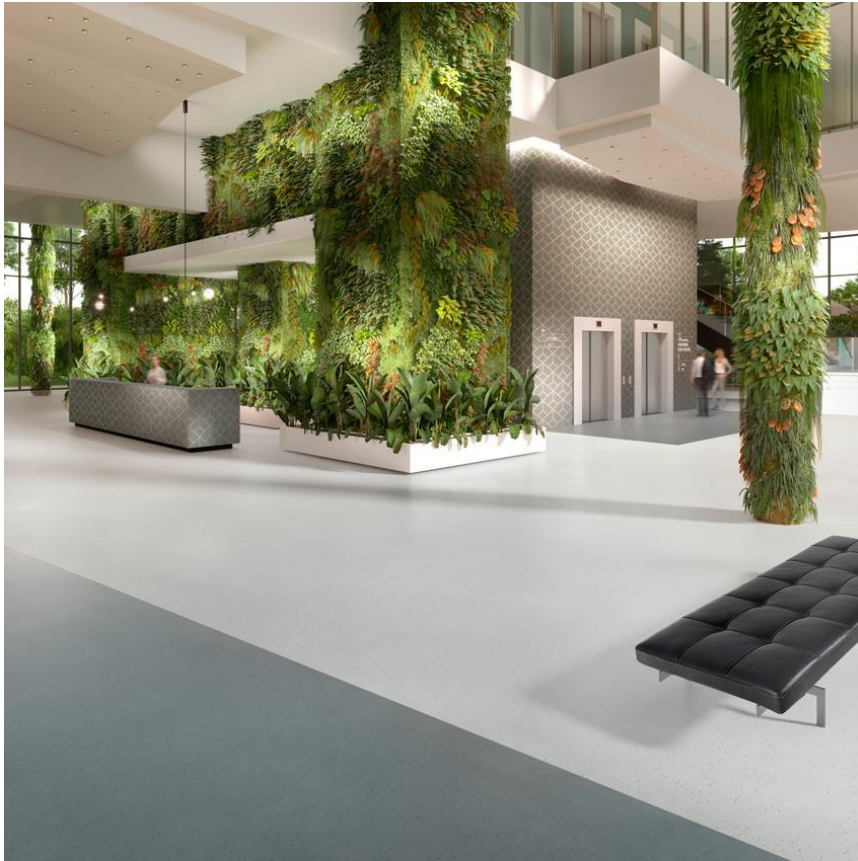


ENVIRONMENTAL PRODUCT DECLARATION

MIPOLAM HOMOGENEOUS VINYL FLOOR

GERFLOR FLOORINGS (CHINA) CO., LTD.



Gerflor®

Gerflor® is recognized as a specialist and one of the world leaders in resilient flooring solutions. For over 80 years, the Gerflor Group has been developing, manufacturing and selling innovative, decorative and eco-responsible solutions.

Gerflor Floorings (China) Co., Ltd. is located in Changshu, Jiangsu, China and focus on design and manufacture resilient floorings and wall coverings. The floorings include homogeneous floorings, compact heterogeneous floorings in rolls and tiles type, also comfort heterogeneous floorings, service for Education, Healthcare, retail, Sports, Hospitality, Industry, Offices, Marines, Public buildings and Housing. For more information, visit:

<https://www.gerflor.com>

The basic LCA and EPD are developed based on ISO14025 and scientific LCA method.



ENVIRONMENTAL PRODUCT DECLARATION



Mipolam homogeneous vinyl floor
Gerflor Floorings

According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

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	PROGRAM OPERATOR RULES V2.7 2022
MANUFACTURER NAME AND ADDRESS	Gerflor Floorings (China) Co., LTD. No.85 South Tieqin Street, Changshu New & Hi-Tech Industrial Development Zone.
DECLARATION NUMBER	4791432593.101.2
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	Gerflor Mipolam homogeneous vinyl floor, 1 m ²
REFERENCE PCR AND VERSION NUMBER	EN 15804:2012+A2:2019+AC: 2021, Sustainability of construction works – Environmental product declarations - Core rules for the product category of construction products; UL Part A: Life cycle Assessment Calculation Rules and Report Requirements, v 4.0 Part B: Flooring EPD requirements [UL Environment], v. 2.0 September 2018
DESCRIPTION OF PRODUCT APPLICATION/USE	The product is to be installed in various areas of application including commercial and industrial applications. It is classified in accordance with EN ISO 10874.
PRODUCT RSL DESCRIPTION (IF APPL.)	The product service life recommended is 25 years. According to UL PCR, the building Estimated Service life (ESL) is 75years. For this duration, two replacements are required. Environmental impacts are calculated for two different Service Life assumptions: 1 year and 75 years.
MARKETS OF APPLICABILITY	China, Global
DATE OF ISSUE	June 18, 2025
PERIOD OF VALIDITY	5 Years
EPD TYPE	Product-specific
RANGE OF DATASET VARIABILITY	N/A
EPD SCOPE	Cradle to grave
YEAR(S) OF REPORTED PRIMARY DATA	2023
LCA SOFTWARE & VERSION NUMBER	openLCA v2.3.1
LCI DATABASE(S) & VERSION NUMBER	Ecoinvent 3.11
LCIA METHODOLOGY & VERSION NUMBER	CML-IA (baseline)& TRACI 2.1

The PCR review was conducted by:

UL environment
PCR Peer Review Panel
Chair: Jack Geibig (Ecoform)

This declaration was independently verified in accordance with ISO 14025: 2006, EN 15804+A2, UL Part A.

☐ INTERNAL ☒ EXTERNAL

Skye Tang, UL Solutions

Skye Tang

This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:

CECEP Eco-Product Development Research Center

This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:

Cara Vought,
Sustainable Solutions Corporation

Cara Vought

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. Please use this average EPD that covers multiple products with caution, as it only represents one average result of the covered products.

Comparability: Comparison of the environmental performance of flooring products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR. EPDs from different programs may not be comparable. Full conformance with the PCR for flooring allows EPD comparability only when all stages of a life cycle have been considered, when they comply with all referenced standards, use the same sub-category PCR, and use equivalent scenarios with respect to construction works. 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.



Mipolam homogeneous vinyl floor
Gerflor Floorings



According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

1. Product Definition and Information

1.1. Description of Company/Organization

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Gerflor Floorings (China) Co., Ltd. is located in Changshu, Jiangsu, China and focus on design and manufacture resilient floorings and wall coverings. The floorings include homogeneous floorings, compact heterogeneous floorings in rolls and tiles type, also comfort heterogeneous floorings, service for Education, Healthcare, retail, Sports, Hospitality, Industry, Offices, Marines, Public buildings and Housing.

Gerflor Floorings (China) Co., Ltd complies with:

- ISO 9001 Quality Management System
- ISO 14001 Environment Management System
- ISO 50001 Energy Management System
- ISO 45001 Occupational Health and Safety Management Systems

1.2. Product Description

1.2.1 Homogeneous vinyl floor

The EPD covers Mipolam Collection:

Mipolam 150; Mipolam 180; Mipolam 200 PRO; Mipoalm Galaxy 600; Mipolam Troplan Plus; Mipolam Robust EL7; Mipolam Ambiance Ultra; Mipolam Galaxy 800; Mipolam Concept; Mipolam Action; Mipolam Galaxy 700; Mipolam Comet Plus; Mipolam Atlas; Mipolam Styl; Mipolam Biocontrol Pure; Streamo Steamer; Streamo Mariner; Streamo Seacrosser; Streamo Explorer.

1.2.2 Product Identification

The products are homogeneous calendared vinyl floor coverings, available in rolls, for glued installation. These products have a similar composition, thickness from 1.5mm to 3.0mm, normally is 2.0mm, they have similar surface treatment to provide easy maintenance and stain resistance (except Mipolam Robust EL7). They have a different weight (between 2.4kg/m² to 4.3kg/m²)

They are 100% REACH compliant, formaldehyde-free. The TVOC after 28days is less than 10ug/m³ according to ISO 16000-6.

Mipolam Collection homogeneous vinyl floor is Bfls1 according to EN 13501-1, and B1(B-s1, t0) according to GB 8624.

For the TVOC performance, the products are floorscore certified and SGBP certified (Mipolam 150; Mipolam 180; Mipolam Troplan Plus; Mipolam Robust EL7; Mipolam Ambiance Ultra; Mipolam Action; Mipolam Atlas; Mipolam Concept; Mipolam Styl; Streamo Steamer; Streamo Mariner; Streamo Seacrosser; Streamo Explorer) .

For the slip resistance, the products are R9 according to EN16165 Annex B.

The following figure shows MIPOLAM product constructions:



Mipolam homogeneous vinyl floor
Gerflor Floorings



According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

1. UV varnish
2. Monolayer homogeneous flooring, pressed and calendared.

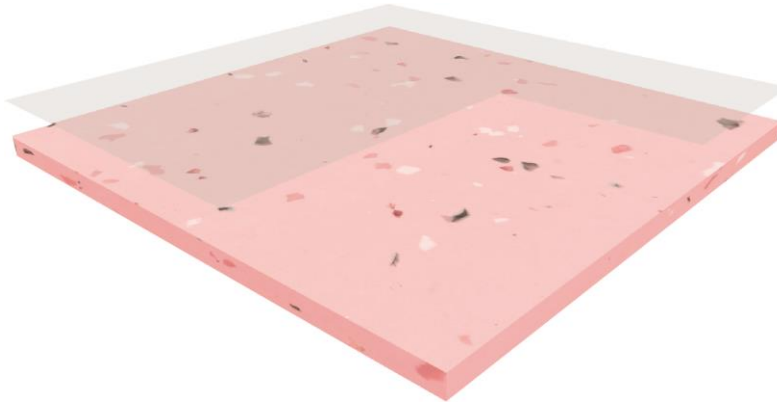


Figure 1: Diagram of Mipolam Collection



Figure 2: Diagram of Mipolam Robust EL7 without surface treatment

1.2.3 Product Specification

Mipolam Collection homogeneous vinyl floor meets or exceeds the performance requirements of ISO10581, Resilient floor coverings-Homogeneous poly (vinyl chloride) floor covering

1.2.4 Product Average

The EPD is intended to represent a Gerflor Floorings (China) Co., LTD. average for Mipolam Collection homogeneous vinyl floor produced in the same plant. The average is weighted based on the mass of product manufactured at Gerflor Floorings (China) Co., LTD.' s facility throughout 2023. Key technical properties are shown in Table 1, material composition is shown in Table 2.



Mipolam homogeneous vinyl floor
Gerflor Floorings

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1.3. Application

Mipolam Collection homogeneous vinyl floor is widely used commercial resilient flooring option and routinely used with great success in healthcare and education segments. Properly installed and maintained, Mipolam Collection homogeneous vinyl floor provide decades performance across Domestic, Commercial, and Light Industrial segments.

