

ENVIRONMENTAL PRODUCT DECLARATION

TARALAY IMPRESSION/INITIAL COMFORT

HETEROGENEOUS VINYL FLOORING



Heterogeneous vinyl flooring – Taralay Impression/Initial Comfort

Gerflor
theflooringgroup

Because we think actions speak louder than words, Gerflor has always been willing to act and to develop flooring solutions that meet the most challenging requirements in term of design, durability, easy installation, acoustic comfort, ...

When it comes to sustainability, we also set ourselves to the highest standards. We believe in developing great products that not only perform, but also contribute to achieving high indoor air quality and top contribution to all green building certification schemes.

Taralay Impression/Initial Comfort vinyl flooring:

- According to ISO 22196 and ISO 21702, they have, respectively, anti-bacterial activity against MRSA of 99% after 24h00 and anti-viral activity against human coronavirus 229E of 99.7% after 2h00.
- The products emission rate of volatile organic compounds are < 10 µg/m³ (TVOC after 28 days – ISO 16000-6).
- Taralay Impression Comfort has an exclusive and patented ProtecSol® 2 surface treatment which allowed easy maintenance, no wax for life and high stain resistance. Taralay Initial Comfort has ProtecSol® surface treatment. The maintenance scenario has to be more frequent than ProtecSol® 2.
- They have the Floorscore® certification.

Taralay Impression/Initial Comfort are developed with a view to optimize the environmental impact at every stage of the product's life. This includes assessment of the manufacture, installation, ongoing maintenance, eventual uplift, and recycling of the products. As part of this commitment, Gerflor has decided to take a leadership position by publishing a third party independently verified EPD for each of its product ranges.



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According to ISO 14025,
EN 15804, and ISO 21930:2017

| | | |
|---|--|--|
| EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE | UL Environment 333 Pfingsten Road, Northbrook, IL 60611 | https://www.ul.com/ https://spot.ul.com |
| GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER | General Program Instructions v.2.4 July 2018 | |
| MANUFACTURER NAME AND ADDRESS | GERFLOR 50 Cours de la République, 69100 Villeurbanne, France | |
| DECLARATION NUMBER | UL Provided | |
| DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT | Taralay Impression/Initial Comfort heterogeneous vinyl flooring The functional unit used for this study is 1m ² of heterogeneous vinyl flooring, for a 25 years service life. | |
| REFERENCE PCR AND VERSION NUMBER | PCR -Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 3.2, UL Environment. PCR - Part B: Flooring EPD Requirements, Second Edition, Dated September 28, 2018, UL Environment. | |
| DESCRIPTION OF PRODUCT APPLICATION/USE | The product is classified in accordance with EN ISO 10874 and in reference to the FCSS (Floor Covering Standard Symbols) to be installed in various areas of application including commercial and industrial applications. | |
| PRODUCT RSL DESCRIPTION (IF APPL.) | The stated RSL is 25 years. The manufacturer has provided this service life on the basis of his experience of flooring manufacture and supply. | |
| MARKETS OF APPLICABILITY | Norwegian and US Commercial market | |
| DATE OF ISSUE | UL Provided | |
| PERIOD OF VALIDITY | 5 years | |
| EPD TYPE | Product-specific | |
| RANGE OF DATASET VARIABILITY | Two products are considered in this EPD. | |
| EPD SCOPE | Cradle to Grave | |
| YEAR(S) OF REPORTED PRIMARY DATA | 2020 | |
| LCA SOFTWARE & VERSION NUMBER | Simapro 9 | |
| LCI DATABASE(S) & VERSION NUMBER | Ecoinvent 3.7.1 – allocation cut-off by classification | |
| LCIA METHODOLOGY & VERSION NUMBER | Methode EN 15804_FR_Ev-DEC 1.21 (EVEA) | |

| | |
|---|-------------|
| The PCR review was conducted by: | UL Provided |
| | UL Provided |
| | UL Provided |
| This declaration was independently verified in accordance with ISO 14025: 2006. <input type="checkbox"/> INTERNAL <input checked="" type="checkbox"/> EXTERNAL | UL Provided |
| | UL Provided |
| This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by: | UL Provided |
| | UL Provided |

LIMITATIONS

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.

Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible*. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.



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According to ISO 14025,
EN 15804 and ISO 21930:2017

1. Product Definition and Information

1.1. Description of Company/Organization

The products are commercialized by Gerflor and made in Saint-Paul Trois Châteaux Manufacturing Plant (France). This plant complies with:

- ISO 9001 Quality Management System
- ISO 14001 Environmental Management System
- ISO 50001 Energy Management System

1.2. Product Description

Product Identification

Product Designation: "Taralay Impression/Initial Comfort"

This environmental product declaration covers Gerflor Taralay Impression Comfort Heterogeneous Vinyl Flooring and Taralay Initial Comfort Heterogeneous Vinyl Flooring. They are presented in rolls of 3.35mm thickness. The only difference between those two products is the varnish, Taralay Impression Comfort is protected by ProtecSol® 2 surface treatment that provides easy maintenance, stain resistance and reduces the need to refinish the flooring. Taralay Initial Comfort is protected by ProtecSol® surface treatment.

The Taralay Impression/Initial Comfort Flooring are classified according to the United Nations Standard Products and Service Code (UNSPSC) as "Flooring" : UNSPSC Code 30161700.

And according to Construction Specification Institute (CSI) as "Resilient flooring" : CSI Code 09 65 00.

The following figures show Taralay Impression/Initial Comfort vinyl flooring :



Figure 1: Taralay Impression Comfort flooring's illustration

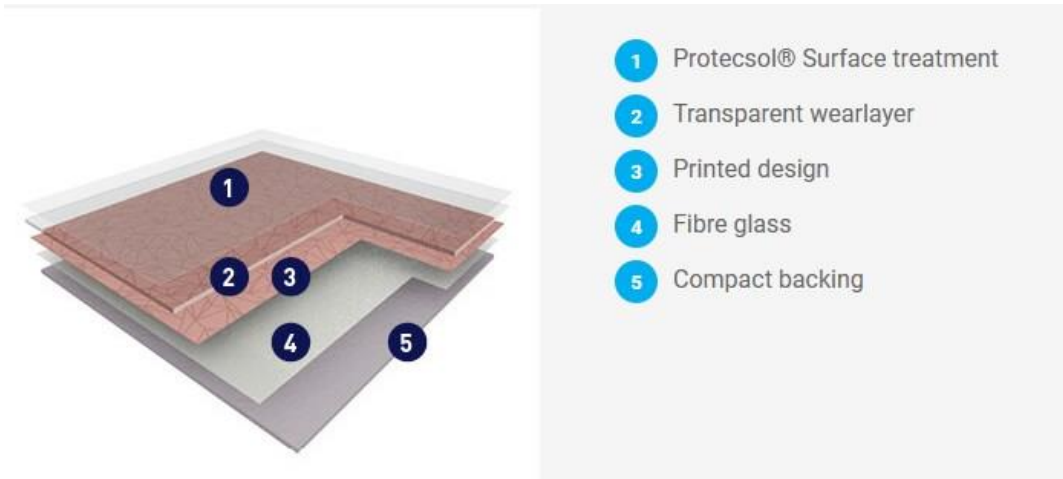
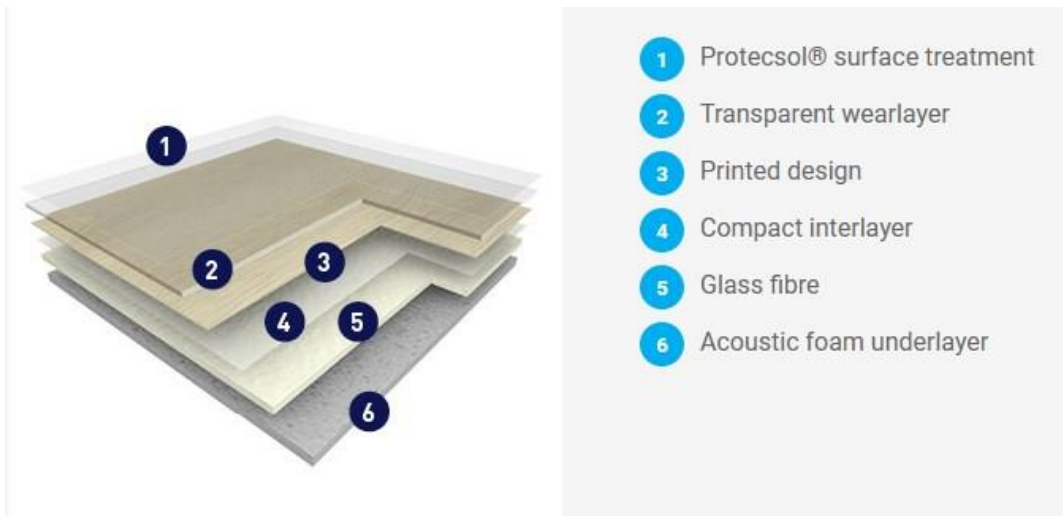


