

**Declaration Owner****Tarkett, Inc.**

30000 Aurora Road

Solon, Ohio 44139

United States

<https://www.tarkett.com> | +1 (800) 899-8916**Product**

Event PVC Tile flooring

(UNSPSC Class Code 30161700/CSI Code 09 65 00)

Functional Unit

The functional unit is one square meter of flooring over a 75-year period.

EPD Number and Period of Validity

SCS-EPD-10296

EPD Valid December 6, 2024 through December 5, 2029

Product Category Rule

PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 3.2. UL Environment. December 2018.

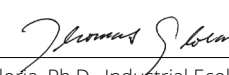
PCR Guidance for Building-Related Products and Services - Flooring
EPD Requirements, v.2.0,[1] validity extended to December 31, 2024

Program Operator

SCS Global Services

2000 Powell Street, Ste. 600, Emeryville, CA 94608

+1.510.452.8000 | www.SCSglobalServices.com

Declaration Owner:	Tarkett, Inc.
Address:	30000 Aurora Road, Solon, Ohio 44139
Declaration Number:	SCS-EPD-10296
Declaration Validity Period:	December 6, 2024 through December 5, 2029
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LCA Practitioner:	Gerard Mansell, Ph.D., SCS Global Services
LCA Software and LCI database:	OpenLCA v2.1 software and the Ecoinvent v3.10 database
Product RSL:	10 years
Markets of Applicability:	North America
EPD Type:	Product-Specific
EPD Scope:	Cradle-to-Grave
LCIA Method and Version:	CML-IA and TRACI 2.1
Independent critical review of the LCA and data, according to ISO 14044 and ISO 14071	☐ internal ☒ external
LCA Reviewer:	 Thomas Gloria, Ph.D., Industrial Ecology Consultants
Part A Product Category Rule:	PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 3.2. UL Environment. December 2018.
Part A PCR Review conducted by:	Lindita Bushi, PhD (Chair); Hugues Imbeault-Tétreault, ing., M.Sc.A.; Jack Geibig
Part B Product Category Rule:	PCR Guidance for Building-Related Products and Services - Flooring EPD Requirements, v.2.0,[1] validity extended to December 31, 2024
Part B PCR Review conducted by:	Jack Geibig (chair), Ecoform; Thomas Gloria, Industrial Ecology Consultants; Thaddeus Owen
Independent verification of the declaration and data, according to ISO 14025 and the PCR	☐ internal ☒ external
EPD Verifier:	 Thomas Gloria, Ph.D., Industrial Ecology Consultants
Declaration Contents:	1. Tarkett 2 2. Product 2 3. LCA: Calculation Rules 5 4. LCA: Scenarios and Additional Technical Information 10 5. LCA: Results 13 6. LCA: Interpretation 16 7. References 17
Disclaimers: This EPD conforms to ISO 14025, 14040, 14044, and 21930. Scope of Results Reported: The PCR requirements limit the scope of the LCA metrics such that the results exclude environmental and social performance benchmarks and thresholds, and exclude impacts from the depletion of natural resources, land use ecological impacts, ocean impacts related to greenhouse gas emissions, risks from hazardous wastes and impacts linked to hazardous chemical emissions. Accuracy of Results: Due to PCR constraints, this EPD provides estimations of potential impacts that are inherently limited in terms of accuracy. Comparability: The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled. In accordance with ISO 21930:2017, EPDs are comparable only if they comply with the core PCR, use the same sub-category PCR where applicable, include all relevant information modules and are based on equivalent scenarios with respect to the context of construction works.	

1. Tarkett

With beautiful flooring surfaces and accessories that perform and inspire, Tarkett has supported the design of great spaces for more than 140 years. Our products and services are centered around the people who use these spaces every day—helping ensure our commercial interiors are supportive, equitable, and inclusive. We're committed to using healthier materials, supporting better indoor air quality, and providing a full portfolio of responsible solutions. Our goal is to establish a circular economy by designing out waste and pollution, keeping materials in use, and regenerating natural systems—for the good of people and the planet. Learn more at www.tarkett.com.

