ENVIRONMENTAL PRODUCT DECLARATION

LINOLEUM FLOORING

TARKETT
ENVIRONMENTAL PRODUCT DECLARATION

Tarkett LINO web site:https://professionals.tarkett.com/en_EU/category-emea_C01010-linoleum-flooring

Linoleum flooring

Tarkett Lino is a versatile flooring and solution made from up to 97% natural ingredients and manufactured at our Narni site in Italy. Our linoleum collection reflects the natural elements that inspire it, with modern designs and a broad palette of subtle shades and patterns, ideal for coordinating floors, walls and even furniture. Made from natural and bio-based materials, Tarkett Lino provides one of the most sustainable credentials among durable flooring for commercial applications. Discover more on its exceptionally low carbon footprint. 100% of ingredients are positively assessed according to the Cradle to Cradle® eco-design framework. Combining a legacy of expertise with a passion for performance, Tarkett Lino is durable, functional and easy to maintain, thanks to the unique xf² surface protection. Tarkett Lino offers many different functionalities such as acoustic, slip-resistance, antistatic and more.

UL CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

ENVIRONMENTAL PRODUCT DECLARATION

Tarkett

LINOLEUM FLOORING

According to ISO 14025, EN 15804+A2

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions | 333 Pfingsten Road | Northbrook, IL 60611 https://www.ul.com/ | HTTPS://SPOT.UL.COM
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	Program Operator Rules v 2.7 2022
MANUFACTURER NAME AND ADDRESS	Tarkett S.P.A | Strada Sant'Anna n. 6 | 05035 Narni Scalo (TR) Italy
DECLARATION NUMBER	4791835705.101.1
DECLARED PRODUCT & FUNCTIONAL UNIT OR DECLARED UNIT	Installed linoleum floor covering, 1 m^2
REFERENCE PCR AND VERSION NUMBER	EN 15804:2012+A2:2019 "Sustainability of construction works -Environmental product declarations – Core rules for the product category of construction products. (EN 15804+A2, 2020) EN 15804
DESCRIPTION OF PRODUCT APPLICATION/USE	Commercial and residential linoleum flooring
PRODUCT RSL DESCRIPTION (IF APPL.)	1 year
MARKETS OF APPLICABILITY	Europe, North America, South America, Asia Pacific
DATE OF ISSUE	August 8th, 2025
PERIOD OF VALIDITY	5 years
EPD TYPE	Product-specific, single-company
RANGE OF DATASET VARIABILITY	Not applicable
EPD SCOPE	Cradle-to-grave and module D
YEAR(S) OF REPORTED PRIMARY DATA	2023
LCA SOFTWARE & VERSION NUMBER	Sphera LCA For Experts v10.9
LCI DATABASE(S) & VERSION NUMBER	Sphera MLC v2024.2 database
LCIA METHODOLOGY & VERSION NUMBER	EN 15804 +A2 (based on EF 3.1)

The PCR review was conducted by:	EN 15804+A2 European Standards info@en-standard.eu
This declaration was independently verified in accordance with ISO 14025: 2006. ☐ INTERNAL ☒ EXTERNAL	Cooper McCollum, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	Sphera Inc.

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.

ENVIRONMENTAL PRODUCT DECLARATION

Tarkett

LINOLEUM FLOORING

According to ISO 14025,
EN 15804 +A2

1. Product Definition and Information

1.1. Description of Company/Organization

About Tarkett Group

With a history of more than 140 years, Tarkett is a worldwide leader in innovative and sustainable flooring and sports surface solutions, generating turnover of € 3.3 billion in 2024. The Group has close to 12,000 employees, 24 R&D centers, 8 recycling centers and 35 production sites. Tarkett creates and manufactures solutions for hospitals, schools, housing, hotels, offices, stores and sports fields, serving customers in over 100 countries. To build "The Way to Better Floors," the Group is committed to circular economy and sustainability, in line with its Tarkett Human-Conscious Design® approach. Tarkett is listed on the Euronext regulated market (compartment B, ISIN: FR0004188670, ticker: TKTT) www.tarkett-group.com

About Tarkett Lino Plant

Tarkett Lino plant began its production in **Narni, Italy**, in 1898, when European countries commonly used linoleum for flooring and wallcoverings. In the early 1990s, Tarkett began to invest in the modernization of the entire production system. Today, Tarkett's facility is accredited with **ISO 9001** and holds important certifications including **ISO 14001, ISO 50001, ISO 45001, ISO 37001 Anti-Bribery Management Systems, SA 8000 Social Accountability, Gender Equality UNI/PdR 125:2022, SWAN and Der Blaue Engel.**

Mindful of the environment, the company has made innovative improvements in its production processes to reduce environmental impacts. To address constantly changing scenarios, Tarkett has chosen to implement **World Class Management (WCM)**, an innovative program based on **continuous improvement** that involves the elimination of all types of waste and losses throughout the production process. As a result, **Tarkett Lino is a flooring solution that blends craftsmanship with the most advanced technology.**
The facility also produces **LinoWall**, a specific linoleum formulation approved for wall application, underlayers (**Elafono**) and installation accessories, such as **welding rods** and **profiles**. Those products are not part of this EPD.

1.2. Product Description

Product Identification

Tarkett Lino, manufactured in accordance with standard EN-ISO 24011: Specification for plain and decorative linoleum, is a high performance, resilient floor covering. The company uses materials that contribute positively to people's health and the environment. Closed-loop design starts here, so that good materials become future resources that can be reused.

- **Up to 97%** natural raw materials - linseed oil, pine rosin, wood and cork flour, calcium carbonate and jute.
- **Up to 83% from abundant renewable resources**
- **76% bio-sourced materials (certified)**
- **Up to 40% of recycled materials**
- **100%** of ingredients have been positively assessed according to Cradle to Cradle® framework for health and environment. As such, Tarkett Lino exceeds European REACH regulation requirements.
- **100%** recyclable – Tarkett Lino offcuts and even post-use recycling, can be fully reused as raw materials for future products or packaging through our ReStart® Programme

ENVIRONMENTAL PRODUCT DECLARATION

Tarkett

LINOLEUM FLOORING

According to ISO 14025,
EN 15804 +A2

Tarkett Lino is **naturally phthalate free**, has **natural anti-bacterial properties**, grants Optimal indoor air quality: VOC emissions (≤10µg/m^3) 100 times lower than the most stringent industry requirements and is awarded Allergy UK Seal of Approval.

Tarkett Lino is a **durable product with a lifespan of up to 30 years (Reference Life Span RLS).**

The diagram below shows Tarkett Lino **homogeneous** construction for compact linoleum in 2mm, 2,5mm, 3,2mm and 4mm:

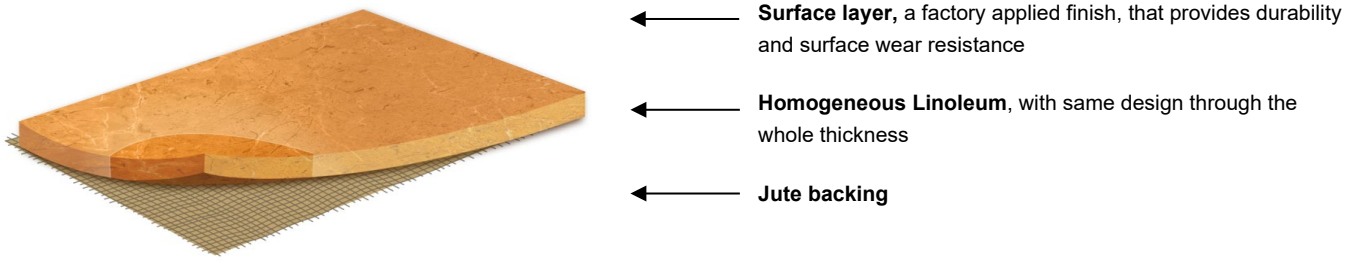


Figure 1: Tarkett Lino homogeneous construction

An additional backing (polyurethane foam or cork based) is added to obtain products in 3.8 mm, 4,3mm, 4.4 mm and 4.6 mm thicknesses.

Linosport and Ecopure products are used in sport applications.

This environmental product declaration (EPD) covers Tarkett Lino Flooring available in a wide range of thicknesses, configurations and colors. Table 1 provides details on the products evaluated as part of this declaration. Results are to be presented per thickness category.

Table 1: Products evaluated

PRODUCT GROUP	SALES NAME	ADDITIONAL BACKING	DENSITY AND REFERENCE FLOW (KG/M^2)
Linoleum 2 mm	Veneto xf² 2 mm	None	2.30
Linoleum 2.5mm	Veneto xf² 2.5 mm	None	2.90
	Etrusco xf² 2.5 mm	None	2.90
	Style Elle / Lenza xf² 2.5 mm	None	2.90
	Style Emme / Tonali xf² 2.5 mm	None	2.90
	Trentino xf² 2.5 mm	None	2.90

	Veneto Essenza+ 2.5 mm	None	2.90
	Originale xf² 2.5 mm	None	2.90
	Originale Essenza+ 2.5 mm	None	2.90
	Linoleum xf² Bfl 2.5 mm	None	3.20
	Veneto Sicuro xf² R10 2.5 mm	None	2.90
	LinoRail 2.5 mm	None	3.20
	LinoTiles xf² 2.5 mm	None	3.20
	LinoMarine 2.5 mm	None	3.20
	Linoleum SD Static Dissipative xf² 2.5 mm	None	2.90
	Linoleum Conductive xf² 2.5 mm	None	2.90
	Linosport / Ecopure xf² 2.5 mm	None	2.90
	Lino on Furniture xf² 2,5 mm	None	2.90
	Lino Materiale 2.5 mm	None	2.65
Linoleum 3.2 mm	Veneto xf² 3.2 mm	None	3.80
	Linosport / Ecopure xf² 3.2 mm	None	3.80
	Linoleum xf² Bfl 3.2 mm	None	4.20
Linoleum 3.8 mm	Veneto Silencio/Acoustic/Acoustiflor xf² 3.8 mm	Polyurethane Backing	3.35
	Style Emme Silencio/Acoustic/Tonali Acoustiflor xf² 3.8 mm	Polyurethane Backing	3.35
	Style Elle Silencio/Acoustic/ Lenza Acoustiflor xf² 3.8 mm	Polyurethane Backing	3.35
	Etrusco Silencio/Acoustic/Acoustiflor xf² 3.8 mm	Polyurethane Backing	3.35
	Trentino Silencio/Acoustic / Acoustiflor xf² 3.8 mm	Polyurethane Backing	3.35
	Originale Silencio/Acoustic / Acoustiflor xf²	Polyurethane Backing	3.35

	3.8 mm		
Linoleum 4 mm	Linosport Classic / Narnidur 4 mm	None	4.70
Linoleum 4.3 mm	Tarkett Lino Loose-Lay 4.3 mm	Cork Backing	5.00
Linoleum 4.4 mm	Linoleum Acoustic Cork xf² 4.4 mm	Cork Backing	4.50
Linoleum 4.6 mm	Linosport / Ecopure xf² 4.6 mm	Polyurethane Backing	3.70