Figure 2: Taralay Initial Comfort flooring's illustration



Product Specification

The products considered in this EPD meet or exceed one of the following Technical Specifications:
Meet or exceed all technical requirements in ISO 11638: Resilient floor coverings - Heterogeneous polyvinyl chloride floor coverings on foam - Specification

Taralay Initial/Impression Comfort heterogeneous vinyl flooring meet requirements of the standard EN 14041 – Resilient,

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textile and stratified floor coverings: Essential characteristics.

Specification Fire Testing:

Class 1 when tested in accordance with ASTM E 648, Standard Test Method for Critical Radiant Flux

Class 1 when tested in accordance with ASTM E 662, Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

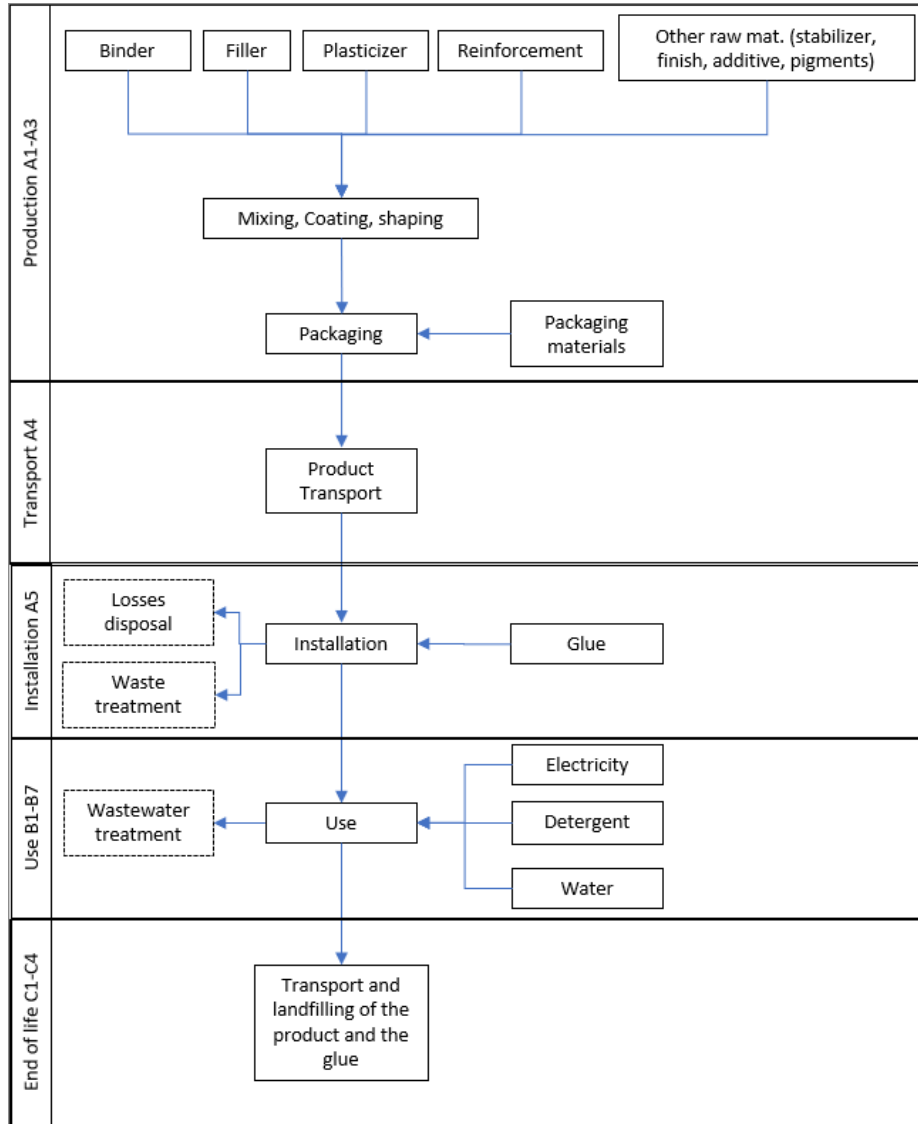
The products also possess the following characteristics:

- EN 13501-1 Fire Behavior B_{fl} – s1
- DIN 51 130 Slip Resistance R10
- M1 certified
- 100% Floorscore



Flow Diagram

Figure 3: Flow product diagram



1.3. Application

Taralay Impression/Initial Comfort are classified in accordance with EN ISO 10874 and in reference to the FCSS (Floor Covering Standard Symbols) to be installed in various areas of application including commercial, education and healthcare environments.



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1.4. Declaration of Methodological Framework

This EPD covers the entire life cycle of the products from cradle to grave (modules A1 to C4) excluding modules for which there are no inputs/outputs. No known flows are deliberately excluded from this EPD.

For these products, the stated RSL is 25 years. It should be noted, however, that the service life of a heterogeneous vinyl flooring may vary depending on the amount and nature of floor traffic and the type and frequency of maintenance. The manufacturer has provided this service life on the basis of his experience of flooring manufacture and supply. This RSL is applicable as long as the product use complies with that defined by ISO 14041 and ISO 10 874 in accordance with the product's classification.

1.5. Technical Requirements

Table 1: Technical data

| Name | | Value | Unit |
|-------------------|--------------|-------|-------------------|
| Product Thickness | | 3.35 | mm |
| Product Weight | | 2.82 | kg/m ² |
| Product Form | Sheet width | 200 | cm |
| | Sheet length | 25 | ml |

1.6. Properties of Declared Product as Delivered

The product declared in this document complies with the following codes or regulations:

- ISO 9001 Quality Management System, ISO 14001 Environmental Management System and ISO 50001 Energy Management System
- Floorscore SCS-FS-02145

1.7. Material Composition

Table 2: Material content

| Component | Mass % |
|---------------|--------|
| Binder | 30-40% |
| Plasticizer | 22-30% |
| Stabilizer | < 5% |
| Filler | 20-30% |
| Additive | < 1% |
| Finish | < 1% |
| Pigments | < 1% |
| Reinforcement | < 5% |
| Packaging | < 5% |