2. Product

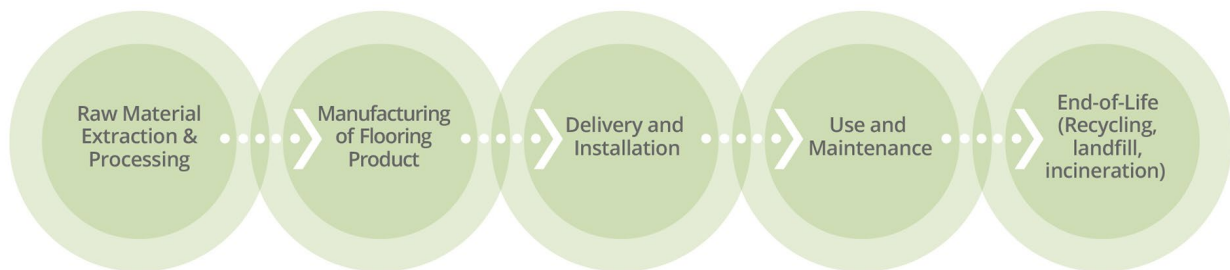
2.1 PRODUCT DESCRIPTION

Tarkett Event+ Series Luxury vinyl floor covering with Techtonic™ coating that delivers extreme durability and ease of maintenance in high traffic environments. Suitable for commercial working environments and office. The Event+ Series is constructed with 30 mil wear layer reinforced with a Techtonic finish in numerous wood and stone patterns to provide an affordable, natural looking flooring that is stocked for faster turnaround times.

The product has a 30 mil wear layer thickness, a square edge, slight bevel and is offered in 32 wood, 24 stone and 18 abstract visuals.

2.2 PRODUCT FLOW DIAGRAM

A flow diagram illustrating the production processes and life cycle phases included in the scope of the EPD is provided below.



2.3 APPLICATION

The products provide the primary function of flooring for interior applications. The flooring products are used in various residential and commercial applications including retail, healthcare, education, and hospitality.

2.4 DECLARATION OF METHODOLOGICAL FRAMEWORK

The scope of the EPD is cradle-to-grave, including raw material extraction and processing, transportation, product manufacture, product delivery, installation and use, and product disposal. The life cycle phases included in the product system boundary are shown below.

Cut-off and allocation procedures are described below and conform to the PCR and ISO standards.

Table 1. Life cycle phases included in the product system boundary.

Product			Construction Process		Use							End-of-life				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 extraction and processing	Transport to manufacturer	Manufacturing	Transport	Construction - installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery and/or recycling potential
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

X = included | MND = Module Not Declared

2.5 TECHNICAL DATA

Technical specifications for the Event PVC tile flooring product are summarized in Table 2.

Table 2. Product specifications for Tarkett Event PVC flooring.

Characteristic			Description			
Sustainable certifications			FloorScore			
VOC emissions test method			CDPH/EHLB Standard Method V1.2. California Specification 01350			
Characteristic			Average Value	Unit	Min Value	Max Value
Product thickness			3.00 (0.12)	mm (in)	2.87 (0.11)	3.13 (0.12)
Wear layer thickness (where applicable)			0.75 (0.03)	mm (in)	0.50 (0.02)	0.75 (0.03)
Product weight			4,815 (15.8)	g/m ² (oz/ft ²)	4,815 (15.8)	4,815 (15.8)
Product Form	Planks	Width	152.4 (6.0)	mm (in)	152.0 (6.0)	152.8 (6.0)
		Length	914.4 (36.0)	m (ft)	913.2 (36)	915.6 (36.0)
Product Form	Planks	Width	457.2 (18.0)	mm (in)	456.4 (18.0)	458.0 (18.0)
		Length	457.2 (18.0)	m (ft)	456 (18)	458.0 (18.0)
Product Form	Planks	Width	152.4 (6.0)	mm (in)	152.0 (6.0)	152.8 (6.0)
		Length	1219.2 (48.0)	m (ft)	1,218 (48)	1220.8 (48.1)
Product Form	Planks	Width	304.8 (12.0)	mm (in)	304.4 (12.0)	305.2 (12.0)
		Length	609.6 (24.0)	m (ft)	609 (24)	610.4 (24.0)
Product Form	Planks	Width	914.4 (36.0)	mm (in)	913.2 (36.0)	915.6 (36.0)
		Length	914.4 (36.0)	m (ft)	913 (36)	915.6 (36.0)