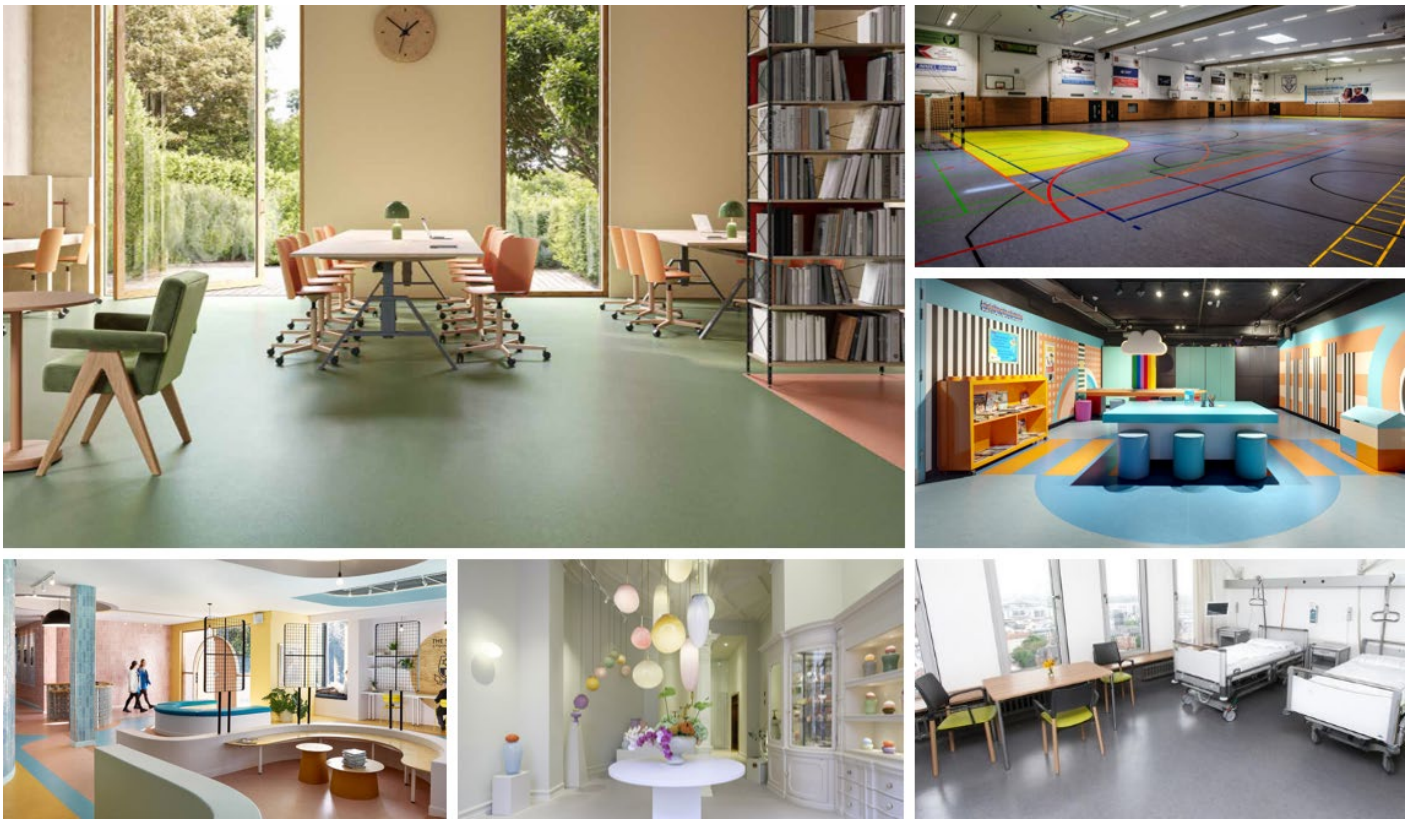


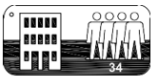
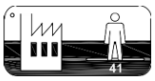
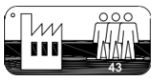
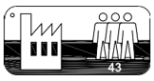
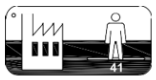
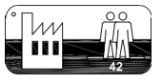
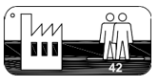
Figure 2: Examples of use of the product

1.3. Application

Tarkett Lino, manufactured in accordance with **ISO 24011**, is designed for high traffic commercial areas, such as **schools, hospitals, public offices, hotels, housing, store and shops**, where hygiene and high endurance standards

are required. Table 2 shows how **ISO 10874** defines the areas of use. Linosport and Ecopure products in 4.0 mm and 4.6 mm are used in sport applications and are not defined within ISO 10874.

Table 2: ISO 10874 areas of use

ISO 10874	CLASSES					
	2 MM	2.5 MM	3.2 MM	3.8 MM	4.3 MM	4.4 MM
DOMESTIC						
COMMERCIAL						
LIGHT INDUSTRIAL						

1.4. Declaration of Methodological Framework

The EPD analysis uses a cradle-to-grave and module D system boundary. As such, all relevant life cycle stages and modules are included. The reference service life of the product is one year. Additional details on cut-off and allocation procedures can be found in sections 2.4 and 2.8, respectively.

1.5. Technical Requirements

Results in this study are presented on a per thickness basis. Where there are multiple products within the same thickness category (2.5mm, 3.2mm and 3.8mm), the technical data in Table 3 documents the weighted average base don production volumes. The technical data for 2 mm, 4 mm, 4.3 mm, 4.4 mm, 4.6 mm correspond to individual products.

Table 3: Flooring technical data

LINOLEUM FLOORING	UNIT	2 MM	2.5 MM	3.2 MM	3.8 MM	4 MM	4.3 MM	4.4 MM	4.6 MM
Product thickness	mm	2.0	2.5	3.2	3.8	4.0	4.3	4.4	4.6
Product weight	kg/m^2	2.30	2.90	3.82	3.35	4.70	5.00	4.50	3.70
Product form: Sheets	m (width)	2	2	2	2	2	2	2	2
	m (length)	≤32	≤32	≤32	≤32	≤28	≤16	≤32	≤32

1.6. Market Placement / Application Rules

The products covered in this EPD meet or exceed the following Technical Specifications:

ISO 24011 Specification for plain and decorative linoleum

ASTM F2034 Standard specification for linoleum sheet

CE Tarkett Lino meets the requirements of EN 14041 and BS EN 14041 UKCA		
EN 13501-1	Reaction to Fire	C_{fl}-s1 B_{fl}-s1
EN 13893	Slip Resistance	≥0,30
EN 1815	Antistatic Performance	≤2,0 kV
EN 12524	Thermal resistance	Approx. 0.015 m2 K/W (for 2.5 mm)

Fire testing specific to transportation products

LinoMarine

- **Marine equipment** IMO Res. MSC. 307 (88) (FTP Code), Annex 1, Part 2 and Part 5

LinoRail

- EN 45545-2

Emission Testing

- TVOC CEN/TS 16516, ISO 16000-3, ISO 16000-6, ISO 16000-9, ISO 16000-11, EN 13419
- French VOC regulations A+

- FloorScore CDPH/EHLB Standard Method v1.2-2017 (California Section 01350)
- M1 Finnish voluntary emission classification of building materials
- VOC emission testing according to EN 16516, Indoor Air Comfort, Gold, Eurofins – compliant with:

- Belgian VOC regulation
- France VOC class A+
- Germany (AgBB/ABG)
- Italian CAM Edilizia
- EU Taxonomy Regulation
- LEED (ACP)
- BREEAM New Construction
- WELL Building
- DGNB
- SKA Rating
- French HQE certification
- Blue Angel DE-UZ 120
- Austrian Ecolabel UZ 42
- Austrian Baubook
- M1
- Danish Indoor Climate Label (Emission Class 1)
- BVB (Sweden)
- Miljöbyggnad (Sweden)
- Nordic Swan
- Eco Product Norway
- Cradle to Cradle
- very low emitting products according to EN 16798-1
- Singapore Green Label
- Global GreenTag
- Declare 2.0

1.7. Material Composition

Table 4: Material composition

COMPONENT	MATERIAL	MASS (WT%)	AVAILABILITY			ORIGIN
			RENEWABLE	NON-RENEWABLE	RECYCLED	
Binder	Linseed oil	24.70-28.50	Bio based crop			Europe
	Colophony (gum rosin)	5.00 - 5.80	Bio based crop			Brazil / Europe
Filler	Limestone (calcium carbonate)	12.30 - 14.20		Abundant mineral		Italy
	Wood flour, cork flour	17.80 - 34.20	Bio based		Bio-based waste from wood/cork industry	Italy / Europe
	Recycled linoleum	5.80 – 9.10			Pre and Post consumer	Italy / Global
Pigments	Titanium dioxide	2.50 - 3.70		Limited mineral		Europe
	Other pigments	0.10 - 0.20		Limited mineral		Global
Backing	Jute	7.50 - 11.10	Bio based crop			India / Bangladesh
	Polyurethane foam	0. 00 - 9.80			Rebonded foam	Italy
Coating	Lacquer	0.50 - 0.80		Limited fossil		Italy

Tarkett

LINOLEUM FLOORING

According to ISO 14025,
EN 15804 +A2

Tarkett Lino raw materials

- **Linseed Oil**: it is obtained by squeezing flax seeds. The “crude” oil obtained is then submitted to clarification and filtration treatments.
- **Colophony**: Yellow, solid, and transparent remains of vegetable resins, produced by various species of pines and conifers.
- **Calcium Carbonate**: Calcium Carbonate ($CaCO_3$) occurs in nature, in whole or in part, of a wide range of rocks, such as marble, limestone rocks and travertine. Abundant Mineral.
- **Wood Powder**: It is obtained by the pulverization of woodworking scraps.
- **Cork Powder**: Cork is an elastic and light material obtained by the external bark of cork oaks that can be removed without any harm to the plant. It is obtained by the pulverization of corkworking scraps.
- **Linoleum Powder**: It is obtained by the pulverization of linoleum scraps, reintroduced in the productive cycle as a “raw material”.
- **Titanium Dioxide**: It is a white crystalline powder whose chemical formula is TiO_2.
- **Jute**: Jute is a vegetal textile fiber obtained by Corchorus species. It can be spinned in large and strong strings thanks to its features. Typically, the length of the fiber can range from 1.2 to 3 m.
- **Surface Protection**: It acts as protection of the surface.

- **Foam**: polyurethane foam that gives sound insulating characteristics to the product.

1.8. Manufacturing

Tarkett Lino is a **natural** and **bio-based** flooring with **homogeneous one layer construction**, with design and colors through the whole thickness and made with natural ingredients such as linseed oil, rosin, cork and wooden powders, linoleum powder, pigments and jute as support.