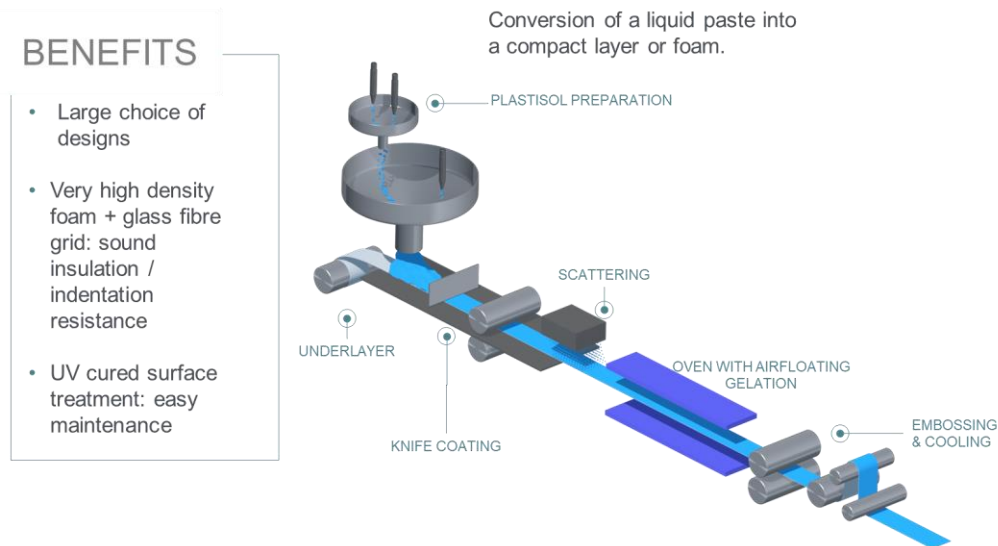
1.8. Manufacturing

Taralay Impression/Initial Comfort heterogeneous collection are made in the Gerflor manufacturing plant in Saint-Paul Trois Châteaux, in France.

The production of the sheets is divided into the following stages:

- Mixing: Binder, filler, plasticizer, stabilizer, additives and pigments are mixed to obtain mixture
- Coating: The rolls are then coated to get the desired shape.
- Reinforcement and finish.
- Shaping: rolls are cut at the desired dimensions.
- Surface treatment: The ProtecSol® surface treatment is then applied to get the best durability possible.

Figure 4: Manufacturing flow diagram



1.9. Packaging

The product is packed around a tube and hubs made of 100% recycled cardboard. The whole being surrounded by a 100% recycled wrapping paper.

- The packaging waste scenario for US market for paper and cardboard is 75% recycling, 20% landfilling and 5% incineration as describe in ULE Part A Requirements. For plastic film, the scenario is 15% recycling, 68% landfilling and 17% incineration.

- According to the Ecoinvent datas, the packaging waste scenario for Norway represents 92% against 8% of landfill.

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1.10. Transportation

Taralay Impression/Initial Comfort heterogeneous collection is made in France and is then sent to the Norwegian market or US market. Distances taken in account are described below.

| MEANS OF TRANSPORT | NORWEGIAN MARKET | | US MARKET | |
|---------------------|--|---------------|---|---------------|
| | Journey | Distance (km) | Journey | Distance (km) |
| Road – 16-32T Truck | From Saint-Paul Trois Chateaux factory to Belgium port: Zeebrugge | 947 | From Saint-Paul Trois Châteaux to the port of Fos-Sur-Mer | 133 |
| Boat | Zeebrugge to Swedish's port: Goteborg | 1007 | Fos-Sur-Mer to Montreal | 7167 |
| Train | | | Montreal to Chicago | 1357 |
| Road – 16-32T Truck | Goteborg port to Norwegian's warehouse: Vestby, and then to customer | 679 | Chicago to Bensenville warehouse and then to customer in Denver | 2434 |

1.11. Product Installation

The products are installed by using acrylic glue. Approximately 250 g/m² of this water-based low emission adhesive is used to fix the flooring in place.

During the installation approximately 10% of the material is lost as off-cuts – this waste is mainly sent to incineration for Norwegian market and is landfilled for US market. Waste classification is according to RCRA for North American region (Resource Conservation and Recovery Act (RCRA), Subtitle 3).

1.12. Use

Current cleaning of the installed floor has been included in this study as following:

- Dry vacuum cleaning : 2.5 times a week
- Wet cleaning by hand with water and detergent: 1.5 times a week.





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1.13. Reference Service Life and Building Estimated Service Life

For this product, the stated RSL is 25 years and the building estimated service life (ESL) is 75 years. It should be noted however that the service life of Taralay Impression/Initial Comfort heterogeneous flooring may vary depending on the amount and nature of floor traffic and the type and frequency of maintenance. The manufacturer has provided this service life on the basis of his experience of flooring manufacture and supply. This RSL is applicable as long as the product use complies with ISO 14041 and ISO 10874 in accordance with the product's classification. The number of replacements necessary to fulfill the required performance and functionality over the building Estimated Service Life of 75 years is two.

1.14. Reuse, Recycling, and Energy Recovery

There is a collection for recycling available on request for these products.

1.15. Disposal

For the purpose of this LCA, it has been assumed that 92% of the products are sent to incineration and 8% to landfill at the end of its useful life, according to the Ecoinvent datas and the producer's feedback for Norwegian market. The products are sent to landfill site for US market. Products are considered as non-hazardous waste according to north america regulation.

The transport between construction site and incineration/landfill facility is by truck, with a distance of 161 km. There is no specific data for this distance for Norwegian market, so the North America's one is assumed by default.

2. Life Cycle Assessment Background Information

A full Life Cycle Assessment has been performed according to ISO 14040, ISO 14044 and in compliance with EN15804.

2.1. Functional or Declared Unit

The functional unit is one square meter of installed product. The reference service life considered is 25 years.

Table 3: Functional Unit

| | Value | Unit |
|-----------------|-------|----------------|
| Functional Unit | 1 | m ² |
| Mass | 2.82 | kg |

2.2. System Boundary

EPD is declared from cradle to grave, including the following stages:

A1 – A3: includes the provision of all raw materials and their packaging, transport to the production site and energy consumption during the manufacturing of the product, as well as processing of waste generated by the factory.

A4 – A5: includes the transport from the factory to the final customer, packaging of the final product and the installation of the product, as well as all consumables and energy required and processing of waste generated during the installation.



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B1 – B7: includes provision and transport of all materials, products and services related to the use phase of the product, as well as their related energy and water consumption, and the processing of any resulting waste.

C1 – C4: includes provision and transport of all materials, products and services related to the end of life phase of the product, including energy and water consumption, as well as the end of life processing of the product.

D: includes benefits coming from the wastes' end of life (only for Norway).

Table 4: Scope of the study

| Modules | Production Stage | | | Construction Process Stage | | Use Stage | | | | | | | End-of-Life Stage | | | | Benefits & loads beyond syst. Bound. | |
|----------------|---------------------|---------------------------|---------------|-----------------------------|------------------|-----------|-------------|--------|-------------|---------------|---|--|-------------------|-----------|------------------|----------|--|---|
| | Raw material supply | Transport to manufacturer | Manufacturing | Transport from gate to site | Assembly/Install | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use during product use | Operational water use during product use | Deconstruction | Transport | Waste processing | Disposal | Reuse, recovery or recycling potential | |
| Accounted for: | X | X | X | X | X | X* | X | X* | X | X* | X* | X* | X* | X | X* | X | X | X |

*module has been considered but has no associated inputs/outputs, therefore does not appear in the results. There is no input for D module for US market, because the product is landfilled.

2.3. Estimates and Assumptions

Estimates and assumptions are made for transport, installation and deconstruction procedure. Details are provided in section "LCA: scenarios and additional technical information".

Transport distances have been calculated from the production site (France) to the warehouse of the destination country (Norway and US).

Additional transport between the distribution center and the construction site is considered with a distance of 800 km, according to PCR, part B for US market. A distance of 424 km is considered for the Norwegian market, according to Gerflor's statements.

Transport distance from building site to the end of life treatment center is considered with a distance of 161 km, according to PCR part B.

2.4. Cut-off Criteria

The cut -off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that



unit process. The total neglected input flows per module shall be a maximum of 5% of energy usage and mass.

For this study, all input and output flows have been considered. Raw materials are included as per the product composition provided by the manufacturer and the packaging of the final product. Energy and water consumptions have also been considered at 100% according to the data provided.

2.5. Data Sources

As a general rule, specific data derived from specific production processes or average data derived from specific production processes have been used as the first choice as a basis for calculating an EPD.

