | 4.06e-6 | -1.46e-5 |
| Output flows | | | | | | |
| CRU | kg | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| MFR | kg | 0.00e+0 | 0.00e+0 | 3.15e-2 | 0.00e+0 | 0.00e+0 |
| MER | kg | 0.00e+0 | 0.00e+0 | 3.78e-1 | 0.00e+0 | 0.00e+0 |
| EEE | MJ | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| EET | MJ | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| Information on biogenic carbon content | | | | | | |
| Product C content | kg C | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |
| Packaging C content | kg C | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 | 0.00e+0 |