2.6 MARKET PLACEMENT/APPLICATION RULES

Technical specifications of the flooring products are summarized above. Detailed product performance results can be found on the manufacturer's website <http://www.tarkett.com>.

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The flooring products are delivered for installation in the form of planks of various dimensions.

2.8 MATERIAL COMPOSITION

The Tarkett Event PVC flooring products (UNSPSC Class Code 30161700/CSI Code 09 65 00) are manufactured at a production facility in Japan. The primary materials include PVC, fillers, plasticizers and stabilizers.

Table 3. Material content for the flooring products in kg per square meter and percent of total mass.

Material	PVC Tile Flooring	
	kg/m ²	% mass
PVC	1.91	40%
Plasticizer	0.293	6.1%
CaCO ₃	2.56	53%
Stabilizer	3.60x10 ⁻²	0.75%
Other	2.00x10 ⁻²	0.42%
Total Product	4.81	100%

No chemicals regulated by the Resource Conservation and Recovery Act (RCRA) were identified in the product or product components. There are no releases of such substances associated with the production, use or maintenance of the products.

2.9 MANUFACTURING

The products are manufactured at a production facility in Japan. The manufacturer provided primary data for their annual production, resource use and electricity consumption and waste generation at the facility. Electricity consumption is modeled using Ecoinvent datasets for the regional electricity grid resource mix. No green power sources or CO₂ certificates are included in the present study.

The manufacturer provided material-specific scrap rates which are accounted for within the raw material extraction and processing and upstream transport phases of the assessment. Disposal of manufacturing scrap, via landfilling, is accounted for in the manufacturing stage.

2.10 PACKAGING

The products are packaged for shipment using plastic, corrugated board and wooden pallets.

Table 4. Material content for the flooring product packaging in kg per square meter of flooring.

Material	PVC Tile Flooring	
	kg/m ²	% mass
Corrugated	0.216	61%
Plastic	2.04x10 ⁻³	0.57%
Wood	0.137	39%
Total Packaging	0.355	100%

2.11 PRODUCT INSTALLATION

Installation of the product is accomplished using hand tools with negligible impacts and waste. For the current assessment, approximately 4.5% of the product mass is assumed lost as waste during product installation which is assumed landfilled. Impacts associated with the production, transport, waste processing, and disposal of installation wastage are included in this life cycle phase. The impacts associated with packaging disposal are included with the installation phase as per PCR requirements.

2.12 USE CONDITIONS

No special conditions of use are noted.

2.13 REFERENCE SERVICE LIFE

The Reference Service Life (RSL) of the flooring product is based on the manufacturer's estimated product lifetime and is summarized in Table 5 below. The building Estimated Service Life (ESL) is 75 years, consistent with the PCR.

2.14 RE-USE PHASE

The flooring products are not reused at end-of-life.

2.15 DISPOSAL

At end-of-life, the products are disposed of in a landfill, per PCR guidance. It is assumed that no components of the product are recycled at end-of-life.

2.16 FURTHER INFORMATION

Further information on the product can be found on the manufacturer's website <http://www.tarkett.com>.

3. LCA: Calculation Rules

3.1 FUNCTIONAL UNIT

The functional unit used in the study is defined as 1 m² of floor covering installed for use over a 75-year period. The corresponding reference flow for the product system is presented in Table 5. For the present assessment, a reference service lifetime (RSL) corresponding to the manufacturer's warranted lifetime is assumed. The total number of required product lifecycles during the 75-year period over which the product system is modeled is also summarized for the products in Table 5.