1.4. Declaration of Methodological Framework

The EPD analysis uses a cradle-to-grave system boundary. As such, all relevant life cycle stages and modules are included. To calculate product use and replacement over a 75-year estimated service life of the building, a 25-year reference service life is assumed for Mipolam Collection homogeneous vinyl floor which results in a total of 3 m² of flooring needed over the building's lifetime. Additional details on cut-off and allocation procedures are found in sections 2.5 and 2.9, respectively. No known flows are deliberately excluded from this EPD.

1.5. Technical Requirements

Table 1. Mipolam Collection homogeneous vinyl floor technical data

HOMOGENEOUS VINYL FLOORING		AVERAGE VALUE	UNIT	MINIMUM VALUE	MAXIMUM VALUE
Product thickness		2.0(0.079")	mm	1.5mm	3.0mm
Product weight		3.0	kg/m ²	2.4	4.3
Product form	Length	20	lm	15	30
	Width	200	cm	200	200

*To determine the average product weight, the mass of product was used proportionately to determine the average value in the above chart.

1.6. Application Rules

The products considered in this EPD complies with the following codes or regulations :

- Floorscore (Mipolam 150; Mipolam 180; Mipolam Troplan Plus; Mipolam Robust EL7; Mipolam Ambiance Ultra; Mipolam Action; Mipolam Atlas; Mipolam Concept; Mipolam Styl; Streamo Steamer; Streamo Mariner; Streamo Seacrosser; Streamo Explorer)
- Singapore Green Building Product Certification (Mipolam 150; Mipolam 180; Mipolam Troplan Plus; Mipolam Robust EL7; Mipolam Ambiance Ultra; Mipolam Action; Mipolam Atlas; Mipolam Concept; Mipolam Styl; Streamo Steamer; Streamo Mariner; Streamo Seacrosser; Streamo Explorer)
- CE EN14041 certified (Mipolam 150; Mipolam 180; Mipolam Troplan Plus; Mipolam Robust EL7; Mipolam Ambiance Ultra; Mipolam Action; Mipolam Atlas; Mipolam Concept; Mipolam Styl; Mipolam Biocontrol Pure)
- MED, MER and CCS certified (Streamo Steamer; Streamo Mariner; Streamo Seacrosser; Streamo Explorer)
- Korea Eco-label certified (Mipolam 150, Mipolam 180, Mipolam Atlas, Mipolam Concept, Mipolam Ambiance Ultra)
- Australia Global GreenTag GreenRate Level A certified and Vinyl Council of Australia Best Environmental Practice PVC certified (Mipolam Ambiance Ultra, Mipolam Concept, Mipolam Atlas)



Mipolam homogeneous vinyl floor
Gerflor Floorings

According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

Specification Fire Testing:

- Bfls1 according to EN 13501-1, and B1(B-s1, t0) according to GB 8624.
- Streamo Products also can pass the IMO part 2 and Part 5 test.
- Slip resistance: R9 according to EN 16165 (Annex B)

1.7. Classification

The Mipolam Collection homogeneous vinyl floor products are classified in accordance with EN ISO 10874: Resilient, textile and laminate floor covering to be installed in various areas of application including industry and health, while the Streamo products are intended for the marine industry.

The product is classified according to the United Nations Standard Products and Service Code (UNSPSC) as Vinyl Flooring: UNSPSC Code 30161707. And according to Construction Specification Institute (CSI) as Resilient flooring: CSI Code 09 65 00.

1.8. Material Composition

Table 2. Material composition of declared products

COMPONENT	PERCENTAGE RANGE
Fillers	37-43%
Resin	31-37%
Plasticizer	13-15%
Pre-consumer Recycled	≤25%
Pigment	<1%
Stabilizer	<1%
Others	<1%
Packaging	<5%

Note: Pre-consumer Recycled content is produced in the production line and directly recycled in the production line, and the power consumption of cutting and crushing disposal during recycling has been considered in this study.

1.9. Manufacturing

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

Mixing: binder, filler, additive, stabilizer, and pigments are mixed to obtain mixture .

Calendaring and/or pressing: Calendaring: the mixture is calendared to get the desired shape; Pressing: the components are sprinkled on the substrate and pressed at high temperature.

Finishing: application of the surface layer.

Shaping: rolls are cut at the desired dimensions.



Mipolam homogeneous vinyl floor
Gerflor Floorings

According to ISO 14025,
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Packaging.

The following figure shows the production process diagram:

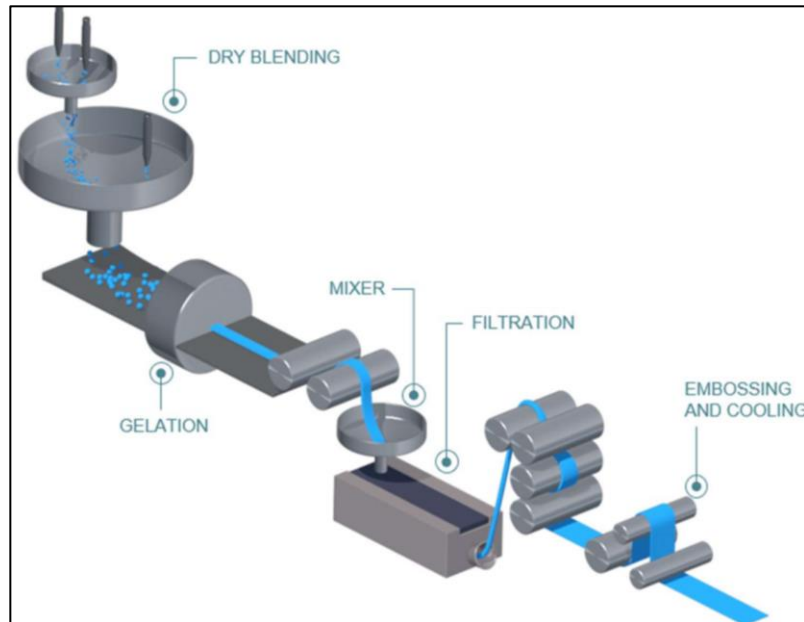


Figure 3: Diagram of calendaring process

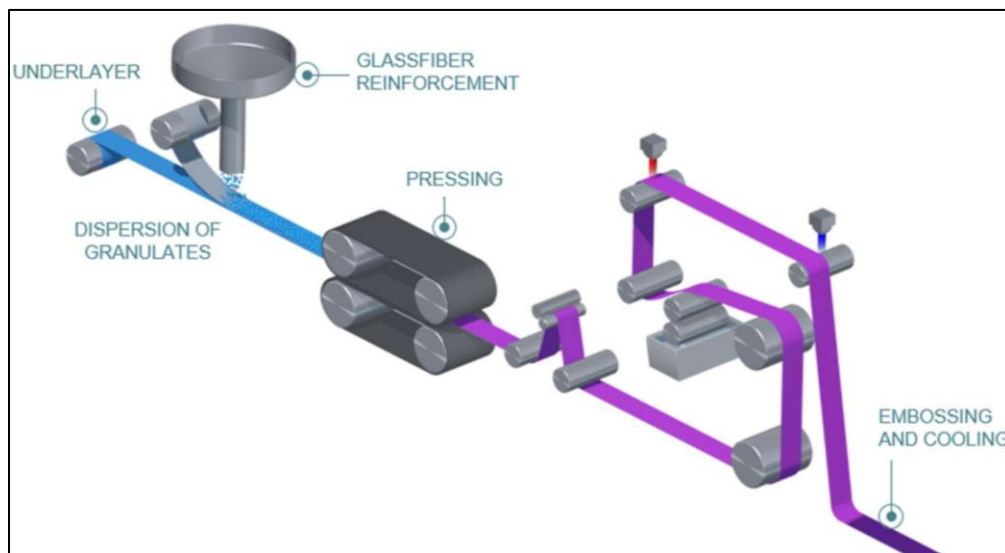


Figure 4: Diagram of pressing process

No substances required to be reported as hazardous are associated with the production of this product.



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1.10. Packaging

Kraft paper, paper core, wrapping film, and wood pallets are used to package flooring. Weight of product packaging is allocated to individual products according to the number of packaged items. Package composition can be found in the Table 3.

Table 3. Packaging material composition

COMPONENT	MATERIAL	PERCENTAGE OF PACKING(AVERAGE)
Paper core	Paper	80.5%
Kraft paper	Kraft paper	12.1%
Wooden pallet	Wood	5.6%
Wrapping film	Polyethylene	1.8%

1.11. Transportation

According to Gerflor, these products are sold globally. In this study, it is assumed that all of Mipolam Collection homogeneous vinyl floor products are shipped to China. Road transportation distance for product delivery is estimated with reference to external resources, Table 7 demonstrates the data used for stage A4 in the LCA modelling.

1.12. Product Installation

Mipolam Collection homogeneous vinyl floor must be installed in strict accordance with the Homogeneous permeable core coil flooring and multilayer laminated coil flooring dense or homogeneous permeable series installation instructions. The product is installed by hand, using acrylic glue. During the installation, approximately 10% of the material is lost as off-cuts this waste is mainly sent to landfill. Gerflor recommends using Gerflor Second life program to recycle the off-cuts, where infrastructure exists. This program is available in several countries. Since the product is assumed to be installed in China, off-cuts is modeled as being disposed of in landfill.

1.13. Use Conditions

Recommended maintenance practices are provided in the installation guide and are required as part of the warranty. Warranty details can be found at <https://www.gerflor.com>.

The service life of Homogeneous vinyl floor will vary depending on the amount of floor traffic and the type and frequency of maintenance. The level of maintenance is also dependent on the actual use and desired appearance of the floor. The recommended cleaning regime is highly dependent on the use of the premises where the floor covering is installed. In high traffic areas, more frequent cleaning will be needed compared to areas where there is low traffic. For the purposes of this EPD, average maintenance is presented based on typical installations. This EPD accounts for two cleaning processes within the use phase: wet cleaning, vacuuming, as detailed in Table 5 and Table 6 and summarized in Table 12.

1.14. Reference Service Life and Estimated Building Service Life

The reference service life (RSL) for Mipolam Collection homogeneous vinyl floor is 25 years, meaning that the product will meet its functional requirements for an average of 25 years before replacement. Estimated building service life is 75



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years, as specified by the PCR.

1.15. Disposal

At the end of life, three end-of-life scenarios are therefore proposed in this EPD to address the different cases: recycling, landfill, or incineration as shown in Table 17. Waste classification is based on the Resource Conservation and Recovery Act. Disposal in municipal landfill, commercial incineration facilities, or recycling center is permissible and should be done in accordance with local regulations. The glue used during the installation of the flooring, assuming it can be manually separated and disposed of as domestic waste.