To model the life cycle of the product in question, the software SimaPro 9, developed by PRé, has been used in conjunction with the LCA database ecoinvent v3.7.1.

2.6. Data Quality

The requirements for data quality and LCA data are in accordance with the specifications of the PCR.

Temporal Coverage – producer specific data is averaged over 1 year of production and from within the last 5 years (2020). Generic data is taken from the ecoinvent 3.7.1 database, the entirety of which was updated in 2020. Inputs and outputs from the system are accounted for over a period of 100 years from the year for which the data set is deemed relevant.

Technological Coverage – the technological coverage of the data reflects the physical reality of the declared product.

Geographical Coverage – whenever possible, country specific data reflecting the reality of the Gerflor supply chain has been used. If country specific data is unavailable, European regional data is used in preference to global data sources.

2.7. Period under Review

Data have been reviewed for the production year 2020.

2.8. Allocation

The overall values for the factory's material and energy consumptions during a period of one year have been divided by the annual production of each product to supply a value per square meter of flooring produced. All factory data is measured in square meters, and it is assumed that the process consumptions are governed by area of flooring processed rather than mass.

2.9. Comparability (Optional)

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.

3. Life Cycle Assessment Scenarios

For US market:

Table 5. Transport to the building site (A4)

| NAME | VALUE | UNIT |
|--|-------------------------|-------------------|
| Truck | | |
| Fuel type | Diesel, low sulfur | |
| Liters of fuel | 26 | l/100km |
| Vehicle type | 16-32 metric ton EURO 5 | |
| Transport distance | 2567 | km |
| Capacity utilization (including empty runs, mass based) | 36 | % |
| Gross density of products transported | 843 | kg/m ³ |
| Weight of products transported (if gross density not reported) | - | kg |
| Volume of products transported (if gross density not reported) | - | m ³ |
| Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products) | < 1 | - |
| Boat | | |
| Fuel type | Heavy Fuel Oil | |
| Liters of fuel | 0.047 | l/100km |
| Vehicle type | Transoceanic Ship | |
| Transport distance | 7167 | km |
| Capacity utilization (including empty runs, mass based) | 100 | % |
| Gross density of products transported | 843 | kg/m ³ |
| Weight of products transported (if gross density not reported) | - | kg |
| Volume of products transported (if gross density not reported) | - | m ³ |
| Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products) | < 1 | - |
| Rail | | |
| Energy type | Diesel | |
| Percentage diesel / electricity | 100 | % |
| Vehicle type | Freight train US | |
| Transport distance | 1357 | km |
| Capacity utilization (including empty runs, mass based) | 100 | % |
| Gross density of products transported | 843 | kg/m ³ |
| Weight of products transported (if gross density not reported) | - | kg |
| Volume of products transported (if gross density not reported) | - | m ³ |
| Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products) | < 1 | - |

For Norwegian market:

Table 6. Transport to the building site for Norwegian market (A4)

| NAME | VALUE | UNIT |
|--|-------------------------|-------------------|
| Truck | | |
| Fuel type | Diesel, low sulfur | |
| Liters of fuel | 26 | l/100km |
| Vehicle type | 16-32 metric ton EURO 5 | |
| Transport distance | 1626 | km |
| Capacity utilization (including empty runs, mass based) | 36 | % |
| Gross density of products transported | 843 | kg/m ³ |
| Weight of products transported (if gross density not reported) | - | kg |
| Volume of products transported (if gross density not reported) | - | m ³ |
| Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products) | < 1 | - |
| Boat | | |
| Fuel type | Heavy Fuel Oil | |
| Liters of fuel | 0.047 | l/100km |
| Vehicle type | Transoceanic Ship | |
| Transport distance | 1007 | km |
| Capacity utilization (including empty runs, mass based) | 100 | % |
| Gross density of products transported | 843 | kg/m ³ |
| Weight of products transported (if gross density not reported) | - | kg |
| Volume of products transported (if gross density not reported) | - | m ³ |
| Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products) | < 1 | - |

Table 7. Installation into the building (A5)

| NAME | VALUE | UNIT |
|--|----------|----------------|
| Ancillary materials | 0.25 | kg |
| Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer) | - | m ³ |
| Other resources | - | kg |
| Electricity consumption | - | kWh |
| Other energy carriers | - | MJ |
| Product loss per functional unit | 2.82E-01 | kg |
| Waste materials at the construction site before waste processing, generated by product installation | 9.32E-02 | kg |
| Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal) | - | kg |

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| Biogenic carbon contained in packaging | 1.16E-01 | kg CO ₂ |
| Direct emissions to ambient air, soil and water | - | kg |
| VOC emissions | - | kg/m ² |

Table 8. Reference Service Life

| NAME | VALUE | UNIT |
|--|--|-------|
| RSL | 25 | years |
| Declared product properties (at the gate) and finishes, etc. | Declared product properties are described in Declaration of Performance (DOP), in accordance with EN 14041 | - |
| Design application parameters (if instructed by the manufacturer), including references to the appropriate practices and application codes) | Products in accordance with EN 14041 and technical prescription of the manufacturer | - |
| An assumed quality of work, when installed in accordance with the manufacturer's instructions | Assumed to be installed according to the manufacturer's instructions | - |
| Outdoor environment, (if relevant for outdoor applications), e.g. weathering, pollutants, UV and wind exposure, building orientation, shading, temperature | Assumed to be installed according to the manufacturer's instructions | - |
| Indoor environment, (if relevant for indoor applications), e.g. temperature, moisture, chemical exposure) | Use conditions in accordance with manufacturer prescriptions: see technical datasheet | - |
| Use conditions, e.g. frequency of use, mechanical exposure. | Maintenance scenario is defined in the table above | - |
| Maintenance, e.g. required frequency, type and quality of replacement components | Declared product properties are described in Declaration of Performance (DOP), in accordance with EN 14041 | - |

Table 9. Maintenance (B2)

| NAME | VALUE | UNIT |
|---|---|-------------|
| Maintenance process information (cite source in report) | Dry vacuum cleaning: 2.5/week Wet cleaning: 1.5/week | - |
| Maintenance cycle | 5.20E+03 | Number/ RSL |
| Maintenance cycle | 1.56E+04 | Number/ ESL |
| Net freshwater consumption specified by water source and fate (amount evaporated, amount disposed to sewer) | 3.90E+00 | L/year |
| Ancillary materials specified by type (e.g. cleaning agent) | 3.90E-02 | kg/year |
| Other resources | - | kg |
| Energy input, specified by activity, type and amount | 3.25E-01 | kWh/year |
| Other energy carriers specified by type | - | kWh |
| Power output of equipment | - | kW |
| Waste materials from maintenance (specify materials) | - | kg |



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| | | |
|--|---|----|
| Direct emissions to ambient air, soil and water | - | kg |
| Further assumptions for scenario development (e.g. frequency and time period of use, number of occupants); | - | |

Table 10. Repair (B3)

No data for given table

Table 11. Replacement (B4)

| NAME | VALUE | UNIT |
|--|-------|----------------|
| Reference Service Life | 25 | Years |
| Replacement cycle | 2 | (ESL-RSL)-1 |
| Energy input, specified by activity, type and amount | - | kWh |
| Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer) | - | m ³ |
| Ancillary materials specified by type and amount (e.g. cleaning agent) | - | kg |
| Replacement of worn parts, specify parts/materials | - | kg |
| Direct emissions to ambient air, soil and water | - | kg |
| Further assumptions for scenario development, e.g. frequency and time period of use_ | - | As appropriate |

Table 12. Refurbishment (B5)

No data for given table

Table 13. Operational energy use (B6) and Operational water use (B7)