Table 5. Reference flow and RSL for the flooring products.

Product	Product Thickness (mm)	Reference flow (kg/m ²)	Mass conversion factor	Reference Service Life – RSL (years)	# of Product replacements (Replacement cycle)
Event PVC Tile Flooring	3.00	4.81	4.81	10	6.5

3.2 SYSTEM BOUNDARY

The scope of the EPD is cradle-to-grave, including raw material extraction and processing, transportation, product manufacture, product delivery, installation and use, and product disposal. The life cycle phases included in the EPD scope are described in Table 6 and illustrated in Figure 1.

Table 6. *The modules and unit processes included in the scope for the flooring product system.*

Module	Module description from the PCR	Unit Processes Included in Scope
A1	Extraction and processing of raw materials; any reuse of products or materials from previous product systems; processing of secondary materials; generation of electricity from primary energy resources; energy, or other, recovery processes from secondary fuels	Extraction and processing of raw materials for the flooring components.
A2	Transport (to the manufacturer)	Transport of component materials to the manufacturing facility
A3	Manufacturing, including ancillary material production	Manufacturing of flooring products and packaging (incl. upstream unit processes)
A4	Transport (to the building site)	Transport of product (including packaging) to the building site
A5	Construction-installation process	Impacts from the installation of product are assumed negligible. Impacts from the production, transport and disposal of waste material associated with installation are included in this phase in addition to impacts from packaging disposal.
B1	Product use	Use of the flooring in a commercial building setting. There are no associated emissions or impacts from the use of the product
B2	Product maintenance	Maintenance of products over the 75-year ESL, including periodic cleaning.
B3	Product repair	The flooring is not expected to require repair over its lifetime.
B4	Product replacement	The materials and energy required for replacement of the product over the 75-year ESL of the assessment are included in this phase
B5	Product refurbishment	The flooring is not expected to require refurbishment over its lifetime.
B6	Operational energy use by technical building systems	There is no operational energy use associated with the use of the product
B7	Operational water use by technical building systems	There is no operational water use associated with the use of the product
C1	Deconstruction, demolition	Demolition of the product is accomplished using hand tools with no associated emissions and negligible impacts
C2	Transport (to waste processing)	Transport of flooring product to waste treatment at end-of-life
C3	Waste processing for reuse, recovery and/or recycling	The product is disposed of by landfilling which require no waste processing
C4	Disposal	Disposal of flooring product in municipal landfill
D	Reuse-recovery-recycling potential	Module Not Declared