1.16. Further Information

Please visit <https://www.gerflor.com> for additional information regarding product.

1.17. Recycled material

Gerflor recommends using Gerflor Second Life program or any other program to recycle the product, where infrastructure exists. This program is available in several countries. It is a simple and free collection system for installation waste and end of life products. The waste is first sent to a dedicated recycling center. After recycling, it is reintroduced in new Gerflor products in substitution of virgin materials. When recycling is not an option, landfill and incineration are the other options.

2. Life Cycle Assessment Background Information

A full life cycle assessment has been carried out according to ISO 14040 (ISO, 2009) and 14044 (ISO, 2006) and in compliance with EN 15804.

2.1. Functional or Declared Unit

The declaration refers to the functional unit of 1m² installed floor covering with an average weight of 3.0 kg/m². Mipolam Collection homogeneous vinyl floors are assumed to have a reference service life of 25 years and installation losses of 10%. Therefore, over the 75-year building estimated service life, 2 replacements take place and an additional 0.3 m² of product is needed to compensate for installation losses.

Table 4. Functional unit information

NAME	VALUE
Functional unit	1 m ²
Mass	3.0 kg/m ²
Reference flow	3.3 m ² @9.9 kg



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2.2. System Boundary

The system boundary of the EPD is "cradle to grave". As such, the analysis includes the following modules:

–Modules **A1 to A3** (Product stage): 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.

–Modules **A4 and A5** (Construction stage): 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.

–Modules **B1 to B5, B6, and B7** (Use stage): 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.

–Modules **C1 to C4** (End-of-life stage): 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.

–Module **D** (Benefits and loads beyond the system boundary): includes benefits coming from the wastes' end of life.

Each module includes provision of all relevant materials, products and energy. Potential impacts and aspects related to wastage (i.e. production, transport and waste processing and end-of-life stage of lost waste product and materials) are considered in the module in which the wastage occurs.

The use stage modules B1, B3, B5, B6, and B7 are declared as having zero impact as there are no direct emissions from resilient flooring once it is installed nor is any repair or refurbishment requirements expected. The other use stage modules account for cleaning the floor (i.e., maintenance, which consists of vacuuming and wet cleaning), and replacing the floor to match building service life.

Module D is considered in the analysis. It represents the benefits/ loads beyond the system boundary, in particular, credits from packaging materials incineration calorific value which is used for electricity generation. For the installation waste generated by the product during the A5 installation phase, the simplified disposal is incineration and the heat of incineration is reflected in module D. Heat recovery and downstream substitution from the 3 disposal methods for the product waste disposal phase are detailed in the LCA report.

Per the PCR, capital goods and infrastructure flows are assumed to not significantly affect LCA results or conclusions and thus excluded from the analysis.

Scope of study: modules with no "X" in the table below have been considered but have no associated inputs/outputs, therefore do not appear in the results:



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According to ISO 14025,
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	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	Raw material supply	Transport to manufacturer	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
Modules	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Accounted for	X	X	X	X	X	X*	X	X*	X	X*	X*	X*	X	X	X*	X	X

Figure 5: Description of the system boundary modules

*module has been considered but has no associated inputs/outputs, therefore does not appear in the results.

2.3. Product-specific Calculations for Use Phase

Very little effort is required in order to use Mipolam Collection homogeneous vinyl floor products, hence in the usage stage the focus is put on maintaining the floor in terms of protecting its integrity and functionality. Table 5 and Table 6 detail cleaning process assumptions and cleaning process inputs as calculated based on the assumptions.

Table 5. Cleaning process assumption

LEVEL OF USE	CLEAN PROCESS	CLEANING FREQUENCY	CONSUMPTION OF ENERGY AND RESOURCES
Commercial / residential / industrial	Dry vacuum cleaning	Twice a week	Electricity
	Wet cleaning by hand	Weekly	Water

Table 6. Cleaning inputs

CONSUMPTION	AMOUNT	UNITS
Electricity	0.26	kWh / m ² / yr.
Water	2.6	L / m ² / yr.

2.4. Estimates and Assumptions

Per the PCR (UL, 2018), usable output flows shall not be considered as co-products but shall be considered waste and no allocation to secondary material, secondary fuels or recovered energy shall be permitted. For Mipolam Collection homogeneous vinyl floor useful waste is generated which is sold to specific dealers without any reprocessing, but in this study this part of useful waste is ignored as per polluter pays principle and not allocated.



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The raw material Stabilizer (calcium stearate, zinc stearate) was used in the production of Mipolam Collection homogeneous vinyl floor in an amount of approximately 0.5% which was not in the background database, so they were substituted with stearic acid from Ecoinvent database.

The raw material UV coating (polyurethane acrylic resin) was used in the production of Mipolam Collection homogeneous vinyl floor in an amount of approximately 0.5% which was not in the background database, so they were substituted with acrylic filler from Ecoinvent database.

Per the Statistical Yearbook of China 2024, a distance of 445 km by diesel-powered truck is used to represent the distribution of product to the installation site within the China. Product transport from building site to waste processing is assumed to be 183 km by diesel-powered truck (Table 7).

Referring to Statistical Yearbook of China 2024 about 83% of domestic waste is incinerated, in this study the disposal assumptions of packaging and product installation waste is simplified to 100% incineration, the burden of incineration for disposal is showed in module A5, and the heat from incineration is assumed to be substituted to electricity in module D.

For the final disposal of the product, the associated burdens and benefits are consistent with the incineration of packaging materials under the 100% incineration scenario; under the 100% recycle scenario, assuming that the product has reached the system boundary when it reaches the waste disposal site, the burden of subsequent reuse and the benefits generated by the replacement downstream are reflected in module D, and assuming that the recovered product replaces the use of PVC in the downstream process, the quality correction factor is conservatively set at 0.3.

Table 7. Transport, installation and construction procedures (China)

PRODUCT TRANSPORT FROM MANUFACTURE PLANT TO BUILDING SITE	PRODUCT TRANSPORT FROM BUILDING SITE TO WASTE PROCESSING	INSTALLATION & DECONSTRUCTION PROCEDURES
Mode: Diesel-powered truck/trailer Distance: 445 km	Mode: Diesel-powered truck/trailer Distance: 183 km	Manual (no operational energy use)

2.5. Cut-off Criteria

Cut-off rules are consistent with PCR (UL, 2018). In this study, the neglected flow is demonstrated in the table below.

Table 8. Cut off flows

FLOW NAME	PROCESS STAGE	MASS%	REASON TO CUT OFF
Transportation of waste from the production phase	A3	N/A	Transportation distances of around 100km and very small quantities of waste
Antistatic agent	A1	<1%	Very small percentage by weight
Total cut off mass % estimated		<1%	<1%

2.6. Data Sources

Primary data were collected as far as possible for the manufacturing stage, including the number of raw materials, material information, transportation distance, etc. The key parameters for producer-specific foreground data were based on annualized production for 2023 of averaged data from Gerflor Floorings (China) Co., LTD. The relevant background datasets were taken from the Ecoinvent 3.11, taking into consideration the degree to which it was technologically, temporally and geographically representative.



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Gerflor Floorings



According to ISO 14025,
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2.7. Data Quality

A variety of tests and checks were performed throughout the project to ensure high quality of the completed LCA. Checks included an extensive review of project-specific LCA models as well as the background data used.

Temporal Coverage

Foreground data represent a continuous 12-month period over the 2023. Background datasets are all based on data from the latest years, with the majority of datasets based on data from 2023, which were obtained from the Ecoinvent 3.10 and 3.11.

Geographical Coverage

To satisfy cut-of criteria, proxy datasets were used as needed for raw material inputs to address lack of data for a specific material or for a specific geographical region. These proxy datasets were chosen for their representativeness of the actual product. Additionally, global data or rest of world data were used when China data (for raw materials sourced in the China) were not available.

Technological Coverage

The primary data represent production of the product under evaluation. Secondary data were chosen to be specific to the technologies in question (or appropriate proxy data used where necessary).

2.8. Period under Review

Data have been reviewed for the production year 2023

2.9. Allocation

In this LCA study allocation is based on physical properties and is based on weight. For example, a variety of products flooring products are produced in one factory. The consumption of the target products is obtained by dividing the total annual production weight of each product by the total weight of all the products produced in the factory, obtaining the weight ratio of target product, and then multiplying by the total data.

In basis of the UL PCR, the Polluter Pays Principle (PPP) should be followed when it comes to secondary material input so that cut-off allocation was used to treat pre-consumer recycled inputs, that is no burdens were allocated across the system boundary with secondary material, the power consumption of subsequent cutting process has been considered in the product system.

Allocation for product and packing at end-of-life: under the Polluter Pays Principle (PPP), the product system carries the burden of disposal, the relevant benefit and the burden that may require corresponding subsequent post-treatment disposal processes are reflected in Module D.

2.10. Comparability

No comparisons or bench marking are included in this EPD. LCA results across EPDs can be calculated with different background databases, modeling assumptions, geographic scope and time periods, all of which are valid and acceptable according to the Product Category Rules (PCR) and ISO standards. The user of the EPD should take care when comparing EPDs from different companies. Assumptions, data sources, and assessment tools may all impact the uncertainty of the final results and make comparisons misleading.



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3. Life Cycle Assessment Scenarios

Scenario assumptions are provided in Table 9 through Table 19. Items that are excluded from these tables (c.f., PCR Part B: Flooring EPD requirements (UL, 2018)) are assumed to be zero. For example, electricity consumption is not listed in Table 10 because electricity is not need to install flooring. Furthermore, modules B1, B3, B5, B6, and B7 are not associated with any activity. The tables for these modules are thus limited to a couple rows each to indicate that the modules are included within the system boundary but that there are no inputs or outputs associated with them. Conversion efficiency assumptions cited in this study are derived from other published resource.