The main steps to produce Tarkett Lino are: **Oxidation / Mixing / Calendering / Curing / Finishing / Recycling**

During the **oxidation** step, a **bio-polymer** named **linoleum cement** is produced using linseed oil, rosin and calcium carbonate. The linoleum cement is an elastic and sticky material that is acting as a binder in the following production step.

In the **mixing** process**,** the linoleum cement is mixed with **cork** and **wooden powders**, **calcium carbonate**, **pigments** and the **linoleum powder** to obtain the coloured linoleum granules.

During the **calendering** step one or more coloured linoleum granules are mixed and pressed onto a jute support, creating so a linoleum sheet.

Curing is the necessary process to allow linoleum to reach its mechanical properties to become a resistant flooring.

In the **finishing** step a surface protection is applied to give Tarkett Lino its unique mechanical and chemical properties.

After the final checks, Tarkett Lino is **packed into rolls ready for shipment**.

The **recycling** step is the process that transforms both pre and post-consumer scraps, via mechanical operations, in raw material reused back into the production during the mixing step.

Production of linoleum flooring is carried out at **Tarkett's Narni, Italy facility**. Manufacturing follows the flow diagram shown in **Figure 3**.

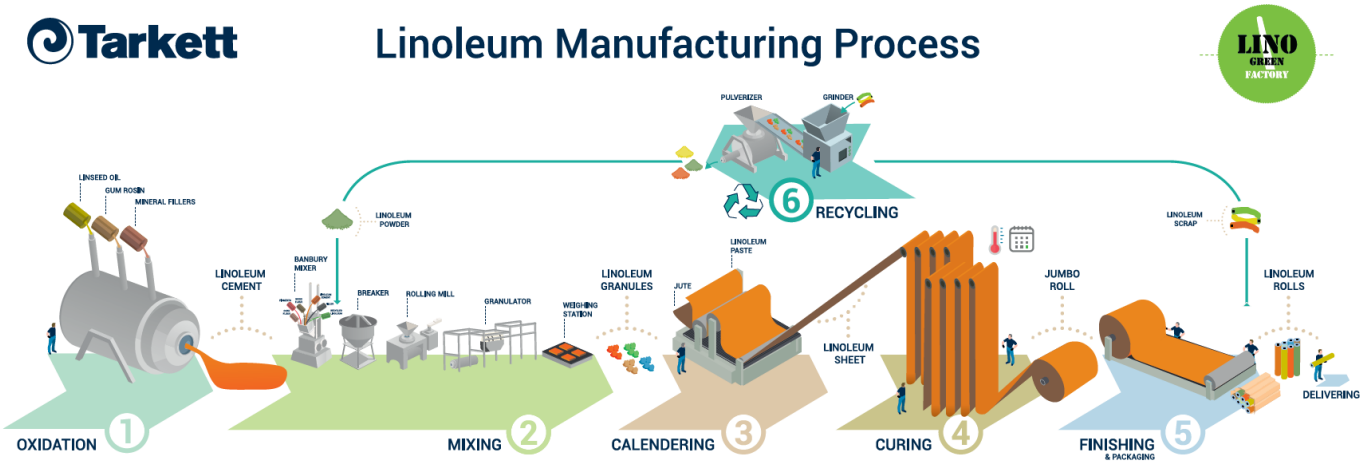


Figure 3: Diagram of the linoleum production process at the Tarkett facility in Narni, Italy

1.9. Packaging

Tarkett Linoleum rolls are wrapped around recycled cardboard cores and packed in recycled paper. The external plastic caps contain recycled linoleum powder. Tarkett encourages installers to recycle packaging materials in local recycling programs.

1.10. Product Installation

This study includes transportation to the construction site and flooring installation in the building.

During installation, linoleum flooring is trimmed to fit the specific application and is adhered to the subfloor. Installation requires approximately 300 g/m^2 adhesive. As the product is produced and delivered as a sheet, about 6% of total material is assumed to be trimmed and discarded. Tarkett has established the **ReStart®** recycling program for Lino flooring installation scraps waste and end-of-use flooring.

1.11. Use

The service life of linoleum flooring 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. This EPD accounts for dust and damp mopping within the use phase, as detailed in Chapter 3.

1.12. Reference Service Life and Reference Life Span

The reference service life (RSL) for linoleum flooring is assumed to be 1 year per the PCR, although Tarkett Lino flooring has a durability of 30 years.

1.13. End-of-Life

Results in this EPD consider three distinct scenarios for the end of life of the product: landfilling, incineration, and recycling, which is the scenario recommended by Tarkett. When the flooring is removed, it is assumed that only manual labor is involved, and no environmental impact is associated with this module (C1). Wastes are assumed to be transported 160 km to disposal (C2). At the end of life, there are three distinct scenarios for product disposal: 100% recycling (C3), 100% incineration (C4/1) and 100% landfill (C4/2). Across these scenarios packaging undergoes incineration with energy recovery and corresponding credits are reported under module D.

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), per the product category rules (PCR) for resilient, textile and laminate floor coverings as published by the European Committee for Standardization (EN 15804+A2, 2020).

2.1. Functional Unit

The EPD refers to the functional unit of 1 m² installed floor covering. Linoleum flooring is assumed to have a reference service life of 1 year considering that all impacts for the use phase are based on 1 year cleaning and maintenance. The functional unit and reference flows (Table 5) are based on weighted averages for the thicknesses with multiple products such as 2.5 mm, 3.2 mm and 3.8 mm.

Table 5: Functional unit information for 1 m²

PRODUCT	REFERENCE FLOW [KG]
2 mm	2.30
2.5 mm	2.90
3.2 mm	3.82
3.8 mm	3.35
4 mm	4.70
4.3 mm	5.00
4.4 mm	4.50
4.6 mm	3.70

2.2. System Boundary

The system boundary of the EPD is cradle-to-grave and module D. As such, the analysis includes the following modules:

- Product stage: modules A1 to A3
- Construction stage: modules A4 and A5
- Use stage: modules B1 to B7
- End-of-life stage: modules C1 to C4
- Benefits and loads beyond the product system boundary: modules D

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 products and materials) are considered in the module in which the wastage occurs.

The use stage modules B1, B3, B4, 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 B2 module accounts for cleaning the floor (i.e., maintenance, which consists of dust mopping and damp mopping).

Three end-of-life scenarios were considered:

Recycling (C3): The product is recycled at the end of life by Tarkett and is converted into a recycled linoleum powder which is used in the plastic industry replacing polypropylene and polyethylene in extrusion and injection molding.

Credits associated with this material substitution are explained under the Module D section below.

Incineration (C4/1): This scenario assumes that the product is 100% incinerated with energy recovery at end-of-life. 100% Municipal waste incineration (MWI) with R1>60%

Landfill (C4/2): This scenario assumes that the product is 100% disposed of in a landfill which is the scenario least recommended by Tarkett. Landfilling emissions are based on an MLC dataset for inert waste where carbon emissions are added as per the PCR. Following the PCR, it is mandated that irrespective of material degradation, the biogenic carbon stored in the products shall be converted to carbon dioxide and released into the atmosphere.

In all three end-of-life scenarios, packaging is assumed to be incinerated with energy recovery.

Module D for recycling, incineration and landfill are considered in the analysis. It represents the benefits/loads beyond the system boundary. For recycling, of product at installation scrap and end of life, the credit is based on a net scrap approach, where the amount exiting the product system is given a substitution credit of a 50/50 mix of polyethylene and polypropylene granulate as these are the materials the recycled linoleum powder is currently replacing. For incineration, Module D/1 consists of credits from recovered electricity and heat from incineration of the product and packaging. For the landfill scenario, Module D/2 has no credits from the product disposal as it is assumed the product degrades entirely into carbon dioxide, without energy recovery. Packaging in all scenarios is assumed to undergo incineration which results in some credits from energy recovery in their respective Module D.

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

Table 6. Description of the system boundary modules

	PRODUCT STAGE			CONSTRUCT-ION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product	Building Operational Water Use During Product	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
Recycling: Cradle-to-grave and Module D	x	x	x	x	x	0	x	0	0	0	0	0	0	x	x	0	x
Incineration: Cradle-to-grave and Module D	x	x	x	x	x	0	x	0	0	0	0	0	0	x	0	x	x
Landfill: Cradle-to-grave and Module D	x	x	x	x	x	0	x	0	0	0	0	0	0	x	0	x	x

2.3. Estimates and Assumptions

Distribution of the product to the installation site is estimated and varies by the region of use. Distribution takes place via cargo ship and diesel-powered truck and is detailed in Table 7. Product transport from building sites to waste processing is assumed to be 100 km (62 miles) by diesel-powered truck. The same assumption is used for transporting deconstructed products at end-of-life.

2.4. Cut-off Criteria

No available data were knowingly excluded and only flows representing less than 1% of the cumulative mass of a unit process were excluded, providing their environmental relevance was not a concern.

For example, packaging of incoming raw materials (e.g., pallets, totes, super-sacks) are excluded as they represent less than 1% of the product mass and are not expected to contribute significantly to the results per functional unit.

2.5. Data Sources

Primary data was collected for all stages of the study including manufacturing, installation, use-phase and end-of-life treatment. Manufacturing data is based on Tarkett's facility in Narni, Italy.

For life cycle modeling of many of the background materials and processes (e.g., energy and transportation), Sphera's

Managed LCA Content (MLC) 2024.2 databases, developed and maintained by Sphera, were used. These datasets are documented in the online documentation (Sphera, 2024).

2.6. 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 during the 2023 calendar year. Background datasets are all based on data from the last 10 years, with the majority of datasets based on data from 2023.

Geographical Coverage

This background LCA represents Tarkett products produced in Narni, Italy. Primary data are representative of this country. Regionally specific datasets were used to represent the manufacturing location's energy consumption. 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 technological representativeness of the actual materials.

Technological Coverage

Data on material composition and manufacturing processes are primary data from the Tarkett. The raw material inputs in the calculation for this LCA are based on data received from Tarkett. Waste, emissions, and energy use are calculated from reported annual production during the reference year.

2.7. Period under Review

This analysis is intended to represent production in 2023 as per the data collection period.

2.8. Allocation

No multi-output (i.e., co-product) allocation was performed in the foreground of this study.

Allocation of background data (energy and materials) taken from the Sphera's Managed LCA Content (MLC) 2024.2 databases is documented online at *https://sphera.com/solutions/product-stewardship/life-cycle-assessment-software-and-data/managed-lca-content*.

2.9. Comparability

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. Caution should be used when attempting to compare EPD results. Results of other EPDs may not be comparable if they do not also comply with EN 15804+A2.

3. Life Cycle Assessment

Assumptions are provided in this section, per PCR requirements (EN 15804+A2, 2020).

Table 7 details module A4 transportation data for the product.