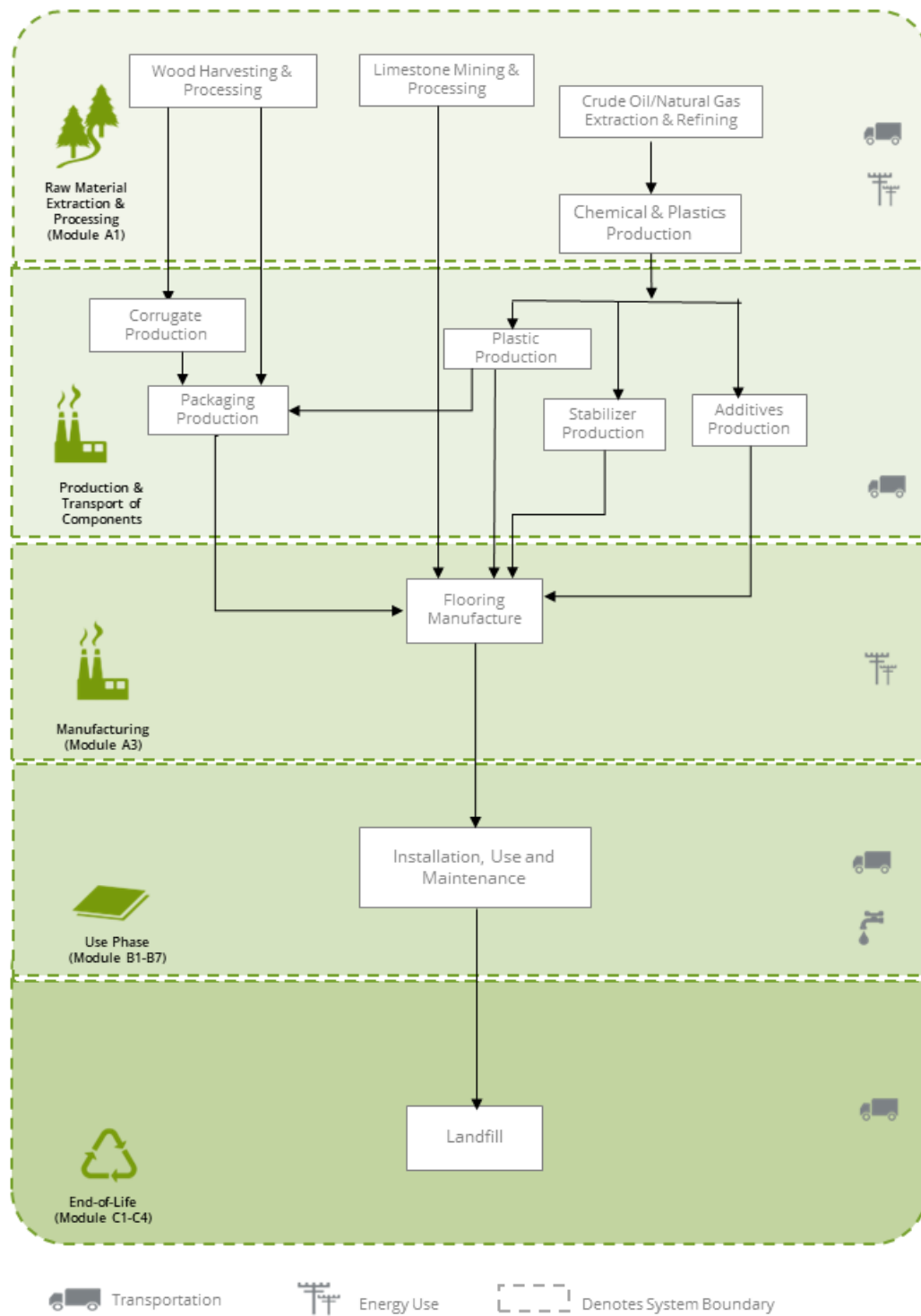


Figure 1. Flow diagram for the life cycle of the Event flooring products.

3.3 PRODUCT SPECIFIC CALCULATION FOR USE PHASE

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 (moderate traffic levels) is presented based on typical installations.

3.4 UNITS

All data and results are presented using SI units.

3.5 ESTIMATES AND ASSUMPTIONS

- Electricity use at the manufacturing facility was allocated to the products based on the product area as a fraction of the total production.
- The manufacturing facility under review is located in Japan. Ecoinvent inventory datasets for the appropriate regional energy grid was used to model resource use and emissions from electricity use at the manufacturing facility.
- Inventory data for some material components were unavailable and modeled using proxy datasets from the Ecoinvent LCI databases.
- The Reference Service Life (RSL) of the products was modeled based on information provided by the manufacturers assuming their products are installed and maintained as recommended and used for the specific application noted.
- Downstream transport was modeled based on information provided by the manufacturers representing product distribution to North America.
- The maintenance phase of the product life cycle was modeled based on information provided by the manufacturers including recommended installation and cleaning methods, as well as cleaning frequency.
- For the product end-of-life, disposal of product and product packaging is modeled based on the PCR guidance regarding recycling rates of product and packaging materials.
- For final disposal of the packaging material and flooring products at end-of-life, all materials are assumed to be transported 161 km by diesel truck to either a landfill or material reclamation facility (for recycling). Datasets representing disposal in a landfill and waste incineration are from Ecoinvent.
- Modeling of recycled materials follows the recycled content method (also known as 100-0 method or cut-off method) whereby only the burdens of reprocessing the waste material are allocated to the system from the use of the recycled material.