Table 9. Transport to the building site (A4)

NAME	VALUE	UNIT
Fuel type	Diesel	
Liters of fuel	35	l/100km
Vehicle type	Truck (trailer)	-
Transport distance	445	km
Capacity utilization (including empty runs, mass based)	78	%
Gross density of products transported	3.0	kg/m ²
Capacity utilization volume factor (factor: =1 or <1 or ≥ 1 for compressed or nested packaging products)	1	-

Table:10. Installation into the building (A5)

NAME	VALUE	UNIT
Ancillary materials	0.25	kg
Net freshwater consumption	0	m ³
Other resources	0	kg
Electricity consumption	0	kWh
Other energy carriers	0	MJ
Waste materials at the construction site before waste processing, generated by product installation	0.3	kg
Output materials resulting from on-site waste processing	0.41	kg
Direct emission to ambient air, soil, and water	0	kg
VOC content	0	ug/m ³
Product loss per functional unit	0.3	kg
Packing waste per functional unit	0.11	kg
Biogenic carbon contained in packaging	0.163	kg CO ₂

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



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According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

Table 11. Reference Service Life

NAME	VALUE	UNIT
RSL	25	years
Declared product properties (at the gate) and finishes	NA	-
Design application parameters	Regular indoor spaces, maintenance	-
An assumed quality of work, when installed in accordance with the manufacturer's instructions	Properly installation, see the official website installation manual	-
Outdoor environment	NA	-
Indoor environment	Regular indoor temperature and humidity	-
Use conditions	Avoid corrosive chemicals and alkaline cleaners	-
Maintenance	Weekly wet cleaning by hand, dry vacuum cleaning twice a week	-

Table 12. Maintenance (B2)

NAME	VALUE	UNIT
Maintenance process information (cite source in report)	See section 2.3	/
Maintenance cycle (reference service life)	1300	Number/ RSL
Maintenance cycle (estimated service life)	3900	Number/ ESL
Net freshwater consumption: municipal water to POTW	0.195	m ³ /ESL
Ancillary materials specified Detergent	0	kg / ESL
Electricity input for vacuuming	19.5	kWh /ESL
Other resources	0	kg
Other energy carriers specified by type	0	MJ
Power output of equipment	NA	kW
Waste materials from maintenance (specify materials)	0	kg
Direct emissions to ambient air, soil and water	0	kg
Further assumptions for scenario development	Maintenance intervals are determined by foot traffic	-

Note: For detailed maintenance methods, refer to the maintenance manual on the official website

Table 13. Repair (B3)

NAME	VALUE	UNIT
Repair cycle (reference service life)	0	Number/ RSL
Repair cycle (estimated service life)	0	Number/ ESL
Repair process information	-	-



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According to ISO 14025,
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Table 14. Replacement (B4)

NAME	VALUE	UNIT
Replacement cycle (reference service lifetime)	0	Number/ RSL
Replacement cycle (estimated service lifetime)	2	Number/ ESL
Ancillary materials specified by type (e.g.: cleaning glue)	0.5	kg /ESL
Replacement of worn parts, specify parts/materials	6	kg/ESL
Energy input specified by activity, type, and amount	0	kWh
Net freshwater consumption	0	m ³
Direct emission to ambient air, soil, and water	0	kg
Further assumptions for scenario development, e.g. frequency and time period of use	N/A	As appropriate

Table 15. Refurbishment (B5)

NAME	VALUE	UNIT
Refurbishment cycle (reference service life)	0	Number/ RSL
Refurbishment cycle (estimated service life)	0	Number/ ESL

Table 16. Operational energy use (B6) and operational water use (B7)

NAME	VALUE	UNIT
Net freshwater consumption specified by water source and fate	0	m ³
Energy input, specified by activity, type and amount	0	kWh



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According to ISO 14025,
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Table 17. End of life (C1-C4)

NAME		VALUE	UNIT
Assumptions for scenario development (description of deconstruction, collection, recovery, disposal method and transportation)			
Collection process	Collected separately	3.25	kg
	Collected with mixed construction waste	0	kg
Recovery (Separate scenario assumptions)	Reuse	0	kg
	Recycling	3	kg
	Landfill	3	kg
	Incineration	0	kg
	Incineration with energy recovery	3	kg
	Energy conversion efficiency rate	58 ¹	%
Disposal (Incineration without energy recovery)	Product or material for final deposition (accompanied glue)	0.25	kg
Removals of biogenic carbon (excluding packaging)		0	kg CO ₂

Table 18. Reuse, recovery and/or recycling potentials (D), relevant scenario information-energy

NAME	VALUE	UNIT
Recycling material from waste treatment of packaging and waste product from A5	0.41	kg
Recycling material from waste treatment of packaging from B4 (1year / 25years / 75years service life)	0, 0, 0.82	kg
Calorific value of combustion of domestic waste	6	MJ/kg
Energy conversion efficiency of domestic waste combustion	58	%
Net energy benefit from energy recovery from waste treatment of packaging from A5	1.43	MJ
Net energy benefit from energy recovery from waste treatment of packaging from B4 (1year / 25years / 75years service life)	0, 0, 2.85	MJ

¹ <https://www.solidwaste.com.cn/news/346145.html>



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According to ISO 14025,
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Table 19. Reuse, recovery and/or recycling potentials (D), relevant scenario information-material

NAME	VALUE	UNIT
Recycling material from waste treatment of product from C4	3	kg
Recycling material from waste treatment of product from B4 (1year / 25years / 75years service life)	0, 0, 6	kg
100% landfill scenario (1year / 25years / 75years service life)	/	/
100% recycling scenario replacing the use of virgin PVC material in downstream (1year / 25years / 75years service life)	0.9, 0.9, 2.7	kg
100% incineration scenario (1year / 25years / 75years service life)	10.44, 10.44, 31.32	MJ

4. Life Cycle Assessment Results

The following results are given for a service life of 1 year, 25years and 75 years. 75 years results include 2 replacements based on a product reference service life of 25 years.

All results should be used with caution because the uncertainties in the results are high. LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds safety margins or risks.

Gerflor recommends using Gerflor Second Life program or any other program to recycle the product, where infrastructure exists. This program is available in several countries. When recycling is not an option, landfill and incineration are the other options.

Three end-of-life scenarios are therefore proposed in this EPD to address the different cases: (1) recycling (2) landfill (3) incineration.

4.1. Summary of key GWP results

For convenience, here is summary of key GWP result:

Table 20. Key GWP Results Summary

GLOBAL WARMING POTENTIAL (GWP), KG CO ₂ EQ/M ²	TOTAL GWP, WITH RECYCLING SCENARIO	TOTAL GWP, WITH LANDFILL SCENARIO	TOTAL GWP, WITH INCINERATION SCENARIO
Use 1 year	1.05E+01	1.08E+01	1.43E+01
Use 25 year	1.59E+01	1.62E+01	1.96E+01
Use 75 year	4.77E+01	4.85E+01	5.95E+01

4.2. Environmental Impact Indicators

Table 24 through Table 26 contain cradle-to-grave core environmental impact category Indicators results for 1m² of flooring over the 75-year building estimated service life. Modules B1, B3, B5, B6, and B7 are not associated with any impact and are therefore declared as zero. Furthermore, module C1 is likewise not associated with any impact as the floor is manually deconstructed. In interest of space and table readability, these modules are not included in the results below.



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According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

Core environmental impacts for 1 year

Table 21. Core Environmental Impact Category Indicators Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP-total	kg CO ₂ eq	1.05E+01	8.39E+00	2.93E-01	1.20E+00	2.24E-01	0.00E+00	1.06E-01	3.12E-01	-1.92E+00
GWP-luluc	kg CO ₂ eq	7.70E-03	6.87E-03	1.35E-04	5.44E-04	1.01E-04	0.00E+00	4.92E-05	6.11E-06	1.58E-02
GWP-biogenic	kg CO ₂ eq	4.36E-01	-4.31E-02	1.00E-04	2.99E-01	-1.40E-03	0.00E+00	3.64E-05	1.82E-01	-1.20E-02
GWP-fossil	kg CO ₂ eq	1.01E+01	8.42E+00	2.92E-01	9.03E-01	2.25E-01	0.00E+00	1.06E-01	1.30E-01	-1.92E+00
ADP-fossil fuels	MJ, net calorific value	1.69E+02	1.49E+02	4.11E+00	1.27E+01	2.42E+00	0.00E+00	1.49E+00	8.32E-02	-4.51E+01
ADP-minerals & metals	kg Sb eq	8.06E-05	7.15E-05	9.61E-07	6.71E-06	1.08E-06	0.00E+00	3.49E-07	2.64E-08	-2.24E-05
EP-freshwater	kg P eq	2.17E-03	1.88E-03	3.24E-05	1.86E-04	4.72E-05	0.00E+00	1.18E-05	1.15E-05	-2.23E-04
POCP	kg NMVOC eq	4.20E-02	3.56E-02	1.86E-03	2.97E-03	7.90E-04	0.00E+00	6.75E-04	9.23E-05	-1.02E-02
AP	mol H ⁺ eq	4.14E-02	3.52E-02	1.34E-03	3.01E-03	1.37E-03	0.00E+00	4.87E-04	7.66E-05	-8.60E-03
EP-terrestrial	mol N eq	9.85E-02	8.17E-02	5.38E-03	6.15E-03	2.99E-03	0.00E+00	1.96E-03	3.53E-04	-2.18E-02
EP-marine	kg N eq	9.35E-03	7.76E-03	4.94E-04	5.95E-04	2.79E-04	0.00E+00	1.79E-04	4.09E-05	-1.65E-03
ODP	kg CFC 11 eq	5.15E-06	5.13E-06	3.88E-09	1.18E-08	1.20E-09	0.00E+00	1.41E-09	1.12E-10	-8.78E-07
Water use	m ³ world eq. deprived	3.08E+00	2.71E+00	2.30E-02	2.92E-01	3.10E-02	0.00E+00	8.37E-03	1.79E-02	-8.95E-01

Table 22. Core Environmental Impact Category Indicators Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP-total	kg CO ₂ eq	1.08E+01	8.39E+00	2.93E-01	1.20E+00	2.24E-01	0.00E+00	1.06E-01	5.88E-01	-3.84E-01
GWP-luluc	kg CO ₂ eq	7.72E-03	6.87E-03	1.35E-04	5.44E-04	1.01E-04	0.00E+00	4.92E-05	2.63E-05	-1.62E-04
GWP-biogenic	kg CO ₂ eq	4.36E-01	-4.31E-02	1.00E-04	2.99E-01	-1.40E-03	0.00E+00	3.64E-05	1.82E-01	2.46E-03
GWP-fossil	kg CO ₂ eq	1.04E+01	8.42E+00	2.92E-01	9.03E-01	2.25E-01	0.00E+00	1.06E-01	4.06E-01	-3.86E-01
ADP-fossil fuels	MJ, net calorific value	1.70E+02	1.49E+02	4.11E+00	1.27E+01	2.42E+00	0.00E+00	1.49E+00	8.15E-01	-
ADP-minerals & metals	kg Sb eq	8.06E-05	7.15E-05	9.61E-07	6.71E-06	1.08E-06	0.00E+00	3.49E-07	8.89E-08	-2.94E-07
EP-freshwater	kg P eq	2.18E-03	1.88E-03	3.24E-05	1.86E-04	4.72E-05	0.00E+00	1.18E-05	1.50E-05	-7.13E-05
POCP	kg NMVOC eq	4.24E-02	3.56E-02	1.86E-03	2.97E-03	7.90E-04	0.00E+00	6.75E-04	4.92E-04	-1.34E-03
AP	mol H ⁺ eq	4.17E-02	3.52E-02	1.34E-03	3.01E-03	1.37E-03	0.00E+00	4.87E-04	3.15E-04	-2.25E-03
EP-terrestrial	mol N eq	9.95E-02	8.17E-02	5.38E-03	6.15E-03	2.99E-03	0.00E+00	1.96E-03	1.32E-03	-5.08E-03
EP-marine	kg N eq	1.55E-02	7.76E-03	4.94E-04	5.95E-04	2.79E-04	0.00E+00	1.79E-04	6.20E-03	-4.77E-04
ODP	kg CFC 11 eq	5.15E-06	5.13E-06	3.88E-09	1.18E-08	1.20E-09	0.00E+00	1.41E-09	9.40E-10	-8.52E-10
Water use	m ³ world eq. deprived	3.11E+00	2.71E+00	2.30E-02	2.92E-01	3.10E-02	0.00E+00	8.37E-03	5.00E-02	-4.92E-02