Table 7: Transport to the building site

PARAMETER		UNIT	EUROPE	ASIA PACIFIC	NORTH AMERICA	SOUTH AMERICA
Truck	Diesel consumption	L/(km-kg)	2.14E-05	2.14E-05	2.21E-05	2.14E-05
	Distance	km	1,000	2,000	2,000	1,800
	Volume capacity utilization factor	-	0.305	0.305	0.500	0.305
Ship	Fuel oil consumption	kg/(km-kg)	2.53E-02	5.06E-02	1.87E-05	4.56E-02
	Distance	km	0	15,000	8,700	9,200
	Volume capacity utilization factor	-	1	1	1	1
Capacity utilization (including empty returns)		%	100	100	100	100

Table 8 details inputs and assumptions for product installation.

Table 8: Installation of the product in the building

PARAMETER	UNIT	VALUE
Adhesive	g/m^2	300
Product loss	%	6

Table 9 details cleaning process assumptions and cleaning process inputs as calculated based on the assumptions.

Table 9: Use stage related to the building fabric (maintenance stage, B2)

PARAMETER	UNIT	DUST MOP	DAMP MOP / NEUTRAL CLEANER
Cleaning and maintenance cycle	Number/year	104	72
Detergent	$kg/(m^2\text{-}yr)$	-	0.0344
Net fresh water consumption	$L/(m^2\text{-}yr)$	-	1.098
Energy input	$kWh/(m^2\text{-}yr)$	0.12	0.2282

Table 10 describes the product's reference service life.

Table 10: Reference service life

PARAMETER	UNITS	VALUE
Reference service life	years	1
Declared product properties and finishes (use class in accordance with EN ISO 10874)	N/A	See Linosport and Ecopure products in 4.0 mm and 4.6 mm are used in sport applications and are not defined within ISO 10874. Table 2
Recommended relative humidity in the room	Relative Humidity (%)	35-65%
Usage conditions (e.g. frequency of use, mechanical exposure)	N/A	See Linosport and Ecopure products in 4.0 mm and 4.6 mm are used in sport applications and are not defined within ISO 10874. Table 2

4. Life Cycle Assessment Results

Table 12 through Table 32 contains cradle-to-grave results for 1 m^2 of flooring over the 1-year reference service life.

Modules B1, B3, B4, B5, B6, and B7 are declared as zero per the PCR (EN 15804+A2, 2020). Furthermore, modules C1 is 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.

4.1. Life Cycle Impact Assessment Results

2 mm Linoleum

Table 11. Impact assessment results for 1m^2 of 2 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-1.37E+00	2.39E-01	5.56E-01	1.19E-01	2.76E-02	4.49E+00	4.45E+00	4.40E+00	-1.31E+00	-3.04E-01	-5.70E+00
GWP Fossil	kg CO_2 eq.	2.73E+00	2.35E-01	5.55E-01	1.17E-01	2.71E-02	1.19E-01	8.32E-02	3.89E-02	-1.31E+00	-3.03E-01	-5.68E+00
GWP Bio	kg CO_2 eq.	-4.19E+00	6.15E-04	-5.02E-03	1.77E-03	8.57E-05	4.37E+00	4.36E+00	4.36E+00	-5.56E-03	-1.15E-03	-2.13E-02
GWP Luluc	kg CO_2 eq.	9.38E-02	3.94E-03	6.19E-03	1.73E-05	4.19E-04	6.55E-04	1.81E-05	2.34E-04	-1.27E-04	-3.52E-05	-6.71E-04
ODP	kg CFC 11 eq.	9.89E-11	3.46E-14	8.98E-12	2.38E-12	5.24E-14	3.70E-11	4.79E-13	1.05E-13	-1.03E-11	-1.14E-12	-1.53E-11
AP	Mole H+ eq.	1.72E-02	4.18E-04	1.75E-03	2.19E-04	5.65E-05	1.42E-03	2.10E-03	2.76E-04	-1.63E-03	-5.62E-04	-1.16E-02
EP Fresh	kg P eq.	5.31E-04	1.00E-06	3.50E-05	1.17E-06	1.15E-07	6.88E-06	1.14E-07	8.85E-08	-2.11E-06	-4.02E-07	-7.24E-06
EP Marine	kg N eq.	9.62E-03	1.66E-04	8.44E-04	5.85E-05	2.29E-05	4.42E-04	9.97E-04	7.11E-05	-5.01E-04	-1.77E-04	-3.68E-03
EP Terr	Mole of N eq.	6.50E-02	1.90E-03	6.57E-03	5.87E-04	2.59E-04	3.35E-03	1.15E-02	7.83E-04	-5.38E-03	-1.90E-03	-3.96E-02
POCP	kg NMVOC eq.	1.11E-02	4.08E-04	1.47E-03	1.61E-04	5.83E-05	1.00E-03	2.57E-03	2.18E-04	-1.62E-03	-6.98E-04	-1.50E-02
ADPe	kg Sb eq.	1.49E-05	2.04E-08	9.90E-07	2.19E-08	2.57E-09	2.21E-07	5.22E-09	2.52E-09	-1.12E-07	-2.38E-08	-4.43E-07
ADPf	MJ	3.61E+01	3.09E+00	1.10E+01	2.48E+00	3.73E-01	2.60E+00	1.26E+00	5.13E-01	-2.76E+01	-9.60E+00	-2.00E+02
WDP	m^3 world-q deprived	5.62E-01	3.63E-03	8.86E-02	3.07E-02	9.80E-04	6.37E-02	4.41E-01	4.45E-03	-1.62E-01	-5.03E-02	-1.04E+00

2.5 mm Linoleum

Table 12. Impact assessment results for 1 m² of 2.5 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-1.70E+00	3.74E-01	6.52E-01	1.19E-01	3.40E-02	5.63E+00	5.58E+00	5.52E+00	-1.63E+00	-3.84E-01	-7.03E+00
GWP Fossil	kg CO_2 eq.	3.47E+00	3.69E-01	6.17E-01	1.17E-01	3.34E-02	1.47E-01	1.03E-01	4.80E-02	-1.62E+00	-3.82E-01	-7.00E+00
GWP Bio	kg CO_2 eq.	-5.29E+00	6.49E-04	2.68E-02	1.77E-03	1.06E-04	5.48E+00	5.48E+00	5.48E+00	-6.89E-03	-1.45E-03	-2.62E-02
GWP Luluc	kg CO_2 eq.	1.19E-01	4.58E-03	7.78E-03	1.73E-05	5.16E-04	8.07E-04	2.23E-05	2.88E-04	-1.58E-04	-4.44E-05	-8.27E-04
ODP	kg CFC 11 eq.	1.25E-10	5.23E-14	1.12E-11	2.38E-12	6.46E-14	4.56E-11	5.90E-13	1.29E-13	-1.27E-11	-1.44E-12	-1.89E-11
AP	Mole H+ eq.	2.22E-02	2.38E-03	2.10E-03	2.19E-04	6.97E-05	1.75E-03	2.58E-03	3.40E-04	-2.03E-03	-7.09E-04	-1.43E-02
EP Fresh	kg P eq.	6.75E-04	1.39E-06	4.44E-05	1.17E-06	1.42E-07	8.47E-06	1.40E-07	1.09E-07	-2.61E-06	-5.07E-07	-8.93E-06
EP Marine	kg N eq.	1.23E-02	6.97E-04	1.03E-03	5.85E-05	2.82E-05	5.45E-04	1.23E-03	8.76E-05	-6.23E-04	-2.23E-04	-4.54E-03
EP Terr	Mole of N eq.	8.34E-02	7.73E-03	7.85E-03	5.87E-04	3.19E-04	4.13E-03	1.42E-02	9.65E-04	-6.69E-03	-2.40E-03	-4.88E-02
POCP	kg NMVOC eq.	1.44E-02	1.85E-03	1.70E-03	1.61E-04	7.18E-05	1.23E-03	3.17E-03	2.68E-04	-2.01E-03	-8.81E-04	-1.85E-02
ADPe	kg Sb eq.	1.89E-05	3.51E-08	1.25E-06	2.19E-08	3.17E-09	2.73E-07	6.44E-09	3.11E-09	-1.39E-07	-3.01E-08	-5.47E-07
ADPf	MJ	4.58E+01	4.82E+00	1.16E+01	2.48E+00	4.60E-01	3.20E+00	1.55E+00	6.32E-01	-3.43E+01	-1.21E+01	-2.47E+02
WDP	m^3 world-q deprived	7.42E-01	7.10E-03	1.06E-01	3.07E-02	1.21E-03	7.84E-02	5.43E-01	5.49E-03	-2.02E-01	-6.35E-02	-1.28E+00

3.2 mm Linoleum

Table 13. Impact assessment results for 1 m² of 3.2 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-4.04E-02	4.08E-01	8.74E-01	1.19E-01	4.37E-02	6.34E+00	6.28E+00	6.21E+00	-2.12E+00	-5.22E-01	-9.07E+00
GWP Fossil	kg CO_2 eq.	5.79E+00	4.01E-01	7.88E-01	1.17E-01	4.29E-02	1.89E-01	1.32E-01	6.17E-02	-2.11E+00	-5.20E-01	-9.04E+00
GWP Bio	kg CO_2 eq.	-5.96E+00	1.02E-03	7.73E-02	1.77E-03	1.36E-04	6.15E+00	6.15E+00	6.15E+00	-8.96E-03	-1.97E-03	-3.38E-02
GWP Luluc	kg CO_2 eq.	1.35E-01	6.49E-03	8.84E-03	1.73E-05	6.63E-04	1.04E-03	2.87E-05	3.70E-04	-2.07E-04	-6.05E-05	-1.07E-03
ODP	kg CFC 11 eq.	7.86E-09	5.76E-14	5.06E-10	2.38E-12	8.30E-14	5.86E-11	7.59E-13	1.66E-13	-1.64E-11	-1.93E-12	-2.44E-11
AP	Mole H+ eq.	2.89E-02	9.25E-04	2.58E-03	2.19E-04	8.96E-05	2.25E-03	3.32E-03	4.38E-04	-2.66E-03	-9.68E-04	-1.85E-02
EP Fresh	kg P eq.	7.68E-04	1.65E-06	5.04E-05	1.17E-06	1.83E-07	1.09E-05	1.80E-07	1.40E-07	-3.39E-06	-6.89E-07	-1.15E-05
EP Marine	kg N eq.	1.50E-02	3.33E-04	1.21E-03	5.85E-05	3.63E-05	7.00E-04	1.58E-03	1.13E-04	-8.19E-04	-3.05E-04	-5.86E-03
EP Terr	Mole of N eq.	1.05E-01	3.78E-03	9.40E-03	5.87E-04	4.11E-04	5.31E-03	1.83E-02	1.24E-03	-8.79E-03	-3.28E-03	-6.30E-02
POCP	kg NMVOC eq.	2.00E-02	8.37E-04	2.10E-03	1.61E-04	9.24E-05	1.58E-03	4.07E-03	3.45E-04	-2.66E-03	-1.20E-03	-2.39E-02
ADPe	kg Sb eq.	3.05E-05	3.38E-08	1.99E-06	2.19E-08	4.07E-09	3.51E-07	8.28E-09	4.00E-09	-1.81E-07	-4.09E-08	-7.05E-07
ADPf	MJ	9.33E+01	5.27E+00	1.47E+01	2.48E+00	5.91E-01	4.12E+00	1.99E+00	8.13E-01	-4.51E+01	-1.65E+01	-3.19E+02
WDP	m^3 world-q deprived	1.30E+00	6.03E-03	1.52E-01	3.07E-02	1.55E-03	1.01E-01	6.99E-01	7.06E-03	-2.64E-01	-8.67E-02	-1.65E+00