The PCR requires the results for several inventory flows related to construction products to be reported including energy and resource use and waste and outflows. These are aggregated inventory flows, and do not characterize any potential impact; results should be interpreted taking into account this limitation.

3.6 CUT-OFF RULES

According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact are included in the inventory. No data gaps were allowed which were expected to significantly affect the outcome of the indicator results. No known flows are deliberately excluded from this EPD.

3.7 DATA SOURCES

Primary data were provided for the manufacturing facility. The sources of secondary LCI data are the Ecoinvent v3.10 database..

3.8 DATA QUALITY

The data quality assessment addressed the following parameters: time-related coverage, geographical coverage, technological coverage, precision, completeness, representativeness, consistency, reproducibility, sources of data, and uncertainty.

Table 7. Data quality assessment for the flooring product system.

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data is collected	The most recent available data are used, based on other considerations such as data quality and similarity to the actual operations. Typically, these data are less than 5 years old. All of the data used represented an average of at least one year's worth of data collection, and up to three years in some cases. Manufacturer-supplied data (primary data) are based on annual production for 2021-2022.
Geographical Coverage: Geographical area from which data for unit processes is collected to satisfy the goal of the study	The data used in the analysis provide the best possible representation available with current data. Electricity use for product manufacture is modeled using representative data for regional power mixes from the Ecoinvent LCI database. Surrogate data used in the assessment are representative of global or North American operations. Data representative of global operations are considered sufficiently similar to actual processes. Data representing product and packaging disposal are based on regional statistics.
Technology Coverage: Specific technology or technology mix	For the most part, data are representative of the actual technologies used for processing, transportation, and manufacturing operations. Representative datasets, specific to the type of material, are used to represent the actual processes, as appropriate.
Precision: Measure of the variability of the data values for each data expressed	Precision of results are not quantified due to a lack of data. Data collected for operations were typically averaged for one or more years and over multiple operations, which is expected to reduce the variability of results.
Completeness: Percentage of flow that is measured or estimated	The LCA model included all known mass and energy flows for production of the flooring products. In some instances, surrogate data used to represent upstream and downstream operations may be missing some data which is propagated in the model. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded.
Representativeness: Qualitative assessment of the degree to which the data set reflects the true population of interest	Data used in the assessment represent typical or average processes as currently reported from multiple data sources and are therefore generally representative of the range of actual processes and technologies for production of these materials. Considerable deviation may exist among actual processes on a site-specific basis; however, such a determination would require detailed data collection throughout the supply chain back to resource extraction.
Consistency: Qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The consistency of the assessment is considered to be high. Data sources of similar quality and age are used; with a bias towards Ecoinvent v3.10 data where available. Different portions of the product life cycle are equally considered.
Reproducibility: Qualitative assessment of the extent to which information about the methodology and data values would allow an independent practitioner to reproduce the results reported in the study	Based on the description of data and assumptions used, this assessment would be reproducible by other practitioners. All assumptions, models, and data sources are documented.
Sources of the Data: Description of all primary and secondary data sources	Data representing energy use at manufacturing facility represent an annual average and are considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. For secondary LCI data, Ecoinvent v3.10 LCI data are used.
Uncertainty of the Information: Uncertainty related to data, models, and assumptions	Uncertainty related to materials in the products and packaging is low. Actual supplier data for all upstream operations were not available and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<10 years) but lacked geographical representativeness. Uncertainty related to the impact assessment methods used in the study are high. The impact assessment method required by the PCR includes impact potentials, which lack characterization of providing and receiving environments or tipping points.

3.9 PERIOD UNDER REVIEW

The LCA results are based on annual production data for 2021-2022.