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According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

Table 23. Core Environmental Impact Category Indicators Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP-total	kg CO ₂ eq	1.43E+01	8.39E+00	2.93E-01	1.20E+00	2.24E-01	0.00E+00	1.06E-01	4.05E+00	-3.32E+00
GWP-luluc	kg CO ₂ eq	7.78E-03	6.87E-03	1.35E-04	5.44E-04	1.01E-04	0.00E+00	4.92E-05	7.95E-05	-1.40E-03
GWP-biogenic	kg CO ₂ eq	2.62E+00	-4.31E-02	1.00E-04	2.99E-01	-1.40E-03	0.00E+00	3.64E-05	2.36E+00	2.13E-02
GWP-fossil	kg CO ₂ eq	1.16E+01	8.42E+00	2.92E-01	9.03E-01	2.25E-01	0.00E+00	1.06E-01	1.69E+00	-3.34E+00
ADP-fossil fuels	MJ, net calorific value	1.70E+02	1.49E+02	4.11E+00	1.27E+01	2.42E+00	0.00E+00	1.49E+00	1.08E+00	-3.57E+01
ADP-minerals & metals	kg Sb eq	8.09E-05	7.15E-05	9.61E-07	6.71E-06	1.08E-06	0.00E+00	3.49E-07	3.43E-07	-2.54E-06
EP-freshwater	kg P eq	2.31E-03	1.88E-03	3.24E-05	1.86E-04	4.72E-05	0.00E+00	1.18E-05	1.50E-04	-6.18E-04
POCP	kg NMVOC eq	4.31E-02	3.56E-02	1.86E-03	2.97E-03	7.90E-04	0.00E+00	6.75E-04	1.20E-03	-1.16E-02
AP	mol H ⁺ eq	4.24E-02	3.52E-02	1.34E-03	3.01E-03	1.37E-03	0.00E+00	4.87E-04	9.96E-04	-1.95E-02
EP-terrestrial	mol N eq	1.03E-01	8.17E-02	5.38E-03	6.15E-03	2.99E-03	0.00E+00	1.96E-03	4.59E-03	-4.40E-02
EP-marine	kg N eq	9.84E-03	7.76E-03	4.94E-04	5.95E-04	2.79E-04	0.00E+00	1.79E-04	5.32E-04	-4.13E-03
ODP	kg CFC 11 eq	5.15E-06	5.13E-06	3.88E-09	1.18E-08	1.20E-09	0.00E+00	1.41E-09	1.46E-09	-7.38E-09
Water use	m ³ world eq. deprived	3.29E+00	2.71E+00	2.30E-02	2.92E-01	3.10E-02	0.00E+00	8.37E-03	2.32E-01	-4.27E-01

Core environmental impacts for 75 years

Table 24. Core Environmental Impact Category Indicators Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP-total	kg CO ₂ eq	4.77E+01	8.39E+00	2.93E-01	1.20E+00	1.68E+01	2.06E+01	1.06E-01	3.12E-01	-5.75E+00
GWP-luluc	kg CO ₂ eq	3.04E-02	6.87E-03	1.35E-04	5.44E-04	7.58E-03	1.52E-02	4.92E-05	6.11E-06	4.74E-02
GWP-biogenic	kg CO ₂ eq	1.21E+00	-4.31E-02	1.00E-04	2.99E-01	-1.05E-01	8.75E-01	3.64E-05	1.82E-01	-3.60E-02
GWP-fossil	kg CO ₂ eq	4.64E+01	8.42E+00	2.92E-01	9.03E-01	1.69E+01	1.97E+01	1.06E-01	1.30E-01	-5.76E+00
ADP-fossil fuels	MJ, net calorific value	6.82E+02	1.49E+02	4.11E+00	1.27E+01	1.81E+02	3.34E+02	1.49E+00	8.32E-02	-1.35E+02
ADP-minerals & metals	kg Sb eq	3.19E-04	7.15E-05	9.61E-07	6.71E-06	8.08E-05	1.59E-04	3.49E-07	2.64E-08	-6.72E-05
EP-freshwater	kg P eq	9.92E-03	1.88E-03	3.24E-05	1.86E-04	3.54E-03	4.25E-03	1.18E-05	1.15E-05	-6.68E-04
POCP	kg NMVOC eq	1.83E-01	3.56E-02	1.86E-03	2.97E-03	5.93E-02	8.24E-02	6.75E-04	9.23E-05	-3.07E-02
AP	mol H ⁺ eq	2.23E-01	3.52E-02	1.34E-03	3.01E-03	1.03E-01	8.02E-02	4.87E-04	7.66E-05	-2.58E-02
EP-terrestrial	mol N eq	5.11E-01	8.17E-02	5.38E-03	6.15E-03	2.24E-01	1.91E-01	1.96E-03	3.53E-04	-6.54E-02
EP-marine	kg N eq	4.82E-02	7.76E-03	4.94E-04	5.95E-04	2.09E-02	1.81E-02	1.79E-04	4.09E-05	-4.95E-03
ODP	kg CFC 11 eq	1.55E-05	5.13E-06	3.88E-09	1.18E-08	9.00E-08	1.03E-05	1.41E-09	1.12E-10	-2.63E-06
Water use	m ³ world eq. deprived	1.15E+01	2.71E+00	2.30E-02	2.92E-01	2.33E+00	6.10E+00	8.37E-03	1.79E-02	-2.69E+00



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Table 25. Core Environmental Impact Category Indicators Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP-total	kg CO ₂ eq	4.85E+01	8.39E+00	2.93E-01	1.20E+00	1.68E+01	2.12E+01	1.06E-01	5.88E-01	-1.15E+00
GWP-luluc	kg CO ₂ eq	3.05E-02	6.87E-03	1.35E-04	5.44E-04	7.58E-03	1.52E-02	4.92E-05	2.63E-05	-4.85E-04
GWP-biogenic	kg CO ₂ eq	1.21E+00	-4.31E-02	1.00E-04	2.99E-01	-1.05E-01	8.75E-01	3.64E-05	1.82E-01	7.37E-03
GWP-fossil	kg CO ₂ eq	4.73E+01	8.42E+00	2.92E-01	9.03E-01	1.69E+01	2.03E+01	1.06E-01	4.06E-01	-1.16E+00
ADP-fossil fuels	MJ, net calorific value	6.84E+02	1.49E+02	4.11E+00	1.27E+01	1.81E+02	3.36E+02	1.49E+00	8.15E-01	-1.24E+01
ADP-minerals & metals	kg Sb eq	3.19E-04	7.15E-05	9.61E-07	6.71E-06	8.08E-05	1.59E-04	3.49E-07	8.89E-08	-8.81E-07
EP-freshwater	kg P eq	9.93E-03	1.88E-03	3.24E-05	1.86E-04	3.54E-03	4.26E-03	1.18E-05	1.50E-05	-2.14E-04
POCP	kg NMVOC eq	1.84E-01	3.56E-02	1.86E-03	2.97E-03	5.93E-02	8.32E-02	6.75E-04	4.92E-04	-4.01E-03
AP	mol H ⁺ eq	2.24E-01	3.52E-02	1.34E-03	3.01E-03	1.03E-01	8.06E-02	4.87E-04	3.15E-04	-6.75E-03
EP-terrestrial	mol N eq	5.13E-01	8.17E-02	5.38E-03	6.15E-03	2.24E-01	1.93E-01	1.96E-03	1.32E-03	-1.52E-02
EP-marine	kg N eq	6.66E-02	7.76E-03	4.94E-04	5.95E-04	2.09E-02	3.05E-02	1.79E-04	6.20E-03	-1.43E-03
ODP	kg CFC 11 eq	1.55E-05	5.13E-06	3.88E-09	1.18E-08	9.00E-08	1.03E-05	1.41E-09	9.40E-10	-2.56E-09
Water use	m ³ world eq. deprived	1.16E+01	2.71E+00	2.30E-02	2.92E-01	2.33E+00	6.16E+00	8.37E-03	5.00E-02	-1.48E-01

Table 26. Core Environmental Impact Category Indicators Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
GWP-total	kg CO ₂ eq	5.95E+01	8.39E+00	2.93E-01	1.20E+00	1.68E+01	2.84E+01	1.06E-01	4.05E+00	-9.97E+00
GWP-luluc	kg CO ₂ eq	3.60E-02	6.85E-03	1.35E-04	5.44E-04	7.58E-03	1.89E-02	4.92E-05	7.95E-05	-4.20E-03
GWP-biogenic	kg CO ₂ eq	7.67E+00	-7.14E-02	1.00E-04	2.99E-01	-1.05E-01	5.18E+00	3.64E-05	2.36E+00	6.39E-02
GWP-fossil	kg CO ₂ eq	5.17E+01	8.63E+00	2.92E-01	9.03E-01	1.69E+01	2.32E+01	1.06E-01	1.69E+00	-1.00E+01
ADP-fossil fuels	MJ, net calorific value	6.97E+02	1.53E+02	4.11E+00	1.27E+01	1.81E+02	3.44E+02	1.49E+00	1.08E+00	-1.07E+02
ADP-minerals & metals	kg Sb eq	3.24E-04	7.27E-05	9.61E-07	6.71E-06	8.08E-05	1.62E-04	3.49E-07	3.43E-07	-7.63E-06
EP-freshwater	kg P eq	1.05E-02	1.95E-03	3.24E-05	1.86E-04	3.54E-03	4.66E-03	1.18E-05	1.50E-04	-1.85E-03
POCP	kg NMVOC eq	1.89E-01	3.65E-02	1.86E-03	2.97E-03	5.93E-02	8.63E-02	6.75E-04	1.20E-03	-3.48E-02
AP	mol H ⁺ eq	2.29E-01	3.62E-02	1.34E-03	3.01E-03	1.03E-01	8.40E-02	4.87E-04	9.96E-04	-5.85E-02
EP-terrestrial	mol N eq	5.32E-01	8.46E-02	5.38E-03	6.15E-03	2.24E-01	2.05E-01	1.96E-03	4.59E-03	-1.32E-01
EP-marine	kg N eq	5.06E-02	8.09E-03	4.94E-04	5.95E-04	2.09E-02	1.98E-02	1.79E-04	5.32E-04	-1.24E-02
ODP	kg CFC 11 eq	1.57E-05	5.19E-06	3.88E-09	1.18E-08	9.00E-08	1.04E-05	1.41E-09	1.46E-09	-2.21E-08
Water use	m ³ world eq. deprived	1.28E+01	2.93E+00	2.30E-02	2.92E-01	2.33E+00	6.97E+00	8.37E-03	2.32E-01	-1.28E+00

Acronyms: GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals & metals = Abiotic depletion potential for non-fossil resources ; ADP-fossil = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential, deprivation-weighted water consumption.