3.8 mm Linoleum

Table 14. Impact assessment results for 1m² of 3.8 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-3.55E-02	3.87E-01	7.91E-01	1.19E-01	3.87E-02	5.58E+00	5.52E+00	5.46E+00	-1.88E+00	-4.58E-01	-8.03E+00
GWP Fossil	kg CO_2 eq.	5.07E+00	3.78E-01	7.31E-01	1.17E-01	3.80E-02	1.67E-01	1.17E-01	5.46E-02	-1.87E+00	-4.56E-01	-8.00E+00
GWP Bio	kg CO_2 eq.	-5.23E+00	8.63E-04	5.24E-02	1.77E-03	1.20E-04	5.41E+00	5.41E+00	5.41E+00	-7.92E-03	-1.72E-03	-3.00E-02
GWP Luluc	kg CO_2 eq.	1.18E-01	7.77E-03	7.77E-03	1.73E-05	5.88E-04	9.19E-04	2.54E-05	3.28E-04	-1.82E-04	-5.30E-05	-9.45E-04
ODP	kg CFC 11 eq.	6.89E-09	5.16E-14	4.44E-10	2.38E-12	7.36E-14	5.19E-11	6.73E-13	1.47E-13	-1.45E-11	-1.70E-12	-2.16E-11
AP	Mole H+ eq.	2.54E-02	1.41E-03	2.33E-03	2.19E-04	7.94E-05	1.99E-03	2.94E-03	3.88E-04	-2.35E-03	-8.49E-04	-1.64E-02
EP Fresh	kg P eq.	6.73E-04	1.61E-06	4.43E-05	1.17E-06	1.62E-07	9.65E-06	1.59E-07	1.24E-07	-3.00E-06	-6.04E-07	-1.02E-05
EP Marine	kg N eq.	1.31E-02	4.48E-04	1.09E-03	5.85E-05	3.22E-05	6.20E-04	1.40E-03	9.99E-05	-7.23E-04	-2.67E-04	-5.19E-03
EP Terr	Mole of N eq.	9.21E-02	4.99E-03	8.49E-03	5.87E-04	3.64E-04	4.71E-03	1.62E-02	1.10E-03	-7.76E-03	-2.87E-03	-5.57E-02
POCP	kg NMVOC eq.	1.75E-02	1.16E-03	1.92E-03	1.61E-04	8.18E-05	1.40E-03	3.61E-03	3.06E-04	-2.34E-03	-1.06E-03	-2.11E-02
ADPe	kg Sb eq.	2.68E-05	3.14E-08	1.75E-06	2.19E-08	3.61E-09	3.11E-07	7.33E-09	3.54E-09	-1.60E-07	-3.58E-08	-6.24E-07
ADPf	MJ	8.18E+01	4.97E+00	1.40E+01	2.48E+00	5.24E-01	3.65E+00	1.76E+00	7.20E-01	-3.98E+01	-1.45E+01	-2.82E+02
WDP	m^3 world-q deprived	1.14E+00	5.55E-03	1.37E-01	3.07E-02	1.38E-03	8.94E-02	6.19E-01	6.25E-03	-2.33E-01	-7.60E-02	-1.46E+00

4 mm Linoleum

Table 15. Impact assessment results for 1m² of 4 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-2.79E+00	4.89E-01	9.30E-01	1.19E-01	5.30E-02	9.03E+00	8.95E+00	8.86E+00	-2.56E+00	-6.21E-01	-1.10E+01
GWP Fossil	kg CO_2 eq.	5.59E+00	4.80E-01	7.97E-01	1.17E-01	5.21E-02	2.29E-01	1.60E-01	7.48E-02	-2.55E+00	-6.19E-01	-1.10E+01
GWP Bio	kg CO_2 eq.	-8.57E+00	1.26E-03	1.20E-01	1.77E-03	1.65E-04	8.79E+00	8.79E+00	8.79E+00	-1.08E-02	-2.34E-03	-4.10E-02
GWP Luluc	kg CO_2 eq.	1.92E-01	8.06E-03	1.25E-02	1.73E-05	8.05E-04	1.26E-03	3.48E-05	4.49E-04	-2.49E-04	-7.19E-05	-1.29E-03
ODP	kg CFC 11 eq.	2.02E-10	7.06E-14	1.76E-11	2.38E-12	1.01E-13	7.11E-11	9.21E-13	2.02E-13	-1.99E-11	-2.33E-12	-2.96E-11
AP	Mole H+ eq.	3.51E-02	8.55E-04	3.02E-03	2.19E-04	1.09E-04	2.73E-03	4.03E-03	5.31E-04	-3.20E-03	-1.15E-03	-2.24E-02
EP Fresh	kg P eq.	1.08E-03	2.05E-06	7.08E-05	1.17E-06	2.22E-07	1.32E-05	2.18E-07	1.70E-07	-4.10E-06	-8.21E-07	-1.40E-05
EP Marine	kg N eq.	1.97E-02	3.40E-04	1.53E-03	5.85E-05	4.41E-05	8.50E-04	1.92E-03	1.37E-04	-9.86E-04	-3.62E-04	-7.10E-03
EP Terr	Mole of N eq.	1.33E-01	3.89E-03	1.13E-02	5.87E-04	4.98E-04	6.45E-03	2.22E-02	1.51E-03	-1.06E-02	-3.89E-03	-7.63E-02
POCP	kg NMVOC eq.	2.27E-02	8.33E-04	2.32E-03	1.61E-04	1.12E-04	1.92E-03	4.94E-03	4.19E-04	-3.19E-03	-1.43E-03	-2.89E-02
ADPe	kg Sb eq.	3.05E-05	4.18E-08	2.00E-06	2.19E-08	4.94E-09	4.26E-07	1.00E-08	4.85E-09	-2.19E-07	-4.86E-08	-8.55E-07
ADPf	MJ	7.38E+01	6.32E+00	1.36E+01	2.48E+00	7.17E-01	5.00E+00	2.42E+00	9.87E-01	-5.42E+01	-1.96E+01	-3.86E+02
WDP	m^3 world-q deprived	1.15E+00	7.43E-03	1.51E-01	3.07E-02	1.88E-03	1.22E-01	8.48E-01	8.57E-03	-3.18E-01	-1.03E-01	-2.00E+00

4.3 mm Linoleum

Table 16. Impact assessment results for 1m2 of 4.3 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-2.76E+00	5.21E-01	9.75E-01	1.19E-01	5.62E-02	9.34E+00	9.25E+00	9.16E+00	-2.75E+00	-6.94E-01	-1.17E+01
GWP Fossil	kg CO_2 eq.	5.86E+00	5.11E-01	8.22E-01	1.17E-01	5.52E-02	2.43E-01	1.70E-01	7.93E-02	-2.74E+00	-6.91E-01	-1.16E+01
GWP Bio	kg CO_2 eq.	-8.87E+00	1.34E-03	1.36E-01	1.77E-03	1.75E-04	9.09E+00	9.08E+00	9.08E+00	-1.16E-02	-2.61E-03	-4.36E-02
GWP Luluc	kg CO_2 eq.	2.52E-01	8.57E-03	1.63E-02	1.73E-05	8.53E-04	1.34E-03	3.69E-05	4.76E-04	-2.68E-04	-8.04E-05	-1.38E-03
ODP	kg CFC 11 eq.	2.13E-10	7.52E-14	1.86E-11	2.38E-12	1.07E-13	7.54E-11	9.77E-13	2.14E-13	-2.12E-11	-2.56E-12	-3.14E-11
AP	Mole H+ eq.	3.49E-02	9.09E-04	3.03E-03	2.19E-04	1.15E-04	2.89E-03	4.27E-03	5.63E-04	-3.47E-03	-1.29E-03	-2.38E-02
EP Fresh	kg P eq.	1.16E-03	2.18E-06	7.54E-05	1.17E-06	2.35E-07	1.40E-05	2.31E-07	1.80E-07	-4.39E-06	-9.15E-07	-1.49E-05
EP Marine	kg N eq.	1.99E-02	3.62E-04	1.55E-03	5.85E-05	4.67E-05	9.01E-04	2.03E-03	1.45E-04	-1.07E-03	-4.06E-04	-7.55E-03
EP Terr	Mole of N eq.	1.30E-01	4.14E-03	1.12E-02	5.87E-04	5.28E-04	6.83E-03	2.35E-02	1.60E-03	-1.15E-02	-4.37E-03	-8.11E-02
POCP	kg NMVOC eq.	2.44E-02	8.86E-04	2.44E-03	1.61E-04	1.19E-04	2.04E-03	5.24E-03	4.44E-04	-3.48E-03	-1.60E-03	-3.08E-02
ADPe	kg Sb eq.	2.10E-05	4.44E-08	1.39E-06	2.19E-08	5.24E-09	4.51E-07	1.06E-08	5.14E-09	-2.35E-07	-5.43E-08	-9.09E-07
ADPf	MJ	7.84E+01	6.72E+00	1.39E+01	2.48E+00	7.60E-01	5.30E+00	2.56E+00	1.05E+00	-5.87E+01	-2.20E+01	-4.11E+02
WDP	m^3 world-q deprived	1.02E+00	7.90E-03	1.46E-01	3.07E-02	2.00E-03	1.30E-01	8.99E-01	9.08E-03	-3.44E-01	-1.15E-01	-2.12E+00