No data for given table

Table 14. End of life for US market (C1-C4)

| NAME | | VALUE | UNIT |
|--|---|--|------|
| Assumptions for scenario development (description of deconstruction, collection, recovery, disposal method and transportation) | | Product are carried out by hand and sent to landfill. Waste transport is made by truck (16-32 metric ton Euro5). A 161km distance to the landfill treatment center has been considered | |
| Collection process (specified by type) | Collected separately | 3.07E+00 | kg |
| | Collected with mixed construction waste | - | kg |
| Recovery for US market (specified by type) | Reuse | - | kg |
| | Recycling | - | kg |
| | Landfill | 3.07E+00 | kg |
| | Incineration | | kg |



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|---|--|---|--------------------|
| | Incineration with energy recovery | - | kg |
| | Energy conversion efficiency rate | - | |
| Disposal (specified by type) | Product or material for final deposition | - | kg |
| Removals of biogenic carbon (excluding packaging) | | - | kg CO ₂ |

Table 15. End of life for Norwegian market (C1-C4)

| NAME | | VALUE | UNIT |
|--|--|---|--------------------|
| Assumptions for scenario development (description of deconstruction, collection, recovery, disposal method and transportation) | | Product are carried out by hand and sent to landfill. Waste transport is made by truck (16-32 metric ton Euro5). A 161km distance to the treatment center has been considered | |
| Collection process (specified by type) | Collected separately | 3.07E+00 | kg |
| | Collected with mixed construction waste | - | kg |
| Recovery for Norwegian market (specified by type) | Reuse | - | kg |
| | Recycling | - | kg |
| | Landfill | 2.46E-01 | kg |
| | Incineration | 2.82E+00 | kg |
| | Incineration with energy recovery | - | kg |
| | Energy conversion efficiency rate | - | |
| Disposal (specified by type) | Product or material for final deposition | - | kg |
| Removals of biogenic carbon (excluding packaging) | | - | kg CO ₂ |



ENVIRONMENTAL PRODUCT DECLARATION



Taralay Impression/Initial Comfort
Heterogeneous vinyl flooring



According to ISO 14025,
EN 15804 and ISO 21930:2017

4. Life Cycle Assessment Results

4.1. Life Cycle Impact Assessment Results

Table 16. North American Impact Assessment Results

| TRACI v2.1 | A1 | A2 | A3 | A4 | A5 | B2 | B4 | C2 | C4 |
|---------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| GWP 100 [kg CO ₂ eq] | 5.92E+00 | 3.89E-01 | 5.11E-01 | 1.69E+00 | 1.83E+00 | 2.02E+01 | 2.13E+01 | 8.47E-02 | 2.03E-01 |
| ODP [kg CFC-11 eq] | 3.57E-06 | 9.41E-08 | 5.46E-08 | 3.80E-07 | 4.90E-07 | 1.51E-06 | 9.24E-06 | 1.96E-08 | 1.06E-08 |
| AP [kg SO ₂ eq] | 2.26E-02 | 1.37E-03 | 7.79E-04 | 1.22E-02 | 8.53E-03 | 8.67E-02 | 9.29E-02 | 3.06E-04 | 6.82E-04 |
| EP [kg N eq] | 5.94E-03 | 1.95E-04 | 4.71E-04 | 1.08E-03 | 1.31E-03 | 5.55E-02 | 1.84E-02 | 4.26E-05 | 1.35E-04 |
| SFP [kg O ₃ eq] | 2.75E-01 | 3.02E-02 | 1.18E-02 | 2.64E-01 | 1.13E-01 | 8.38E-01 | 1.41E+00 | 6.57E-03 | 6.00E-03 |
| ADP _{fossil} [MJ. LHV] | 1.63E+01 | 8.52E-01 | 8.80E-01 | 3.45E+00 | 3.38E+00 | 2.66E+01 | 5.02E+01 | 1.78E-01 | 1.06E-01 |

GWP: Global Warming Potential / ODP: Ozone Depletion Potential / AP: Acidification Potential / EP: Eutrophication Potential / SFP: Smog Formation Potential / ADP: Abiotic Depletion Potential

Table 17. EU Impact Assessment Results – US

| CML v4.2 | A1 | A2 | A3 | A4 | A5 | B2 | B4 | C2 | C4 | D |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| GWP 100 [kg CO ₂ eq] | 5.91E+00 | 3.89E-01 | 4.30E-01 | 1.69E+00 | 1.79E+00 | 7.00E+00 | 3.06E+01 | 8.47E-02 | 2.03E-01 | 0.00E+00 |
| ODP [kg CFC-11 eq] | 3.00E-06 | 7.07E-08 | 4.47E-08 | 2.85E-07 | 4.03E-07 | 6.92E-07 | 7.65E-06 | 1.47E-08 | 7.92E-09 | 0.00E+00 |
| AP [kg SO ₂ eq] | 2.21E-02 | 1.22E-03 | 7.27E-04 | 1.09E-02 | 8.28E-03 | 4.46E-02 | 7.64E-02 | 2.71E-04 | 2.15E-04 | 0.00E+00 |
| EP [kg PO ₄ ⁻³ eq] | 3.88E-03 | 2.02E-04 | 2.62E-04 | 1.58E-03 | 1.06E-03 | 2.38E-02 | 1.27E-02 | 4.41E-05 | 8.06E-05 | 0.00E+00 |
| POCP [kg ethene eq] | 4.99E-03 | 1.99E-04 | 1.62E-04 | 1.23E-03 | 1.29E-03 | 7.13E-03 | 1.49E-02 | 4.29E-05 | 6.43E-05 | 0.00E+00 |
| ADP _{element} [kg Sb-eq] | 1.13E-04 | 1.61E-06 | 2.37E-06 | 6.46E-06 | 2.52E-05 | 2.21E-04 | 3.02E-04 | 3.41E-07 | 1.30E-07 | 0.00E+00 |
| ADP _{fossil} [MJ. LHV] | 1.18E+02 | 5.82E+00 | 5.68E+00 | 2.42E+01 | 2.69E+01 | 1.20E+02 | 3.52E+02 | 1.25E+00 | 7.49E-01 | 0.00E+00 |

GWP: Global Warming Potential / ODP: Ozone Depletion Potential / AP: Acidification Potential / EP: Eutrophication Potential / POCP: Photochemical Ozone / ADP: Abiotic Depletion Potential



ENVIRONMENTAL PRODUCT DECLARATION



Taralay Impression/Initial Comfort
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According to ISO 14025,
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Table 18. EU Impact Assessment Results – Norway

| CML v4.2 | A1 | A2 | A3 | A4 | A5 | B2 | B4 | C2 | C4 | D |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| GWP 100 [kg CO ₂ eq] | 5.91E+00 | 3.89E-01 | 4.30E-01 | 8.06E-01 | 1.63E+00 | 7.00E+00 | 3.04E+01 | 8.13E-02 | 6.06E+00 | -1.25E+00 |
| ODP [kg CFC-11 eq] | 3.00E-06 | 7.07E-08 | 4.47E-08 | 1.46E-07 | 3.75E-07 | 6.92E-07 | 7.67E-06 | 1.48E-08 | 1.73E-07 | -1.80E-07 |
| AP [kg SO ₂ eq] | 2.21E-02 | 1.22E-03 | 7.27E-04 | 3.16E-03 | 7.26E-03 | 4.46E-02 | 8.21E-02 | 2.54E-04 | 3.46E-03 | -5.33E-03 |
| EP [kg PO ₄ ⁻³ eq] | 3.88E-03 | 2.02E-04 | 2.62E-04 | 4.81E-04 | 9.07E-04 | 2.38E-02 | 1.26E-02 | 4.22E-05 | 5.69E-04 | -2.58E-04 |
| POCP [kg ethene eq] | 4.99E-03 | 1.99E-04 | 1.62E-04 | 4.47E-04 | 1.18E-03 | 7.13E-03 | 1.49E-02 | 4.16E-05 | 4.28E-04 | -3.78E-04 |
| ADP _{element} [kg Sb-eq] | 1.13E-04 | 1.61E-06 | 2.37E-06 | 3.27E-06 | 2.45E-05 | 2.21E-04 | 2.99E-04 | 3.37E-07 | 6.17E-06 | -2.08E-06 |
| ADP _{fossil} [MJ. LHV] | 1.18E+02 | 5.82E+00 | 5.68E+00 | 1.20E+01 | 2.46E+01 | 1.20E+02 | 3.51E+02 | 1.22E+00 | 8.72E+00 | -1.75E+01 |