Mipolam homogeneous vinyl floor
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According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

4.3. Additional Environmental Impact Category Indicators Assessment Results

Additional environmental impacts for 1 year

Table 27. Additional Environmental Impact Category Indicators Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
ETP-fw ²	CTUe	5.20E+01	4.43E+01	7.47E-01	5.48E+00	7.17E-01	0.00E+00	2.72E-01	4.55E-01	-1.53E+01
HTP-c ²	CTUh	6.24E-09	5.88E-09	7.04E-11	1.74E-10	3.21E-11	0.00E+00	2.56E-11	5.65E-11	-3.69E-09
HTP-nc ²	CTUh	1.14E-07	7.46E-08	2.81E-09	3.20E-08	2.07E-09	0.00E+00	1.02E-09	1.44E-09	-1.42E-08
SQP ²	Dimensionless	3.55E+01	2.88E+01	3.02E+00	1.90E+00	5.82E-01	0.00E+00	1.10E+00	5.37E-02	-1.92E+00
PM	Disease incidence	5.05E-07	4.14E-07	2.74E-08	3.42E-08	1.85E-08	0.00E+00	9.96E-09	7.49E-10	-1.21E-07
IRP ¹	kBq U235 _{eq}	4.82E-01	4.42E-01	3.48E-03	2.41E-02	1.13E-02	0.00E+00	1.26E-03	1.18E-04	2.67E-01

Table 28. Additional Environmental Impact Category Indicators Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
ETP-fw ²	CTUe	6.40E+01	4.43E+01	7.47E-01	5.48E+00	7.17E-01	0.00E+00	2.72E-01	1.25E+01	-1.09E+00
HTP-c ²	CTUh	6.26E-09	5.88E-09	7.04E-11	1.74E-10	3.21E-11	0.00E+00	2.56E-11	7.87E-11	-3.27E-11
HTP-nc ²	CTUh	1.18E-07	7.46E-08	2.81E-09	3.20E-08	2.07E-09	0.00E+00	1.02E-09	5.30E-09	-2.22E-09
SQP ²	Dimensionless	3.75E+01	2.88E+01	3.02E+00	1.90E+00	5.82E-01	0.00E+00	1.10E+00	2.13E+00	-8.07E-01
PM	Disease incidence	5.11E-07	4.14E-07	2.74E-08	3.42E-08	1.85E-08	0.00E+00	9.96E-09	7.12E-09	-3.17E-08
IRP ¹	kBq U235 _{eq}	4.83E-01	4.42E-01	3.48E-03	2.41E-02	1.13E-02	0.00E+00	1.26E-03	8.61E-04	-1.87E-02

Table 29. Additional Environmental Impact Category Indicators Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
ETP-fw ²	CTUe	5.85E+01	4.43E+01	7.47E-01	5.48E+00	7.17E-01	0.00E+00	2.72E-01	7.00E+00	-9.41E+00
HTP-c ²	CTUh	7.05E-09	5.88E-09	7.04E-11	1.74E-10	3.21E-11	0.00E+00	2.56E-11	8.71E-10	-2.84E-10
HTP-nc ²	CTUh	1.35E-07	7.46E-08	2.81E-09	3.20E-08	2.07E-09	0.00E+00	1.02E-09	2.22E-08	-1.93E-08
SQP ²	Dimensionless	3.62E+01	2.88E+01	3.02E+00	1.90E+00	5.82E-01	0.00E+00	1.10E+00	8.28E-01	-7.00E+00
PM	Disease incidence	5.16E-07	4.14E-07	2.74E-08	3.42E-08	1.85E-08	0.00E+00	9.96E-09	1.15E-08	-2.75E-07
IRP ¹	kBq U235 _{eq}	4.84E-01	4.42E-01	3.48E-03	2.41E-02	1.13E-02	0.00E+00	1.26E-03	1.82E-03	-1.62E-01



Mipolam homogeneous vinyl floor
Gerflor Floorings

According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

Additional environmental impacts for 75 years

Table 30. Additional Environmental Impact Category Indicators Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
ETP-fw ²	CTUe	2.08E+02	4.43E+01	7.47E-01	5.48E+00	5.38E+01	1.03E+02	2.72E-01	4.55E-01	-4.60E+01
HTP-c ²	CTUh	2.10E-08	5.88E-09	7.04E-11	1.74E-10	2.41E-09	1.24E-08	2.56E-11	5.65E-11	-1.11E-08
HTP-nc ²	CTUh	4.91E-07	7.46E-08	2.81E-09	3.20E-08	1.55E-07	2.24E-07	1.02E-09	1.44E-09	-4.27E-08
SQP ²	Dimensionless	1.48E+02	2.88E+01	3.02E+00	1.90E+00	4.36E+01	6.97E+01	1.10E+00	5.37E-02	-5.75E+00
PM	Disease incidence	2.85E-06	4.14E-07	2.74E-08	3.42E-08	1.39E-06	9.73E-07	9.96E-09	7.49E-10	-3.63E-07
IRP ¹	kBq U235 _{eq}	2.26E+00	4.42E-01	3.48E-03	2.41E-02	8.45E-01	9.42E-01	1.26E-03	1.18E-04	8.00E-01

Table 31. Additional Environmental Impact Category Indicators Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
ETP-fw ²	CTUe	2.44E+02	4.43E+01	7.47E-01	5.48E+00	5.38E+01	1.27E+02	2.72E-01	1.25E+01	-3.26E+00
HTP-c ²	CTUh	2.11E-08	5.88E-09	7.04E-11	1.74E-10	2.41E-09	1.25E-08	2.56E-11	7.87E-11	-9.82E-11
HTP-nc ²	CTUh	5.02E-07	7.46E-08	2.81E-09	3.20E-08	1.55E-07	2.31E-07	1.02E-09	5.30E-09	-6.67E-09
SQP ²	Dimensionless	1.54E+02	2.88E+01	3.02E+00	1.90E+00	4.36E+01	7.39E+01	1.10E+00	2.13E+00	-2.42E+00
PM	Disease incidence	2.87E-06	4.14E-07	2.74E-08	3.42E-08	1.39E-06	9.85E-07	9.96E-09	7.12E-09	-9.52E-08
IRP ¹	kBq U235 _{eq}	2.26E+00	4.42E-01	3.48E-03	2.41E-02	8.45E-01	9.43E-01	1.26E-03	8.61E-04	-5.61E-02

Table 32. Additional Environmental Impact Category Indicators Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
ETP-fw ²	CTUe	2.28E+02	4.43E+01	7.47E-01	5.48E+00	5.38E+01	1.16E+02	2.72E-01	7.00E+00	-2.82E+01
HTP-c ²	CTUh	2.34E-08	5.88E-09	7.04E-11	1.74E-10	2.41E-09	1.40E-08	2.56E-11	8.71E-10	-8.51E-10
HTP-nc ²	CTUh	5.53E-07	7.46E-08	2.81E-09	3.20E-08	1.55E-07	2.65E-07	1.02E-09	2.22E-08	-5.78E-08
SQP ²	Dimensionless	1.51E+02	2.88E+01	3.02E+00	1.90E+00	4.36E+01	7.13E+01	1.10E+00	8.28E-01	-2.10E+01
PM	Disease incidence	2.88E-06	4.14E-07	2.74E-08	3.42E-08	1.39E-06	9.94E-07	9.96E-09	1.15E-08	-8.25E-07
IRP ¹	kBq U235 _{eq}	2.26E+00	4.42E-01	3.48E-03	2.41E-02	8.45E-01	9.45E-01	1.26E-03	1.82E-03	-4.86E-01

Acronyms: PM = Potential incidence of disease due to PM emissions; IRP = Potential Human exposure efficiency relative to U235; Potential Comparative Toxic Unit for ecosystems; HTP-c = Potential Comparative Toxic Unit for humans; HTP-nc = Potential Comparative Toxic Unit for humans; SQP = Potential Soil quality index

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 experience with the indicator.



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According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

4.4. Life Cycle Inventory Results

Resource Use for 1 year

Table 33. Resource Use Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
PENRE	MJ, LHV	1.08E+02	9.39E+01	4.11E+00	7.39E+00	2.42E+00	0.00E+00	1.49E+00	-1.42E+00	-1.33E+02
PERE	MJ, LHV	2.93E+00	5.41E+00	5.89E-02	-5.76E-01	3.16E-01	0.00E+00	2.14E-02	-2.30E+00	2.01E+00
PENRM	MJ, LHV	6.22E+01	5.55E+01	0.00E+00	5.21E+00	0.00E+00	0.00E+00	0.00E+00	1.51E+00	8.76E+01
PERM	MJ, LHV	4.41E+00	1.10E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00	0.00E+00	2.30E+00	0.00E+00
PENRT	MJ, LHV	1.70E+02	1.49E+02	4.11E+00	1.26E+01	2.42E+00	0.00E+00	1.49E+00	8.32E-02	-4.51E+01
PERT	MJ, LHV	7.34E+00	6.51E+00	5.89E-02	4.36E-01	3.16E-01	0.00E+00	2.14E-02	2.69E-03	2.01E+00
FW	m ³	9.48E-02	8.29E-02	5.81E-04	7.54E-03	3.30E-03	0.00E+00	2.11E-04	2.71E-04	-3.83E-02
SM	kg	4.74E-02	4.16E-02	1.80E-03	2.79E-03	4.60E-04	0.00E+00	6.54E-04	9.63E-05	-1.01E-02
RSF	MJ, LHV	6.34E-04	5.63E-04	2.32E-05	3.51E-05	2.71E-06	0.00E+00	8.45E-06	1.67E-06	-1.14E-05
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	6.03E-02	1.26E-01	8.60E-04	1.31E+00	2.36E-04	0.00E+00	3.13E-04	2.60E-05	5.29E-02