4.4 mm Linoleum

Table 17. Impact assessment results for 1m² of 4.4 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-2.48E+00	4.69E-01	8.98E-01	1.19E-01	5.09E-02	8.42E+00	8.34E+00	8.26E+00	-2.49E+00	-6.25E-01	-1.06E+01
GWP Fossil	kg CO_2 eq.	5.27E+00	4.60E-01	7.73E-01	1.17E-01	5.00E-02	2.20E-01	1.54E-01	7.18E-02	-2.48E+00	-6.22E-01	-1.05E+01
GWP Bio	kg CO_2 eq.	-7.98E+00	1.20E-03	1.10E-01	1.77E-03	1.58E-04	8.20E+00	8.19E+00	8.19E+00	-1.05E-02	-2.35E-03	-3.95E-02
GWP Luluc	kg CO_2 eq.	2.27E-01	7.72E-03	1.47E-02	1.73E-05	7.73E-04	1.21E-03	3.34E-05	4.31E-04	-2.43E-04	-7.24E-05	-1.25E-03
ODP	kg CFC 11 eq.	1.92E-10	6.76E-14	1.68E-11	2.38E-12	9.67E-14	6.83E-11	8.85E-13	1.94E-13	-1.92E-11	-2.30E-12	-2.84E-11
AP	Mole H+ eq.	3.14E-02	8.18E-04	2.78E-03	2.19E-04	1.04E-04	2.62E-03	3.87E-03	5.10E-04	-3.13E-03	-1.16E-03	-2.16E-02
EP Fresh	kg P eq.	1.04E-03	1.96E-06	6.79E-05	1.17E-06	2.13E-07	1.27E-05	2.10E-07	1.63E-07	-3.97E-06	-8.24E-07	-1.35E-05
EP Marine	kg N eq.	1.79E-02	3.26E-04	1.41E-03	5.85E-05	4.23E-05	8.16E-04	1.84E-03	1.31E-04	-9.65E-04	-3.66E-04	-6.83E-03
EP Terr	Mole of N eq.	1.17E-01	3.73E-03	1.03E-02	5.87E-04	4.78E-04	6.19E-03	2.13E-02	1.45E-03	-1.04E-02	-3.93E-03	-7.34E-02
POCP	kg NMVOC eq.	2.20E-02	7.98E-04	2.26E-03	1.61E-04	1.08E-04	1.85E-03	4.75E-03	4.02E-04	-3.14E-03	-1.44E-03	-2.79E-02
ADPe	kg Sb eq.	1.89E-05	4.00E-08	1.25E-06	2.19E-08	4.75E-09	4.09E-07	9.64E-09	4.66E-09	-2.13E-07	-4.89E-08	-8.23E-07
ADPf	MJ	7.06E+01	6.05E+00	1.33E+01	2.48E+00	6.89E-01	4.80E+00	2.32E+00	9.47E-01	-5.31E+01	-1.98E+01	-3.72E+02
WDP	m^3 world-q deprived	9.19E-01	7.11E-03	1.34E-01	3.07E-02	1.81E-03	1.18E-01	8.14E-01	8.22E-03	-3.11E-01	-1.04E-01	-1.92E+00

Table 18. Impact assessment results for 1m^2 of 4.6 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
GWP Total	kg CO_2 eq.	-3.92E-02	3.85E-01	8.53E-01	1.19E-01	4.24E-02	6.15E+00	6.09E+00	6.02E+00	-2.06E+00	-5.05E-01	-8.81E+00
GWP Fossil	kg CO_2 eq.	5.60E+00	3.78E-01	7.74E-01	1.17E-01	4.16E-02	1.84E-01	1.28E-01	5.99E-02	-2.05E+00	-5.03E-01	-8.77E+00
GWP Bio	kg CO_2 eq.	-5.77E+00	9.89E-04	7.09E-02	1.77E-03	1.32E-04	5.96E+00	5.96E+00	5.96E+00	-8.70E-03	-1.90E-03	-3.28E-02
GWP Luluc	kg CO_2 eq.	1.31E-01	6.34E-03	8.57E-03	1.73E-05	6.44E-04	1.01E-03	2.79E-05	3.59E-04	-2.00E-04	-5.86E-05	-1.04E-03
ODP	kg CFC 11 eq.	7.61E-09	5.56E-14	4.90E-10	2.38E-12	8.06E-14	5.69E-11	7.37E-13	1.62E-13	-1.59E-11	-1.87E-12	-2.37E-11
AP	Mole H+ eq.	2.80E-02	6.73E-04	2.52E-03	2.19E-04	8.70E-05	2.18E-03	3.22E-03	4.25E-04	-2.58E-03	-9.37E-04	-1.79E-02
EP Fresh	kg P eq.	7.44E-04	1.61E-06	4.89E-05	1.17E-06	1.77E-07	1.06E-05	1.75E-07	1.36E-07	-3.29E-06	-6.67E-07	-1.12E-05
EP Marine	kg N eq.	1.45E-02	2.68E-04	1.18E-03	5.85E-05	3.53E-05	6.80E-04	1.53E-03	1.09E-04	-7.94E-04	-2.95E-04	-5.69E-03
EP Terr	Mole of N eq.	1.02E-01	3.06E-03	9.16E-03	5.87E-04	3.99E-04	5.16E-03	1.78E-02	1.21E-03	-8.53E-03	-3.17E-03	-6.11E-02
POCP	kg NMVOC eq.	1.93E-02	6.56E-04	2.06E-03	1.61E-04	8.97E-05	1.54E-03	3.95E-03	3.35E-04	-2.58E-03	-1.17E-03	-2.32E-02
ADPe	kg Sb eq.	2.96E-05	3.29E-08	1.93E-06	2.19E-08	3.95E-09	3.40E-07	8.03E-09	3.88E-09	-1.76E-07	-3.96E-08	-6.84E-07
ADPf	MJ	9.03E+01	4.97E+00	1.45E+01	2.48E+00	5.74E-01	4.00E+00	1.93E+00	7.90E-01	-4.37E+01	-1.60E+01	-3.09E+02
WDP	m^3 world-q deprived	1.26E+00	5.85E-03	1.48E-01	3.07E-02	1.51E-03	9.79E-02	6.78E-01	6.85E-03	-2.56E-01	-8.39E-02	-1.60E+00

4.2. Life Cycle Inventory Results

2 mm Linoleum

Table 19. Resource use for 1m² of 2 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	5.25E+00	2.66E-01	4.70E+00	1.59E+00	6.08E-02	1.76E+01	5.41E+01	5.39E+01	-6.89E+00	-7.67E-01	-1.03E+01
PERM	MJ	5.50E+01	0.00E+00	2.13E+00	0.00E+00	0.00E+00	0.00E+00	-5.38E+01	-5.38E+01	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	6.02E+01	2.66E-01	6.83E+00	1.59E+00	6.08E-02	1.76E+01	2.96E-01	8.96E-02	-6.89E+00	-7.67E-01	-1.03E+01
PENRE	MJ	3.48E+01	3.09E+00	1.16E+01	2.48E+00	3.73E-01	1.51E+00	1.80E+00	1.06E+00	-2.76E+01	-9.60E+00	-2.00E+02
PENRM	MJ	1.34E+00	0.00E+00	-6.57E-01	0.00E+00	0.00E+00	1.09E+00	-5.46E-01	-5.46E-01	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	3.61E+01	3.09E+00	1.10E+01	2.48E+00	3.73E-01	2.60E+00	1.26E+00	5.13E-01	-2.76E+01	-9.60E+00	-2.00E+02
SM	kg	5.50E-01	0.00E+00	3.51E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m³	2.81E-02	2.97E-04	3.62E-03	1.28E-03	5.64E-05	1.92E-03	1.04E-02	1.36E-04	-6.14E-03	-1.44E-03	-2.78E-02

Table 20. Output flows and waste categories for 1m² of 2 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	3.28E-08	1.18E-10	8.07E-09	3.21E-09	7.77E-11	3.85E-09	6.23E-10	1.28E-10	-1.41E-08	-1.70E-09	-2.43E-08
NHWD	kg	1.04E+00	5.05E-04	1.89E-01	3.13E-03	9.07E-05	3.62E-02	3.21E-02	2.60E+00	-1.21E-02	-2.65E-03	-4.88E-02
RWD	kg	6.30E-04	5.63E-06	1.08E-04	3.53E-04	7.81E-06	3.21E-05	5.61E-05	5.39E-06	-1.52E-03	-1.69E-04	-2.26E-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	0.00E+00	0.00E+00
MFR	kg	9.19E-03	0.00E+00	1.40E-01	0.00E+00	0.00E+00	2.30E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	2.74E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.85E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	5.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.64E+00	0.00E+00	0.00E+00

2.5 mm Linoleum

Table 21. Resource use for 1m² of 2.5mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	1.21E+01	3.35E-01	5.75E+00	1.59E+00	7.50E-02	2.01E+01	6.83E+01	6.80E+01	-8.51E+00	-9.68E-01	-1.27E+01
PERM	MJ	6.94E+01	0.00E+00	2.69E+00	0.00E+00	0.00E+00	0.00E+00	-6.79E+01	-6.79E+01	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	8.15E+01	3.35E-01	8.43E+00	1.59E+00	7.50E-02	2.01E+01	3.64E-01	1.10E-01	-8.51E+00	-9.68E-01	-1.27E+01
PENRE	MJ	4.41E+01	4.82E+00	1.25E+01	2.48E+00	4.60E-01	1.73E+00	2.24E+00	1.32E+00	-3.43E+01	-1.21E+01	-2.47E+02
PENRM	MJ	1.69E+00	0.00E+00	-8.29E-01	0.00E+00	0.00E+00	1.25E+00	-6.89E-01	-6.89E-01	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	4.58E+01	4.82E+00	1.16E+01	2.48E+00	4.60E-01	2.98E+00	1.55E+00	6.32E-01	-3.43E+01	-1.21E+01	-2.47E+02
SM	kg	6.94E-01	0.00E+00	4.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	-4.74E-09
FW	m³	3.64E-02	4.35E-04	4.30E-03	1.28E-03	6.95E-05	2.20E-03	1.28E-02	1.68E-04	-7.61E-03	-1.82E-03	-3.43E-02

Table 22. Output flows and waste categories for 1m² of 2.5mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	4.14E-08	2.99E-10	8.68E-09	3.21E-09	9.58E-11	4.41E-09	7.15E-10	1.58E-10	-1.74E-08	-2.14E-09	-3.00E-08
NHWD	kg	1.32E+00	6.72E-04	2.38E-01	3.13E-03	1.12E-04	4.15E-02	3.69E-02	3.21E+00	-1.50E-02	-3.35E-03	-6.02E-02
RWD	kg	8.00E-04	9.90E-06	1.20E-04	3.53E-04	9.62E-06	3.68E-05	6.43E-05	6.64E-06	-1.88E-03	-2.14E-04	-2.79E-03
CRU	kg	1.41E-04	0.00E+00	8.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.95E-02
MFR	kg	1.15E-02	0.00E+00	1.75E-01	0.00E+00	0.00E+00	2.67E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.76E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	3.41E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	6.68E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.05E+01	0.00E+00	0.00E+00