3.10 ALLOCATION

Manufacturing resource use was allocated to the products based on surface area. Area-based allocation was deemed most appropriate for the flooring products as total facility production was available as total square meters of product produced. Impacts from transportation were allocated based on the mass of material and distance transported.

The flooring product system includes some recycled materials, which were allocated using the recycled content allocation method (also known as the 100-0 cut off method). Using the recycled content allocation approach, system inputs with recycled content do not receive any burden from the previous life cycle other than reprocessing of the waste material. At end of life, materials which are recycled leave the system boundaries with no additional burden.

3.11 COMPARABILITY

The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of the uncertainty in the final results, due to and not limited to, the practitioner's assumptions, the source of the data used in the study, and the specifics of the product modeled.

4. LCA: Scenarios and Additional Technical Information

Delivery and Installation stage (A4 - A5)

Distribution of the flooring products to the point of installation is included in the assessment based on information provided by the manufacturer. Transportation parameters for modeling transport to consumer markets are summarized in Table 8.

Table 8. Product distribution parameters by transport mode.

Parameter	Unit	Value
Ground transport		
Fuel type	-	Diesel
Liters of fuel	L/100km	18.7
Vehicle type	-	Diesel truck
Capacity utilization	%	76
Transport distance	km	1,187
Gross mass of products transported	kg	5.17
Rail transport		
Fuel type	-	Diesel
Liters of fuel	g/tkm	10.0
Vehicle type	-	Diesel rail
Capacity utilization	%	76
Transport distance	km	2,560
Gross mass of products transported	kg	5.17
Ocean transport		
Fuel type	-	Fuel oil
Liters of fuel	L/tkm	2.23
Vehicle type	-	Ocean freighter
Capacity utilization	%	70
Transport distance	km	8,160
Gross mass of products transported	kg	5.17

Installation of the product and periodic cleaning are included in the life cycle use phase. The manufacturer provided installation and maintenance guidelines detailing the recommended installation method and maintenance routine. For the current assessment, approximately 4.5% of the product mass is assumed lost as waste during product installation which is assumed landfilled. Impacts associated with the production, transport, waste processing, and disposal of installation wastage are included in this life cycle phase. The VOC emissions associated with the installation, use and maintenance of the products are negligible. The impacts associated with packaging disposal are included with the installation phase as per PCR requirements.

Table 9. Installation parameters for the flooring products, per 1 m² (A5).

Parameter	Value
Ancillary materials	-
Net freshwater consumption (m ³)	-
Electricity consumption (kWh)	-
Product loss per functional unit (kg)	0.217
Waste materials generated by product installation (kg)	0.449
Output materials resulting from on-site waste processing (kg)	na
Direct emissions (kg)	-
Mass of packaging waste (kg)	
Plastic	2.04x10 ⁻³
Corrugated/Paper	8.00x10 ⁻²
Wood	0.150
Biogenic carbon in packaging (kg CO ₂)	0.422
VOC emissions	negligible

Use stage (B1)

No impacts are associated with the use of the product over the Reference Service Lifetime.

Maintenance stage (B2)

According to the manufacturer, typical maintenance involves regular sweeping and damp mopping, as well as periodic machine cleaning of the flooring. The present assessment is based on a recommended weekly cleaning schedule including sweeping and mopping with a neutral cleaner and monthly machine cleaning.

Table 10. Maintenance parameters for the flooring products, per 1 m².

Parameter	Unit	Value
Maintenance process	-	Damp mopping
Maintenance cycle	Cycles / RSL	520
Maintenance cycle	Cycles / ESL	3,900
Net freshwater consumption	m ³ /m ² /yr	0.0058
Cleaning agent	kg/m ² /yr	0.0119
Maintenance process	-	Machine cleaning
Maintenance cycle	Cycles / RSL	120
Maintenance cycle	Cycles / ESL	900
Electricity	kWh/m ² /yr	0.022
Further assumptions	-	Moderate traffic

Repair/Refurbishment stage (B3; B5)

Product repair and refurbishment are not relevant during the lifetime of the product.