Table 34. Resource Use Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
PENRE	MJ, LHV	-2.17E+01	9.39E+01	4.11E+00	7.39E+00	2.42E+00	0.00E+00	1.49E+00	-1.31E+02	-4.12E+00
PERE	MJ, LHV	2.95E+00	5.41E+00	5.89E-02	-5.76E-01	3.16E-01	0.00E+00	2.14E-02	-2.28E+00	-4.62E-01
PENRM	MJ, LHV	1.93E+02	5.55E+01	0.00E+00	5.21E+00	0.00E+00	0.00E+00	0.00E+00	1.32E+02	0.00E+00
PERM	MJ, LHV	4.41E+00	1.10E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00	0.00E+00	2.30E+00	0.00E+00
PENRT	MJ, LHV	1.71E+02	1.49E+02	4.11E+00	1.26E+01	2.42E+00	0.00E+00	1.49E+00	9.62E-01	-4.12E+00
PERT	MJ, LHV	7.36E+00	6.51E+00	5.89E-02	4.36E-01	3.16E-01	0.00E+00	2.14E-02	1.48E-02	-4.62E-01
FW	m ³	8.14E-02	8.29E-02	5.81E-04	7.54E-03	3.30E-03	0.00E+00	2.11E-04	-1.31E-02	-1.15E-03
SM	kg	4.77E-02	4.16E-02	1.80E-03	2.79E-03	4.60E-04	0.00E+00	6.54E-04	3.98E-04	-4.52E-04
RSF	MJ, LHV	6.40E-04	5.63E-04	2.32E-05	3.51E-05	2.71E-06	0.00E+00	8.45E-06	7.72E-06	-2.89E-06
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	6.05E-02	1.26E-01	8.60E-04	1.31E+00	2.36E-04	0.00E+00	3.13E-04	2.01E-04	-2.94E-04

Table 35. Resource Use Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
PENRE	MJ, LHV	8.74E+01	9.39E+01	4.11E+00	7.39E+00	2.42E+00	0.00E+00	1.49E+00	-2.19E+01	-3.57E+01
PERE	MJ, LHV	-3.02E+01	5.41E+00	5.89E-02	-5.76E-01	3.16E-01	0.00E+00	2.14E-02	-3.54E+01	-4.00E+00
PENRM	MJ, LHV	8.39E+01	5.55E+01	0.00E+00	5.21E+00	0.00E+00	0.00E+00	0.00E+00	2.32E+01	0.00E+00
PERM	MJ, LHV	3.75E+01	1.10E+00	0.00E+00	1.01E+00	0.00E+00	0.00E+00	0.00E+00	3.54E+01	0.00E+00
PENRT	MJ, LHV	1.71E+02	1.49E+02	4.11E+00	1.26E+01	2.42E+00	0.00E+00	1.49E+00	1.28E+00	-3.57E+01
PERT	MJ, LHV	7.38E+00	6.51E+00	5.89E-02	4.36E-01	3.16E-01	0.00E+00	2.14E-02	4.14E-02	-4.00E+00
FW	m ³	9.87E-02	8.29E-02	5.81E-04	7.54E-03	3.30E-03	0.00E+00	2.11E-04	4.17E-03	-9.96E-03
SM	kg	4.88E-02	4.16E-02	1.80E-03	2.79E-03	4.60E-04	0.00E+00	6.54E-04	1.48E-03	-3.91E-03
RSF	MJ, LHV	6.58E-04	5.63E-04	2.32E-05	3.51E-05	2.71E-06	0.00E+00	8.45E-06	2.58E-05	-2.50E-05
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	1.35E-01	1.26E-01	8.60E-04	1.31E+00	2.36E-04	0.00E+00	3.13E-04	3.99E-04	-2.55E-03



Mipolam homogeneous vinyl floor
Gerflor Floorings

According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

Resource Use for 75 years

Table 36. Resource Use Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
PENRE	MJ, LHV	3.92E+02	9.39E+01	4.11E+00	7.39E+00	1.81E+02	1.05E+02	1.49E+00	-1.42E+00	-3.98E+02
PERE	MJ, LHV	2.89E+01	5.41E+00	5.89E-02	-5.76E-01	2.37E+01	2.61E+00	2.14E-02	-2.30E+00	6.02E+00
PENRM	MJ, LHV	1.24E+02	5.55E+01	0.00E+00	5.21E+00	0.00E+00	6.22E+01	0.00E+00	1.51E+00	2.63E+02
PERM	MJ, LHV	8.82E+00	1.10E+00	0.00E+00	1.01E+00	0.00E+00	4.41E+00	0.00E+00	2.30E+00	0.00E+00
PENRT	MJ, LHV	5.16E+02	1.49E+02	4.11E+00	1.26E+01	1.81E+02	1.67E+02	1.49E+00	8.32E-02	-1.35E+02
PERT	MJ, LHV	3.78E+01	6.51E+00	5.89E-02	4.36E-01	2.37E+01	7.03E+00	2.14E-02	2.69E-03	6.02E+00
FW	m ³	4.30E-01	8.29E-02	5.81E-04	7.54E-03	2.47E-01	9.15E-02	2.11E-04	2.71E-04	-1.15E-01
SM	kg	1.28E-01	4.16E-02	1.80E-03	2.79E-03	3.45E-02	4.69E-02	6.54E-04	9.63E-05	-3.02E-02
RSF	MJ, LHV	1.47E-03	5.63E-04	2.32E-05	3.51E-05	2.03E-04	6.31E-04	8.45E-06	1.67E-06	-3.41E-05
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	1.38E-01	5.12E-02	8.60E-04	7.65E-03	1.77E-02	6.00E-02	3.13E-04	2.60E-05	1.59E-01

Table 37. Resource Use Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
PENRE	MJ, LHV	1.33E+02	9.39E+01	4.11E+00	7.39E+00	1.81E+02	-2.41E+01	1.49E+00	-1.31E+02	-1.24E+01
PERE	MJ, LHV	2.90E+01	5.41E+00	5.89E-02	-5.76E-01	2.37E+01	2.63E+00	2.14E-02	-2.28E+00	-1.39E+00
PENRM	MJ, LHV	3.85E+02	5.55E+01	0.00E+00	5.21E+00	0.00E+00	1.93E+02	0.00E+00	1.32E+02	0.00E+00
PERM	MJ, LHV	8.82E+00	1.10E+00	0.00E+00	1.01E+00	0.00E+00	4.41E+00	0.00E+00	2.30E+00	0.00E+00
PENRT	MJ, LHV	5.17E+02	1.49E+02	4.11E+00	1.26E+01	1.81E+02	1.68E+02	1.49E+00	9.62E-01	-1.24E+01
PERT	MJ, LHV	3.78E+01	6.51E+00	5.89E-02	4.36E-01	2.37E+01	7.04E+00	2.14E-02	1.48E-02	-1.39E+00
FW	m ³	4.03E-01	8.29E-02	5.81E-04	7.54E-03	2.47E-01	7.81E-02	2.11E-04	-1.31E-02	-3.45E-03
SM	kg	1.29E-01	4.16E-02	1.80E-03	2.79E-03	3.45E-02	4.72E-02	6.54E-04	3.98E-04	-1.36E-03
RSF	MJ, LHV	1.48E-03	5.63E-04	2.32E-05	3.51E-05	2.03E-04	6.37E-04	8.45E-06	7.72E-06	-8.67E-06
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	1.38E-01	1.26E-01	8.60E-04	7.65E-03	1.77E-02	6.02E-02	3.13E-04	2.01E-04	-8.84E-04

Table 38. Resource Use Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
PENRE	MJ, LHV	3.51E+02	9.39E+01	4.11E+00	7.39E+00	1.81E+02	8.50E+01	1.49E+00	-2.19E+01	-1.07E+02
PERE	MJ, LHV	-3.73E+01	5.41E+00	5.89E-02	-5.76E-01	2.37E+01	-3.05E+01	2.14E-02	-3.54E+01	-1.20E+01
PENRM	MJ, LHV	1.68E+02	5.55E+01	0.00E+00	5.21E+00	0.00E+00	8.39E+01	0.00E+00	2.32E+01	0.00E+00
PERM	MJ, LHV	7.50E+01	1.10E+00	0.00E+00	1.01E+00	0.00E+00	3.75E+01	0.00E+00	3.54E+01	0.00E+00
PENRT	MJ, LHV	5.18E+02	1.49E+02	4.11E+00	1.26E+01	1.81E+02	1.68E+02	1.49E+00	1.28E+00	-1.07E+02
PERT	MJ, LHV	3.78E+01	6.51E+00	5.89E-02	4.36E-01	2.37E+01	7.07E+00	2.14E-02	4.14E-02	-1.20E+01
FW	m ³	4.38E-01	8.29E-02	5.81E-04	7.54E-03	2.47E-01	9.54E-02	2.11E-04	4.17E-03	-2.99E-02
SM	kg	1.31E-01	4.16E-02	1.80E-03	2.79E-03	3.45E-02	4.83E-02	6.54E-04	1.48E-03	-1.17E-02
RSF	MJ, LHV	1.51E-03	5.63E-04	2.32E-05	3.51E-05	2.03E-04	6.56E-04	8.45E-06	2.58E-05	-7.51E-05
NRSF	MJ, LHV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, LHV	1.39E-01	1.26E-01	8.60E-04	7.65E-03	1.77E-02	6.04E-02	3.13E-04	3.99E-04	-7.66E-03

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



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RE=Recovered energy; LVH=Lower Heating value.