4.2. Life Cycle Inventory Results

Table 19. Resource Use – US

| PARAMETER | A1 | A2 | A3 | A4 | A5 | B2 | C2 | C4 | D |
|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|---|
| RPR _E [MJ. LHV] | 1.01E+01 | 8.01E-02 | 3.40E+00 | 3.09E-01 | 2.14E+00 | 4.31E+01 | 1.43E-02 | 1.35E-02 | - |
| RPR _M [MJ. LHV] | 2.61E-01 | - | 1.26E+00 | - | 1.52E-01 | - | - | - | - |
| RPR _T [MJ. LHV] | 1.03E+01 | 8.01E-02 | 4.66E+00 | 3.09E-01 | 2.29E+00 | 4.31E+01 | 1.43E-02 | 1.35E-02 | - |
| NRPR _E [MJ. LHV] | 7.49E+01 | 5.95E+00 | 7.02E+00 | 2.45E+01 | 1.41E+01 | 8.90E+01 | 1.26E+00 | 7.67E-01 | - |
| NRPR _M [MJ. LHV] | 5.77E+01 | - | - | - | 1.40E+01 | 2.59E+01 | - | - | - |
| NRPR _T [MJ. LHV] | 1.33E+02 | 5.95E+00 | 7.02E+00 | 2.45E+01 | 2.81E+01 | 1.15E+02 | 1.26E+00 | 7.67E-01 | - |
| SM [kg] | - | - | 7.52E-02 | - | 7.52E-03 | - | - | - | - |
| RSF [MJ. LHV] | - | - | - | - | - | - | - | - | - |
| NRSF [MJ. LHV] | - | - | - | - | - | - | - | - | - |
| RE [MJ. LHV] | - | - | - | - | - | - | - | - | - |
| FW [m ³] | 1.38E-01 | 8.00E-04 | 5.95E-03 | 3.88E-03 | 3.00E-02 | 5.51E-01 | 1.92E-04 | 8.59E-04 | - |

RPR_E: Use of renewable primary energy excluding renewable primary energy resources used as raw materials / RPR_M: Use of renewable primary energy resources used as raw materials / RPR_T: Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) / NRPR_E: Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials / NRPR_M: Use of non-renewable primary energy resources used as raw materials / NRPR_T: Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) / SM: Use of secondary materials / RSF: Use of renewable secondary fuels / NRSF: Use of non-renewable secondary fuels / RE: Recovered energy / FW: Net use of fresh water



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Table 20. Resource Use – Norway

| PARAMETER | A1 | A2 | A3 | A4 | A5 | B2 | C2 | C4 | D |
|-----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| RPR _E [MJ. LHV] | 1.01E+01 | 8.01E-02 | 3.40E+00 | 1.63E-01 | 2.11E+00 | 6.94E+01 | 1.67E-02 | 7.87E-01 | -8.36E+00 |
| RPR _M [MJ. LHV] | 2.61E-01 | - | 1.26E+00 | - | 1.52E-01 | - | - | - | - |
| RPR _T [MJ. LHV] | 1.03E+01 | 8.01E-02 | 4.66E+00 | 1.63E-01 | 2.26E+00 | 6.94E+01 | 1.67E-02 | 7.87E-01 | -8.36E+00 |
| NRPR _E [MJ. LHV] | 7.49E+01 | 5.95E+00 | 7.02E+00 | 1.23E+01 | 1.17E+01 | 1.88E+01 | 1.24E+00 | 9.36E+00 | -1.79E+01 |
| NRPR _M [MJ. LHV] | 5.77E+01 | - | - | - | 1.40E+01 | 2.59E+01 | - | - | - |
| NRPR _T [MJ. LHV] | 1.33E+02 | 5.95E+00 | 7.02E+00 | 1.23E+01 | 2.57E+01 | 4.48E+01 | 1.24E+00 | 9.35E+00 | -1.79E+01 |
| SM [kg] | - | - | 7.52E-02 | - | 7.52E-03 | - | - | - | - |
| RSF [MJ. LHV] | - | - | - | - | - | - | - | - | - |
| NRSF [MJ. LHV] | - | - | - | - | - | - | - | - | - |
| RE [MJ. LHV] | - | - | - | - | - | - | - | - | - |
| FW [m ³] | 1.38E-01 | 8.00E-04 | 5.95E-03 | 1.63E-03 | 2.97E-02 | 5.21E-01 | 1.67E-04 | 2.44E-01 | -6.20E-02 |

Table 21. Output Flows and Waste Categories – US

| PARAMETER | A1 | A2 | A3 | A4 | A5 | B2 | C2 | C4 | D |
|---------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|---|
| HWD [kg] | 2.34E-01 | 4.03E-03 | 2.40E-02 | 2.68E-02 | 1.52E-01 | 3.04E-01 | 1.19E-03 | 1.00E-03 | - |
| NHWD [kg] | 2.33E+00 | 3.33E-01 | 1.89E-01 | 1.20E+00 | 1.37E+00 | 3.91E+00 | 7.20E-02 | 3.09E+00 | - |
| ILLRW [kg] or [m ³] | 2.09E-04 | 4.03E-05 | 1.99E-05 | 1.60E-04 | 7.19E-05 | 3.26E-04 | 8.24E-06 | 4.51E-06 | - |
| HLRW [kg] or [m ³] | 3.87E-05 | 4.51E-07 | 4.28E-06 | 1.41E-06 | 7.44E-06 | 8.16E-05 | 6.60E-08 | 6.93E-08 | - |
| CRU [kg] | - | - | - | - | - | - | - | - | - |
| MFR [kg] | - | - | 1.87E-02 | - | 7.18E-02 | - | - | - | - |
| MER [kg] | - | - | - | - | - | - | - | - | - |
| EE [MJ. LHV] | - | - | - | - | 2.78E-02 | - | - | - | - |

HWD: Disposed-of-hazardous waste / NHWD: Disposed-of non-hazardous waste / HLRW: High Level Radioactive Waste / ILLRW: Intermediate and Low-Level Radioactive Waste / CRU: Components for reuse / MFR: Material for recycling / MER: Materials for energy recovery / EE: Exported energy

Table 22. Output Flows and Waste Categories – Norway

| PARAMETER | A1 | A2 | A3 | A4 | A5 | B2 | C2 | C4 | D |
|---------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| HWD [kg] | 2.34E-01 | 4.03E-03 | 2.40E-02 | 8.37E-03 | 1.49E-01 | 2.04E-01 | 8.42E-04 | 1.50E+00 | -4.52E-03 |
| NHWD [kg] | 2.33E+00 | 3.33E-01 | 1.89E-01 | 6.69E-01 | 1.25E+00 | 2.04E+00 | 6.95E-02 | 4.05E-01 | -1.01E-01 |
| ILLRW [kg] or [m ³] | 2.09E-04 | 4.03E-05 | 1.99E-05 | 8.31E-05 | 5.61E-05 | 7.69E-05 | 8.41E-06 | 4.39E-05 | -7.38E-05 |
| HLRW [kg] or [m ³] | 3.87E-05 | 4.51E-07 | 4.28E-06 | 9.11E-07 | 7.30E-06 | 1.06E-05 | 9.41E-08 | 2.76E-06 | -1.29E-06 |
| CRU [kg] | - | - | - | - | - | - | - | - | - |



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| | | | | | | | | | |
|--------------|---|---|----------|---|----------|---|---|----------|---|
| MFR [kg] | - | - | 1.87E-02 | - | 7.18E-02 | - | - | - | - |
| MER [kg] | - | - | - | - | - | - | - | - | - |
| EE [MJ. LHV] | - | - | - | - | 2.78E-02 | - | - | 2.24E+01 | - |