3.2 mm Linoleum

Table 23. Resource use for 1m² of 3.2 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	5.53E+00	1.64E-01	2.58E+00	5.97E-01	3.65E-02	1.05E+01	2.91E+01	2.90E+01	-4.16E+00	-4.93E-01	-6.21E+00
PERM	MJ	3.88E+01	2.75E-01	5.28E+00	9.94E-01	5.99E-02	1.73E+01	1.89E+01	1.87E+01	-6.84E+00	-8.10E-01	-1.02E+01
PERT	MJ	8.40E+01	1.64E-01	5.30E+00	5.97E-01	3.65E-02	1.05E+01	-4.74E+01	-4.75E+01	-4.16E+00	-4.93E-01	-6.21E+00
PENRE	MJ	8.68E+01	2.36E+00	1.16E+01	1.93E+00	2.84E-01	1.82E+01	6.89E+00	6.24E+00	-2.39E+01	-7.07E+00	-1.31E+02
PENRM	MJ	5.39E+01	3.19E+00	9.22E+00	1.55E+00	3.68E-01	2.14E+00	4.99E+00	4.26E+00	-2.80E+01	-1.03E+01	-1.98E+02
PENRT	MJ	4.57E+01	2.08E+00	5.44E+00	9.32E-01	2.24E-01	2.63E+00	-8.84E+00	-9.29E+00	-1.71E+01	-6.26E+00	-1.21E+02
SM	kg	5.83E+01	3.19E+00	9.20E+00	1.55E+00	3.68E-01	2.56E+00	1.24E+00	5.06E-01	-2.80E+01	-1.03E+01	-1.98E+02
RSF	MJ	4.93E-01	0.00E+00	3.15E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m^3	1.97E-02	1.83E-04	2.09E-03	4.78E-04	3.38E-05	1.15E-03	6.22E-03	8.16E-05	-3.76E-03	-9.38E-04	-1.67E-02

Table 24. Output flows and waste categories for 1m^2 of 3.2 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	1.71E-06	1.98E-10	1.15E-07	3.21E-09	1.23E-10	6.10E-09	9.32E-10	2.03E-10	-2.25E-08	-2.89E-09	-3.87E-08
NHWD	kg	1.57E+00	8.38E-04	3.01E-01	3.13E-03	1.44E-04	5.73E-02	4.81E-02	4.12E+00	-1.95E-02	-4.55E-03	-7.77E-02
RWD	kg	1.75E-03	9.33E-06	1.82E-04	3.53E-04	1.24E-05	5.09E-05	8.38E-05	8.54E-06	-2.43E-03	-2.88E-04	-3.61E-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	0.00E+00	0.00E+00
MFR	kg	1.53E-02	0.00E+00	8.87E-02	0.00E+00	0.00E+00	1.45E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.71E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	1.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.91E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	3.37E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.18E+00	0.00E+00	0.00E+00

3.8 mm Linoleum

Table 25. Resource use for 1m² of 3.8 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	1.28E+01	3.99E-01	6.25E+00	1.59E+00	8.54E-02	2.46E+01	6.75E+01	6.72E+01	-9.74E+00	-1.14E+00	-1.45E+01
PERM	MJ	6.88E+01	0.00E+00	2.38E+00	0.00E+00	0.00E+00	0.00E+00	-6.71E+01	-6.71E+01	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	8.16E+01	3.99E-01	8.63E+00	1.59E+00	8.54E-02	2.46E+01	4.15E-01	1.26E-01	-9.74E+00	-1.14E+00	-1.45E+01
PENRE	MJ	6.71E+01	4.97E+00	1.41E+01	2.48E+00	5.24E-01	2.11E+00	1.53E+01	1.43E+01	-3.98E+01	-1.45E+01	-2.82E+02
PENRM	MJ	1.47E+01	0.00E+00	-1.46E-01	0.00E+00	0.00E+00	1.53E+00	-1.35E+01	-1.35E+01	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	8.18E+01	4.97E+00	1.40E+01	2.48E+00	5.24E-01	3.65E+00	1.76E+00	7.20E-01	-3.98E+01	-1.45E+01	-2.82E+02
SM	kg	6.96E-01	0.00E+00	4.44E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m³	4.56E-02	4.51E-04	5.00E-03	1.28E-03	7.92E-05	2.70E-03	1.46E-02	1.91E-04	-8.77E-03	-2.17E-03	-3.91E-02

Table 26. Output flows and waste categories for 1m² of 3.8 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	1.50E-06	2.00E-10	1.02E-07	3.21E-09	1.09E-10	5.40E-09	8.75E-10	1.79E-10	-1.99E-08	-2.53E-09	-3.42E-08
NHWD	kg	1.38E+00	7.57E-04	2.65E-01	3.13E-03	1.27E-04	5.08E-02	4.51E-02	3.65E+00	-1.73E-02	-3.99E-03	-6.88E-02
RWD	kg	1.54E-03	8.49E-06	1.68E-04	3.53E-04	1.10E-05	4.51E-05	7.87E-05	7.57E-06	-2.15E-03	-2.52E-04	-3.19E-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	0.00E+00	0.00E+00
MFR	kg	1.34E-02	0.00E+00	2.04E-01	0.00E+00	0.00E+00	3.35E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	3.99E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.81E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	7.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.21E+01	0.00E+00	0.00E+00

4 mm Linoleum

Table 27. Resource use for 1m² of 4 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	1.07E+01	5.44E-01	7.48E+00	1.59E+00	1.17E-01	3.38E+01	1.10E+02	1.10E+02	-1.33E+01	-1.57E+00	-1.99E+01
PERM	MJ	1.12E+02	0.00E+00	4.35E+00	0.00E+00	0.00E+00	0.00E+00	-1.10E+02	-1.10E+02	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.23E+02	5.44E-01	1.18E+01	1.59E+00	1.17E-01	3.38E+01	5.68E-01	1.72E-01	-1.33E+01	-1.57E+00	-1.99E+01
PENRE	MJ	7.10E+01	6.32E+00	1.49E+01	2.48E+00	7.17E-01	2.90E+00	3.53E+00	2.10E+00	-5.42E+01	-1.96E+01	-3.86E+02
PENRM	MJ	2.74E+00	0.00E+00	-1.34E+00	0.00E+00	0.00E+00	2.10E+00	-1.12E+00	-1.12E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	7.38E+01	6.32E+00	1.36E+01	2.48E+00	7.17E-01	5.00E+00	2.42E+00	9.87E-01	-5.42E+01	-1.96E+01	-3.86E+02
SM	kg	1.12E+00	0.00E+00	7.17E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m³	5.74E-02	6.06E-04	6.10E-03	1.28E-03	1.08E-04	3.69E-03	2.00E-02	2.62E-04	-1.20E-02	-2.95E-03	-5.36E-02

Table 28. Output flows and waste categories for 1m² of 4 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	6.70E-08	2.42E-10	1.05E-08	3.21E-09	1.50E-10	7.40E-09	1.20E-09	2.46E-10	-2.73E-08	-3.47E-09	-4.69E-08
NHWD	kg	2.13E+00	1.03E-03	3.82E-01	3.13E-03	1.74E-04	6.96E-02	6.18E-02	5.00E+00	-2.36E-02	-5.42E-03	-9.42E-02
RWD	kg	1.29E-03	1.15E-05	1.54E-04	3.53E-04	1.50E-05	6.17E-05	1.08E-04	1.04E-05	-2.95E-03	-3.46E-04	-4.37E-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	0.00E+00	0.00E+00
MFR	kg	1.88E-02	0.00E+00	2.86E-01	0.00E+00	0.00E+00	4.70E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	5.59E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.33E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	1.09E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.66E+01	0.00E+00	0.00E+00

4.3 mm Linoleum

Table 29: Resource use for 1m² of 4.3 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	2.20E+01	5.79E-01	8.50E+00	1.59E+00	1.24E-01	3.58E+01	1.14E+02	1.13E+02	-1.42E+01	-1.73E+00	-2.12E+01
PERM	MJ	1.16E+02	0.00E+00	4.37E+00	0.00E+00	0.00E+00	0.00E+00	-1.13E+02	-1.13E+02	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.38E+02	5.79E-01	1.29E+01	1.59E+00	1.24E-01	3.58E+01	6.03E-01	1.83E-01	-1.42E+01	-1.73E+00	-2.12E+01
PENRE	MJ	7.44E+01	6.72E+00	1.52E+01	2.48E+00	7.60E-01	3.07E+00	4.79E+00	3.27E+00	-5.87E+01	-2.20E+01	-4.11E+02
PENRM	MJ	3.95E+00	0.00E+00	-1.36E+00	0.00E+00	0.00E+00	2.23E+00	-2.23E+00	-2.23E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	7.84E+01	6.72E+00	1.39E+01	2.48E+00	7.60E-01	5.30E+00	2.56E+00	1.05E+00	-5.87E+01	-2.20E+01	-4.11E+02
SM	kg	7.99E-01	0.00E+00	5.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m³	6.51E-02	6.45E-04	6.67E-03	1.28E-03	1.15E-04	3.91E-03	2.12E-02	2.77E-04	-1.29E-02	-3.30E-03	-5.70E-02

Table 30: Output flows and waste categories for 1m² of 4.3 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	6.75E-08	2.57E-10	1.06E-08	3.21E-09	1.58E-10	7.84E-09	1.27E-09	2.61E-10	-2.91E-08	-3.83E-09	-4.99E-08
NHWD	kg	1.60E+00	1.10E-03	3.63E-01	3.13E-03	1.85E-04	7.37E-02	6.55E-02	5.31E+00	-2.53E-02	-6.05E-03	-1.00E-01
RWD	kg	1.16E-03	1.22E-05	1.47E-04	3.53E-04	1.59E-05	6.55E-05	1.14E-04	1.10E-05	-3.14E-03	-3.81E-04	-4.65E-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	0.00E+00	0.00E+00
MFR	kg	2.00E-02	0.00E+00	3.05E-01	0.00E+00	0.00E+00	5.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	5.95E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.89E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	1.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E+01	0.00E+00	0.00E+00

4.4 mm Linoleum

Table 31. Resource use for 1m² of 4.4 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	1.98E+01	5.21E-01	7.86E+00	1.59E+00	1.12E-01	3.24E+01	1.02E+02	1.02E+02	-1.29E+01	-1.55E+00	-1.92E+01
PERM	MJ	1.04E+02	0.00E+00	3.94E+00	0.00E+00	0.00E+00	0.00E+00	-1.02E+02	-1.02E+02	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.24E+02	5.21E-01	1.18E+01	1.59E+00	1.12E-01	3.24E+01	5.46E-01	1.65E-01	-1.29E+01	-1.55E+00	-1.92E+01
PENRE	MJ	6.70E+01	6.05E+00	1.46E+01	2.48E+00	6.89E-01	2.78E+00	4.33E+00	2.95E+00	-5.31E+01	-1.98E+01	-3.72E+02
PENRM	MJ	3.56E+00	0.00E+00	-1.23E+00	0.00E+00	0.00E+00	2.02E+00	-2.01E+00	-2.01E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	7.06E+01	6.05E+00	1.33E+01	2.48E+00	6.89E-01	4.80E+00	2.32E+00	9.47E-01	-5.31E+01	-1.98E+01	-3.72E+02
SM	kg	7.19E-01	0.00E+00	4.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m³	5.85E-02	5.80E-04	6.13E-03	1.28E-03	1.04E-04	3.55E-03	1.92E-02	2.51E-04	-1.16E-02	-2.97E-03	-5.16E-02