Output Flows and Waste for 1 year

Table 39. Output Flows and Waste Categories Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD	kg	7.48E-01	6.41E-01	9.33E-03	5.03E-02	3.35E-02	0.00E+00	3.39E-03	1.02E-02	-2.12E-01
NHWD	kg	1.56E+01	1.38E+01	1.80E-01	9.95E-01	2.74E-01	0.00E+00	6.54E-02	3.20E-01	-3.26E+00
RWD	kg	1.26E-04	1.16E-04	8.51E-07	5.85E-06	2.71E-06	0.00E+00	3.10E-07	2.96E-08	6.93E-05
MER	kg	1.37E-05	1.15E-05	2.65E-07	1.73E-06	9.86E-08	0.00E+00	9.64E-08	6.98E-09	2.33E-04
MFR	kg	9.23E-03	4.46E-03	4.79E-05	1.55E-03	3.05E-04	0.00E+00	1.74E-05	2.85E-03	3.30E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	2.90E-02	2.31E-02	4.97E-04	5.02E-03	1.54E-04	0.00E+00	1.81E-04	1.39E-05	-5.37E-03
EEE	MJ	1.40E+00	1.03E-01	3.63E-04	1.30E+00	8.19E-05	0.00E+00	1.32E-04	1.21E-05	5.83E-02

Table 40. Output Flows and Waste Categories Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD	kg	7.49E-01	6.41E-01	9.33E-03	5.03E-02	3.35E-02	0.00E+00	3.39E-03	1.17E-02	-5.73E-02
NHWD	kg	2.52E+01	1.38E+01	1.80E-01	9.95E-01	2.74E-01	0.00E+00	6.54E-02	9.84E+00	-3.35E-01
RWD	kg	1.26E-04	1.16E-04	8.51E-07	5.85E-06	2.71E-06	0.00E+00	3.10E-07	2.11E-07	-4.49E-06
MER	kg	1.38E-05	1.15E-05	2.65E-07	1.73E-06	9.86E-08	0.00E+00	9.64E-08	6.65E-08	-1.49E-07
MFR	kg	9.25E-03	4.46E-03	4.79E-05	1.55E-03	3.05E-04	0.00E+00	1.74E-05	2.87E-03	-3.11E-04
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	2.91E-02	2.31E-02	4.97E-04	5.02E-03	1.54E-04	0.00E+00	1.81E-04	1.07E-04	-2.33E-04
EEE	MJ	1.40E+00	1.03E-01	3.63E-04	1.30E+00	8.19E-05	0.00E+00	1.32E-04	9.38E-05	-6.13E-05

Table 41. Output Flows and Waste Categories Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD	kg	8.95E-01	6.41E-01	9.33E-03	5.03E-02	3.35E-02	0.00E+00	3.39E-03	1.57E-01	-4.97E-01
NHWD	kg	2.02E+01	1.38E+01	1.80E-01	9.95E-01	2.74E-01	0.00E+00	6.54E-02	4.93E+00	-2.90E+00
RWD	kg	1.26E-04	1.16E-04	8.51E-07	5.85E-06	2.71E-06	0.00E+00	3.10E-07	4.56E-07	-3.89E-05
MER	kg	1.38E-05	1.15E-05	2.65E-07	1.73E-06	9.86E-08	0.00E+00	9.64E-08	1.07E-07	-1.29E-06
MFR	kg	5.03E-02	4.46E-03	4.79E-05	1.55E-03	3.05E-04	0.00E+00	1.74E-05	4.39E-02	-2.70E-03
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	2.92E-02	2.31E-02	4.97E-04	5.02E-03	1.54E-04	0.00E+00	1.81E-04	2.13E-04	-2.02E-03
EEE	MJ	1.40E+00	1.03E-01	3.63E-04	1.30E+00	8.19E-05	0.00E+00	1.32E-04	1.86E-04	-5.31E-04



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Output Flows and Waste for 75 years

Table 42. Output Flows and Waste Categories Assessment Results in case of RECYCLING at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD	kg	9.67E+00	6.41E-01	9.33E-03	5.03E-02	2.51E+00	6.45E+00	3.39E-03	1.02E-02	-6.35E-01
NHWD	kg	1.08E+02	1.38E+01	1.80E-01	9.95E-01	2.06E+01	7.19E+01	6.54E-02	3.20E-01	-9.77E+00
RWD	kg	9.78E-04	1.16E-04	8.51E-07	5.85E-06	2.03E-04	6.52E-04	3.10E-07	2.96E-08	2.08E-04
MER	kg	6.30E-05	1.15E-05	2.65E-07	1.73E-06	7.39E-06	4.20E-05	9.64E-08	6.98E-09	7.00E-04
MFR	kg	9.55E-02	4.46E-03	4.79E-05	1.55E-03	2.29E-02	6.37E-02	1.74E-05	2.85E-03	9.90E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	1.21E-01	2.31E-02	4.97E-04	5.02E-03	1.16E-02	8.08E-02	1.81E-04	1.39E-05	-1.61E-02
EEE	MJ	4.23E+00	1.03E-01	3.63E-04	1.30E+00	6.14E-03	2.82E+00	1.32E-04	1.21E-05	1.75E-01

Table 43. Output Flows and Waste Categories Assessment Results in case of LANDFILL at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD	kg	9.68E+00	6.41E-01	9.33E-03	5.03E-02	2.51E+00	6.45E+00	3.39E-03	1.17E-02	-1.72E-01
NHWD	kg	1.36E+02	1.38E+01	1.80E-01	9.95E-01	2.06E+01	9.10E+01	6.54E-02	9.84E+00	-1.01E+00
RWD	kg	9.79E-04	1.16E-04	8.51E-07	5.85E-06	2.03E-04	6.52E-04	3.10E-07	2.11E-07	-1.35E-05
MER	kg	6.31E-05	1.15E-05	2.65E-07	1.73E-06	7.39E-06	4.21E-05	9.64E-08	6.65E-08	-4.47E-07
MFR	kg	9.55E-02	4.46E-03	4.79E-05	1.55E-03	2.29E-02	6.37E-02	1.74E-05	2.87E-03	-9.34E-04
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	1.22E-01	2.31E-02	4.97E-04	5.02E-03	1.16E-02	8.10E-02	1.81E-04	1.07E-04	-7.00E-04
EEE	MJ	9.68E+00	1.03E-01	3.63E-04	1.30E+00	6.14E-03	2.82E+00	1.32E-04	9.38E-05	-1.84E-04

Table 44. Output Flows and Waste Categories Assessment Results in case of INCINERATION at end of use

INDICATOR	UNIT	TOTAL	A1-A3	A4	A5	B2	B4	C2	C4	D
HWD	kg	1.01E+01	6.41E-01	9.33E-03	5.03E-02	2.51E+00	6.74E+00	3.39E-03	1.72E+00	-1.49E+00
NHWD	kg	1.22E+02	1.38E+01	1.80E-01	9.95E-01	2.06E+01	8.11E+01	6.54E-02	4.93E+00	-8.71E+00
RWD	kg	9.79E-04	1.16E-04	8.51E-07	5.85E-06	2.03E-04	6.53E-04	3.10E-07	4.56E-07	-1.17E-04
MER	kg	6.33E-05	1.15E-05	2.65E-07	1.73E-06	7.39E-06	4.22E-05	9.64E-08	1.07E-07	-3.87E-06
MFR	kg	2.19E-01	4.46E-03	4.79E-05	1.55E-03	2.29E-02	1.46E-01	1.74E-05	4.39E-02	-8.09E-03
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	1.22E-01	2.31E-02	4.97E-04	5.02E-03	1.16E-02	8.12E-02	1.81E-04	2.13E-04	-6.07E-03
EEE	MJ	4.23E+00	1.03E-01	3.63E-04	1.30E+00	6.14E-03	2.82E+00	1.32E-04	1.86E-04	-1.59E-03

Acronyms: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; MER = Mat/erials for energy recovery; MFR = Material for recycling; CRU = Components for reuse; ETE = Exported thermal energy; EEE = Exported electricity energy.



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According to ISO 14025,
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Table 45. Information describing the biogenic carbon content at the factory gate

BIOGENIC CARBON CONTENT	UNIT (EXPRESSED PER DECLARED UNIT)	VALUE
Biogenic carbon content in accompanying packaging	kg C	0.012

NOTE: 1 kg biogenic carbon is equivalent to 44/12 kg of CO₂. Since the quality of the biocarbon material contained in the target product is less than 5% of the product quality, the declaration of the biocarbon content of the product is omitted.

Table 46. Carbon Emissions and Removals

PARAMETER	UNIT (EXPRESSED PER DECLARED UNIT)	VALUE
Biogenic Carbon Removal from Packaging	kg CO ₂	0.044
Biogenic Carbon Emission from Packaging	kg CO ₂	0.044

NOTE: Since the quality of the biogenic carbon material contained in the target product is less than 5% of the product quality, the declaration of the biogenic carbon content of the product is omitted.

5. LCA Interpretation

Under the 75-year building service life assumption, product manufacturing (A1-A3), recommended maintenance (B2) and replacement (B4) are the three largest contributors to most impact categories considered. The production of raw materials represents a substantial fraction of potential impact, even over the life of a building. The potential impacts of flooring maintenance add up over time and are relevant contributors to the life cycle. Product installation (A5) is a relatively minor contributor to all impact categories. Replacement (B4), on the other hand, is a key contributor because it represents the production, installation, and disposal of replacement products needed to satisfy the 75-year building service life.

The wastewater generated from the used water is divided into two parts, one part needs to be discharged after WWT wastewater treatment, and the other part is directly discharged into the municipal wastewater system, therefore this part is not included in the inventory.

Third party verified ISO 14040/44 secondary LCI data sets contribute more than 67% of total impact (either at the unit process level or in aggregate) to any of the required impact categories identified by PCR.

For a target product of one square meter with an average thickness, the quality range on the production line may fluctuate by 10%, which mainly depends on the type of product being produced.

The LCA study has been carried out based on available data, information, regional and global knowledge and experience to achieve more possible accuracy, completeness and representative of the results.



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6. Additional Environmental Information

6.1 Mandatory Environmental Information

Gerflor's factory conforms to:

- ISO 9001 Quality Management System,
- ISO 14001 Environmental Management System,
- ISO 50001 Energy Management System.
- ISO 45001 Occupational Health and Safety Management Systems

6.2 Environment and Health During Installation

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

6.3 Environment and Health During the use stage

The product is certified FloorScore, the measured concentration of total volatile organic compounds (TVOC) is less than/equal to 0.5 mg/m³(in accordance with CDPH/EHLB Standard Method v1.2-2017). And certified with SGBP, Australia Global GreenTag GreenRate Level A certified and Vinyl Council of Australia Best Environmental Practice PVC and Korea Eco-label (for several references).

7. References

- 1) UL Environment General Program Instructions, Version 2.7
- 2) UL. (2022). Part A: Life Cycle Assessment Calculation Rules and Report Requirements, Version 4.0
- 3) UL. (2018). Part B: Flooring EPD Requirements. 10010-7, Version 2
- 4) EN 15804: 2012+A2: 2019 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- 5) ISO. (2006). ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines.
- 6) ISO. (2009). ISO 14040: Environmental management - Life cycle assessment- principles and frameworks.
- 7) ISO. (2011).ISO 14025: Environmental labels and declarations - Type II environmental declarations - principles and procedures.
- 8) ISO. (2017). ISO 21930 Sustainability in building construction - Environmental declaration of building products.
- 9) Product Environmental Footprint Category Rules Guidance, Version 6.3, May, 2018



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According to ISO 14025,
EN 15804:2012+A2:2019/AC:2021

8. Contact Information

8.1 Study Commissioner



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