Table 23. Carbon Emissions and Removals

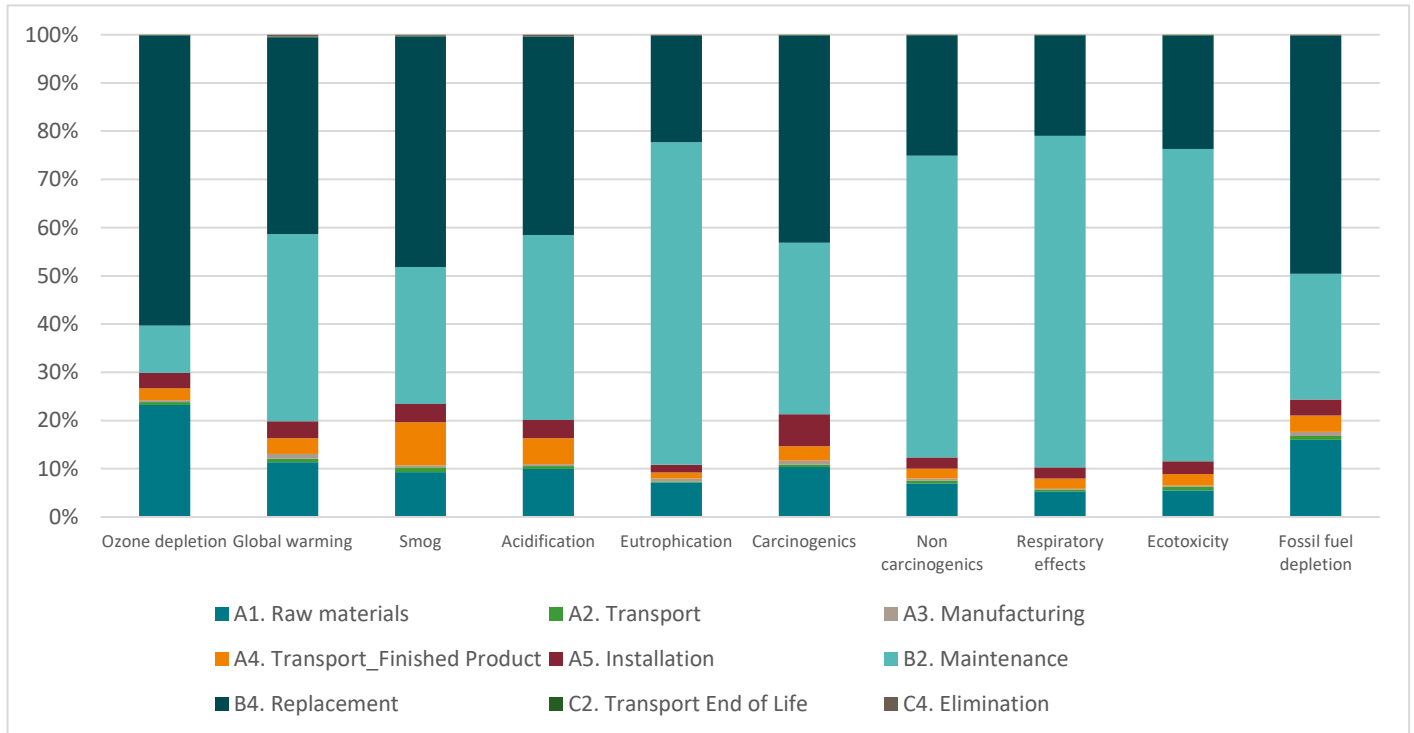
| PARAMETER | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B4 | C2 | C4 |
|---------------|----|----|----------|----|----------|----|----|----------|----|----|
| BCRP [kg CO2] | - | - | - | - | - | - | - | - | - | - |
| BCEP [kg CO2] | - | - | - | - | - | - | - | - | - | - |
| BCRK [kg CO2] | - | - | 1.16E-01 | - | - | - | - | 2.32E-01 | - | - |
| BCEK [kg CO2] | - | - | - | - | 1.16E-01 | - | - | 2.32E-01 | - | - |
| BCEW [kg CO2] | - | - | - | - | - | - | - | - | - | - |
| CCE [kg CO2] | - | - | - | - | - | - | - | - | - | - |
| CCR [kg CO2] | - | - | - | - | - | - | - | - | - | - |
| CWNR [kg CO2] | - | - | - | - | - | - | - | - | - | - |

BCRP: Biogenic Carbon Removal from Product / BCEP: Biogenic Carbon Emission from Product / BCRK: Biogenic Carbon Removal from Packaging / BCEK: Biogenic Carbon Emission from Packaging / BCEW: Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes / CCE: Calcination Carbon Emissions / CCR: Carbonation Carbon Removals / CWNR: Carbon Emissions from Combustion of Waste from Non-Renewable Sources used in Production Processes



5. LCA Interpretation

Figure 5: Graph depicting the impact indicators as calculated by the TRACI method



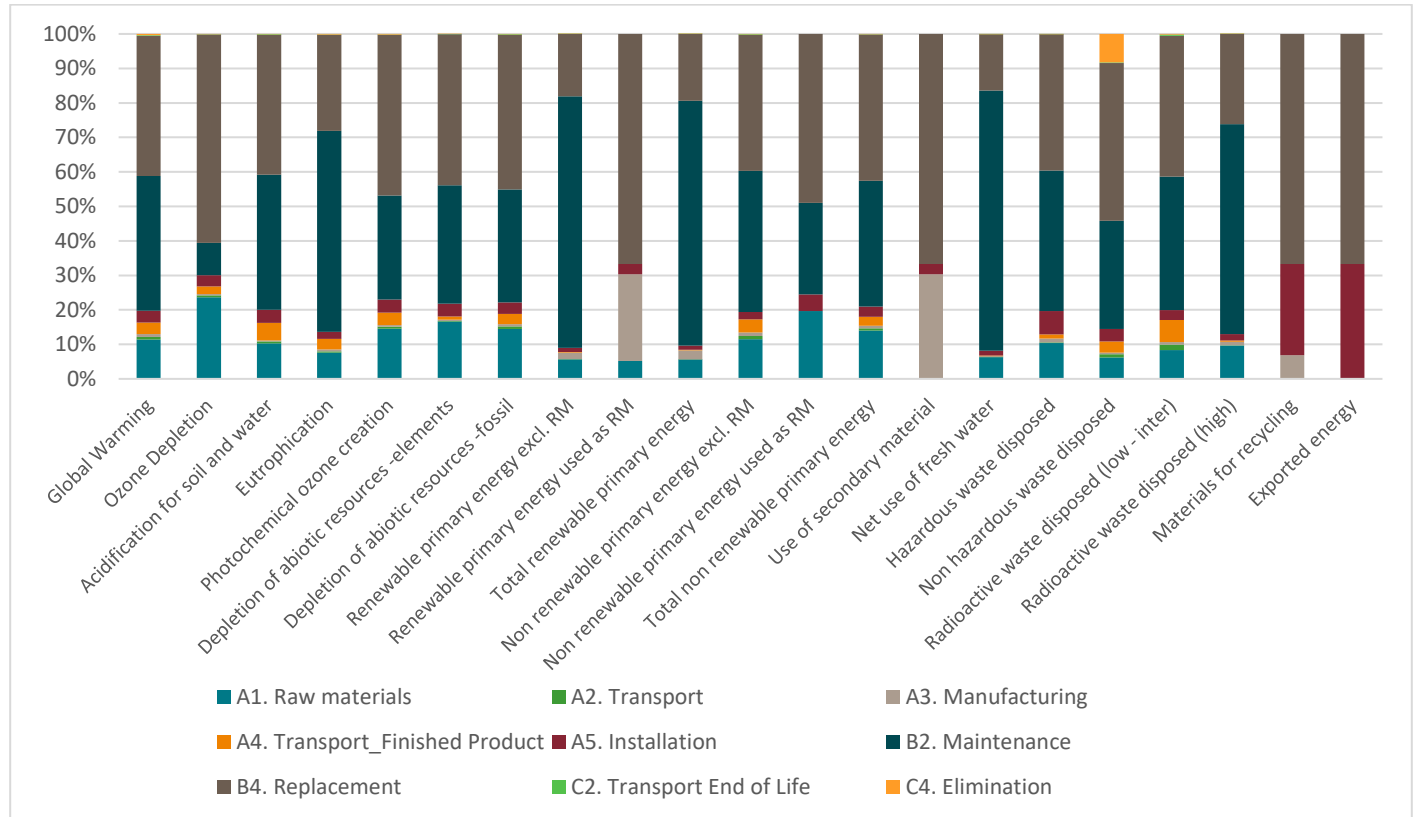
ENVIRONMENTAL PRODUCT DECLARATION



Taralay Impression/Initial Comfort
Heterogeneous vinyl flooring

According to ISO 14025,
EN 15804 and ISO 21930:2017

Figure 6: Graph depicting selection of impact indicator results calculated according to EN 15804 – US