Table 32. Output flows and waste categories for 1m² of 4.4 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	6.08E-08	2.32E-10	1.01E-08	3.21E-09	1.44E-10	7.10E-09	1.15E-09	2.36E-10	-2.63E-08	-3.44E-09	-4.51E-08
NHWD	kg	1.44E+00	9.88E-04	3.27E-01	3.13E-03	1.68E-04	6.68E-02	5.93E-02	4.80E+00	-2.29E-02	-5.44E-03	-9.06E-02
RWD	kg	1.05E-03	1.10E-05	1.38E-04	3.53E-04	1.44E-05	5.93E-05	1.03E-04	9.95E-06	-2.84E-03	-3.43E-04	-4.21E-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	0.00E+00	0.00E+00
MFR	kg	1.80E-02	0.00E+00	2.74E-01	0.00E+00	0.00E+00	4.50E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	5.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.96E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	1.05E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E+01	0.00E+00	0.00E+00

4.6 mm Linoleum

Table 33. Resource use for 1m² of 4.6 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
PERE	MJ	1.42E+01	4.28E-01	6.69E+00	1.59E+00	9.36E-02	2.70E+01	7.45E+01	7.42E+01	-1.07E+01	-1.26E+00	-1.59E+01
PERM	MJ	7.60E+01	0.00E+00	2.63E+00	0.00E+00	0.00E+00	0.00E+00	-7.41E+01	-7.41E+01	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	9.02E+01	4.28E-01	9.32E+00	1.59E+00	9.36E-02	2.70E+01	4.55E-01	1.38E-01	-1.07E+01	-1.26E+00	-1.59E+01
PENRE	MJ	7.41E+01	4.97E+00	1.47E+01	2.48E+00	5.74E-01	2.32E+00	1.69E+01	1.57E+01	-4.37E+01	-1.60E+01	-3.09E+02
PENRM	MJ	1.62E+01	0.00E+00	-1.61E-01	0.00E+00	0.00E+00	1.68E+00	-1.50E+01	-1.50E+01	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	9.03E+01	4.97E+00	1.45E+01	2.48E+00	5.74E-01	4.00E+00	1.93E+00	7.90E-01	-4.37E+01	-1.60E+01	-3.09E+02
SM	kg	7.68E-01	0.00E+00	4.90E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	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	0.00E+00	0.00E+00
NRSF	MJ	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	0.00E+00	0.00E+00
FW	m³	5.04E-02	4.77E-04	5.40E-03	1.28E-03	8.68E-05	2.95E-03	1.60E-02	2.09E-04	-9.63E-03	-2.40E-03	-4.29E-02

Table 34. Output flows and waste categories for 1m² of 4.6 mm linoleum

Parameters	Units	A1-A3	A4	A5	B2	C2	C3	C4/1	C4/2	D1	D2	D3
HWD	kg	1.65E-06	1.90E-10	1.12E-07	3.21E-09	1.20E-10	5.92E-09	9.59E-10	1.97E-10	-2.19E-08	-2.80E-09	-3.75E-08
NHWD	kg	1.52E+00	8.12E-04	2.92E-01	3.13E-03	1.40E-04	5.57E-02	4.95E-02	4.00E+00	-1.90E-02	-4.41E-03	-7.54E-02
RWD	kg	1.70E-03	9.06E-06	1.78E-04	3.53E-04	1.20E-05	4.94E-05	8.62E-05	8.29E-06	-2.36E-03	-2.79E-04	-3.50E-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	0.00E+00	0.00E+00
MFR	kg	1.48E-02	0.00E+00	2.25E-01	0.00E+00	0.00E+00	3.70E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.00E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	4.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.47E+00	0.00E+00	0.00E+00
EET	MJ	0.00E+00	0.00E+00	8.61E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E+01	0.00E+00	0.00E+00

5. LCA Interpretation

The results represent the cradle-to-grave environmental performance of 1 m^2 of installed linoleum flooring products over a 1-year RSL. Linoleum flooring products tend to see the initial stages A1 to A3 as the main driver of impact across categories which is dominated by raw materials, mainly linseed oil.

In fact, A1 is the main contributor with linseed oil, jute, and titanium input representing the largest portion of impacts for raw materials supply. Overall, A1 contributes the most impact across all impact categories except to Ozone Depletion Potential that is caused by PET-based packaging material.

Manufacturing (A3) is the second largest contributor to most impact categories and is primarily driven by the consumption of natural gas at the facility site.

Besides A1-A3 impacts, the second largest source of impact is the end-of-life treatment either recycling (C3), incineration (C4/1) or landfill (C4/2) due to in part process emissions, but mostly due to the emissions related to the embodied biogenic carbon. This means that the choice of disposal treatment has an important role in the overall impact of the product and especially when considering the potential reductions in module D. Module D/1, incineration, represents a minimal reduction of greenhouse gas impacts, while this is more noticeable for landfill (D/2). In the case of recycling, the credits in Module D3 surpass the impact in the remaining stages, leading to a net negative result in global warming. This is because the primarily bio-based linoleum is receiving credits for fossil polypropylene and polyethylene based on its ability to be substituted for those products. This shall not be interpreted as a carbon sink, but rather as an indication of potential reductions outside the system boundaries as is defined in Module D.

Despite relatively large transport distances for some raw materials, the inbound transportation module (A2) has a modest contribution to overall impacts. Modules representing transport to installation site (A4), transport to end-of-life (C2) and use stage (B2) show negligible contributions to impact category indicator results.

6. Additional Environmental Information

6.1. Mandatory Environmental Information

This product contains no substances listed in the Candidate List of Substances of Very High Concern at levels that exceed the limits required for registration with the European Chemicals Agency (European Chemicals Agency, 2019).

6.2. Environmental Activities, Certifications and recycled content

Driven by the standards of our **World Class Management** program for continuous improvement of processes, Tarkett aims to reduce its operational impact and preserve the environment.

- 100% recycled /recirculated industrial water (closed loop).
- Rainwater collection and re-use.
- Green House Gases (GHG) emission reduction by 60% vs 2010 (the equivalent of 1000 trips around the world in a passenger car).

- Increasing renewable energy use through photovoltaic panels, geothermal system (internal production) and the purchase of 100% renewable electricity.

Accreditations

ISO 9001 Quality Management System

ISO 14001 Environmental Management System

ISO 50001 Energy Management System

ISO 45001 Occupational Health and Safety Management System

SA 8000 Social Accountability

ISO 37001 Anti-Bribery Management Systems

Gender Equality UNI/PdR 125:2022

C2C Cradle to Cradle Silver and Gold levels

Declare

Der Blaue Engel

Umweltzeichen

Nordic Ecolabel SWAN

Allergy UK Seal of Approval

MHS Material Health Statement

100% Carbon Biobased ASTM D 6866:2020-02

76% Biobased EN 16785-1:2016-03

•Information sur le niveau d'émission de substances volatiles dans l'air intérieur, présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions).

ENVIRONMENTAL PRODUCT DECLARATION

Tarkett

LINOLEUM FLOORING

CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION UL.COM/EPD

According to ISO 14025, EN 15804 +A2

76% biobased
DIC-00017

carbon biobased

BIOBASED > 85% DIN Geprüft
8C226

USDA CERTIFIED BIOBASED PRODUCT PRODUCT 100%

RAKENNUSTIETO M1 EMISSION CLASSIFICATION

INDOOR AIR COMFORT eurofins GOLD CERTIFIED PRODUCT

MHS BY EPEA MATERIAL . HEALTH . STATEMENT

Potential contribution to GREEN BUILDING CERTIFICATIONS

MADE IN ITALY

Acoustic Cork	93% NATURAL INGREDIENTS	77% RENEWABLE RESOURCES	33% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	Originale	97% NATURAL INGREDIENTS	77% RENEWABLE RESOURCES	30% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	Trentino	94% NATURAL INGREDIENTS	76% RENEWABLE RESOURCES	36% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY
Conductive	96% NATURAL INGREDIENTS	58% RENEWABLE RESOURCES	18% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	SD Static Dissipative	98% NATURAL INGREDIENTS	58% RENEWABLE RESOURCES	18% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	Veneto	94% NATURAL INGREDIENTS	76% RENEWABLE RESOURCES	36% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY
Elafono (underlayer)	100% NATURAL INGREDIENTS	85% RENEWABLE RESOURCES	34% RECYCLED CONTENT	≤ 100 µg/m³ BETTER INDOOR AIR QUALITY	Silencio	83% NATURAL INGREDIENTS	65% RENEWABLE RESOURCES	40% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	Loose-Lay	91% NATURAL INGREDIENTS	60% RENEWABLE RESOURCES	23% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY
Etrusco	94% NATURAL INGREDIENTS	76% RENEWABLE RESOURCES	36% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	Style	94% NATURAL INGREDIENTS	76% RENEWABLE RESOURCES	36% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY	Lino Materiale	96% NATURAL INGREDIENTS	83% RENEWABLE RESOURCES	39% RECYCLED CONTENT	≤ 10 µg/m³ OPTIMAL INDOOR AIR QUALITY

7. References

EN 15804+A2. (2020). *EN 15804:2012+A2:2019 "Sustainability of construction works -Environmental product declarations – Core rules for the product category of construction products. EN 15804.*

EN 15804+A2. (2020). *EN 15804:2012+A2:2019 "Sustainability of construction works -Environmental product declarations – Core rules for the product category of construction products. EN 15804.* Brussels: European Committee for Standardization.

European Chemicals Agency. (2019). *Candidate List of substances of very high concern for Authorisation*. Retrieved from ECHA: https://echa.europa.eu/candidate-list-table

European Standards. (2013). *EN 15804+A1 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.*

Guinée, J. B., Gorrée, M., Heijungs, R., Huppes, G., Kleijn, R., de Koning, A., . . . Huijbregts, M. (2002). *Handbook on life cycle assessment. Operational guide to the ISO standards.* Dordrecht: Kluwer.

ISO. (2006). ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines.

ISO. (2009). ISO 14040: Environmental management - Life cycle assessment - principles and frameworks.

ISO. (2011). ISO 14025: Environmental labels and declarations - Type III environmental declarations - principles and procedures.

ISO 24011:2009. (2020). *Resilient floor coverings — Specification for plain and decorative linoleum. .*

Sphera. (2024). Sphera's Agricultural LCA Model - Part 2: Dataset Generation & Data Sources. Chicago: Sphera Solutions, Inc. Stuttgart, Echterdingen, Germany.

Sphera Solutions Inc. (2024). *LCA Database Documentation. Retrieved from Sphera Solutions, Inc.: https://sphera.com/solutions/product-stewardship/life-cycle-assessment-software-and-data/managed-lca-content.*

UL Environment. (2020). *Program Operator Rules v 2.5.*

Contact Information

7.1. Study Commissioner

Tarkett S.P.A.
Strada Sant'Anna n. 6
05035 Narni Scalo (TR) Italy
+39 0744 755 271
https://www.tarkett.com/

7.2. LCA Practitioner

130 East Randolph St,
Suite 1900
Chicago, IL 60601 USA
(312) 796-7160
www.sphera.com