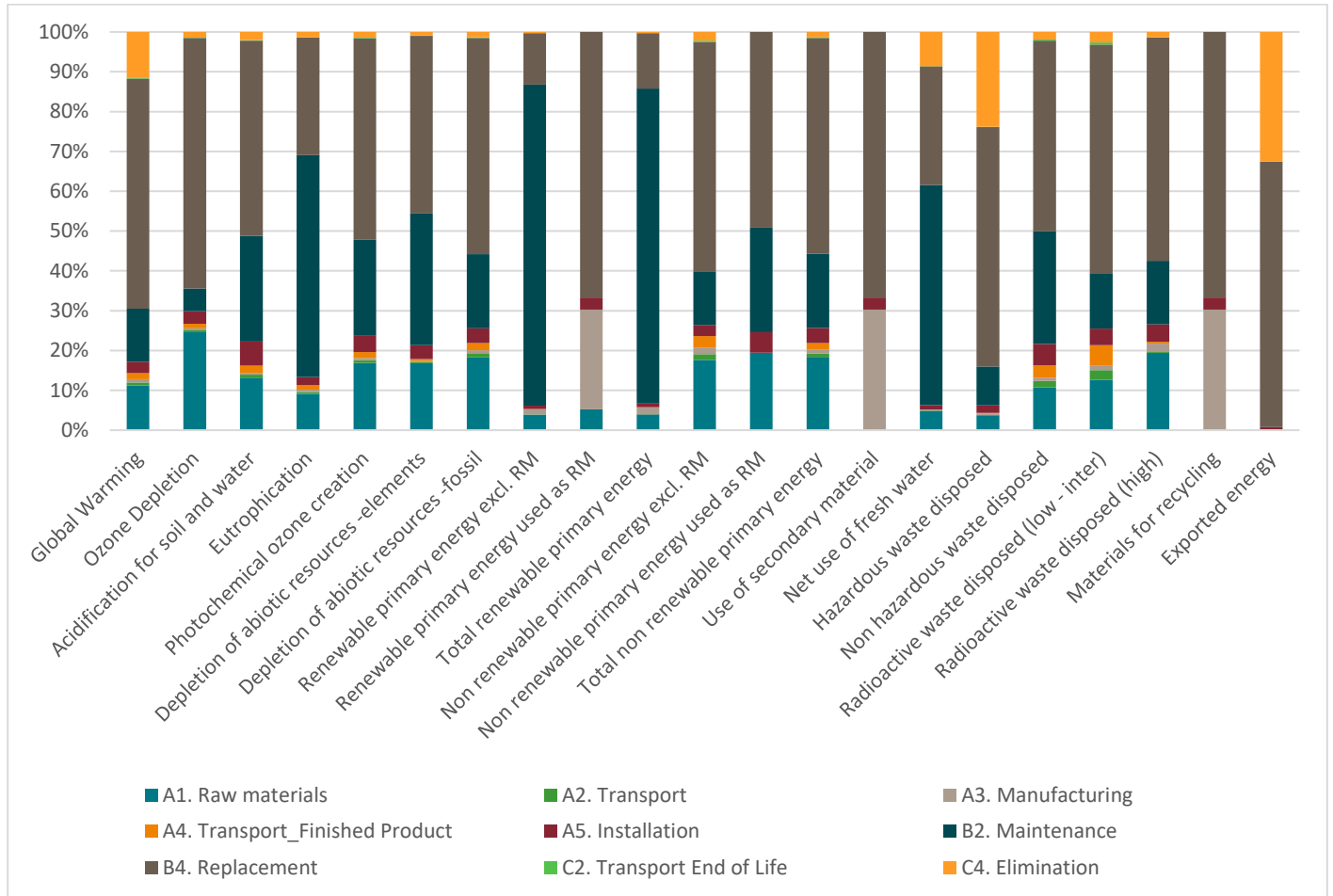
ENVIRONMENTAL PRODUCT DECLARATION



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Heterogeneous vinyl flooring

According to ISO 14025,
EN 15804 and ISO 21930:2017

Figure 7: Graph depicting selection of impact indicator results calculated according to EN 15804 – Norway



The primary contributor to the environmental impacts of the product is B4 – Replacement, which requires the production of two additional products and A1 – Extraction and transformation of the raw materials is impactful. Then comes B2 – Maintenance stage because of the scenario of both long reference service life (RSL) of 25 years and the assumption of a weekly cleaning by using a machine and detergent. Stages A3 – Manufacturing and C4 – End of life (for Norway) have the following greatest impacts.





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According to ISO 14025,
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6. Additional Environmental Information

6.1. Environment and Health During Manufacturing

Gerflor's factory conforms to the ISO 14001 Environmental Management System and the ISO 50001 Energy Management System.

Gerflor uses 100% certified renewable electricity in its plants.

6.2. Environment and Health During Installation

The manufacturer's guidelines should be adhered to during the installation of this product.

6.3. Extraordinary Effects

Fire

Fire behaviour have been tested according to EN 13501-1. Product is classified B_{fl}-S1.

There's no test available for possible environmental impacts during fire.

Class 1 when tested in accordance with ASTM E 648. Standard Test Method for Critical Radiant Flux

Flaming & Non-Flaming when tested in accordance with ASTM E 662. Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials

Water

There's no test available for possible impacts following unforeseeable influence of water.

Mechanical Destruction

Mechanical damage does not chemically alter the product.

6.4. Delayed Emissions

No delayed emissions are taken into account.



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According to ISO 14025,
EN 15804 and ISO 21930:2017

6.5. Environmental Activities and Certifications



FloorScore®

Indoor Air Quality Certified to SCS-EC10.3-2014 v4.0

Registration

SCS-FS-02145

6.6. Further Information

Additional information can be found in <https://www.gerflor.com/>

7. Supporting Documentation

All documentation necessary to confirm the data provided in this EPD has been submitted to the critical reviewer.



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According to ISO 14025,
EN 15804 and ISO 21930:2017

8. References

ISO 14025

ISO 14025:2006 : Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 21930

ISO 21930 :2017 : Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services

EN 15804

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

UL Environment

UL Environment General Program Instructions July 2018. version 2.4

UL Standard 10010. PCR Part A

PCR -Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 3.2. UL Environment. <https://industries.ul.com/environment>

UL 10010-7. PCR Part B

PCR - Part B: Flooring EPD Requirements. Second Edition. Dated September 28, 2018. UL Environment. <https://www.ul.com/>

Ecoinvent V3.7.1

ecoinvent Life Cycle Inventory database Version 3.7.1 <http://www.ecoinvent.org>



ENVIRONMENTAL PRODUCT DECLARATION



Taralay Impression/Initial Comfort
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According to ISO 14025,
EN 15804 and ISO 21930:2017

9. Contact information

| | | |
|--|--|--|
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