Replacement stage (B4)

The materials and energy required for replacement of the product over the 75-year estimated service lifetime of the assessment are included in this stage. Modeling parameters for the product replacement stage are summarized in Table 11. Impacts associated with the production, transport, waste processing, and disposal of all materials required for the replacement of the product over the 75-year assessment period are included in this life cycle phase.

Table 11. Product replacement parameters for the flooring products, per 1 m².

Parameter	Value	Units
Reference service life	10	Years
Replacement cycle	6.5	-
Energy input	-	kWh
Freshwater consumption	-	m ³
Ancillary materials	-	kg
Replacement parts	43.0	kg
Direct emissions	-	kg

Building operation stage (B6 – B7)

There is no operational energy or water use associated with the use of the product.

Disposal stage (C1 - C4)

The disposal stage includes removal of the products (C1); transport of the flooring products to waste treatment facilities (C2); waste processing (C3); and associated emissions as the product degrades in a landfill or is burned in an incinerator (C4). For the flooring products, no emissions are generated during demolition (C1) while no waste processing (C3) is required for incineration or landfill disposal.

Transportation of waste materials at end-of-life (C2) assumes a 100 mile (~161 km) average distance to disposal, consistent with the PCR. The recycling rates used for the product packaging are based on the PCR. No recycling of the product materials is assumed at end-of-life. The relevant disposal statistics used for the packaging are summarized in Table 12. For material not recycled, 80% are assumed landfilled and 20% incinerated. End-of-life modeling parameters are summarized in Table 13.

Table 12. Recycling rates for packaging materials at end-of-life.

Material	Value
Recycling Rates	
Plastics	13.6%
Paper & Pulp	80.9%
Wood	26.9%
Disposal of Non-recyclables	
Landfill	80%
Incineration	20%

Table 13. End-of-life disposal scenario parameters for the flooring product.

Parameter	Value
Assumptions for scenario development	100% landfill
Collection process	
Collected with mixed construction waste (kg)	4.81
Recovery	
Landfill disposal (kg)	4.81
Removals of biogenic carbon (kg CO ₂ eq) ¹	n/a

¹ excluding packaging.

5. LCA: Results

Results of the Life Cycle Assessment are presented below. It is noted that LCA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. All LCA results are stated to three significant figures in agreement with the PCR for this flooring product and therefore the sum of the total values may not exactly equal 100%.

The following environmental impact category indicators are reported using characterization factors based on the U.S. EPA's Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts – TRACI 2.1 and CML-IA.

CML-IA Impact Category	Unit	TRACI 2.1 Impact Category	Unit
Global Warming Potential (GWP)	kg CO ₂ eq	Global Warming Potential (GWP)	kg CO ₂ eq
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq	Ozone Depletion Potential (ODP)	kg CFC 11 eq
Acidification Potential of soil and water (AP)	kg SO ₂ eq	Acidification Potential (AP)	kg SO ₂ eq
Eutrophication Potential (EP)	kg PO ₄ ³⁻ eq	Eutrophication Potential (EP)	kg N eq
Photochemical Oxidant Creation Potential (POCP)	kg C ₂ H ₄ eq	Smog Formation Potential (SFP)	kg O ₃ eq
Abiotic depletion potential (ADP-elements) for non-fossil resources	kg Sb eq	Fossil Fuel Depletion Potential (FFD)	MJ Surplus, LHV
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ, LHV		

These impact categories are globally deemed mature enough to be included in Type III environmental declarations. Other categories are being developed and defined and LCA should continue making advances in their development. However, the EPD users shall not use additional measures for comparative purposes.

The following inventory parameters, specified by the PCR, are also reported.

Resources	Unit	Waste and Outflows	Unit
RPRE : Renewable primary resources used as energy carrier (fuel)	MJ, LHV	HWD : Hazardous waste disposed	kg
RPRM : Renewable primary resources with energy content used as material	MJ, LHV	NHWD : Non-hazardous waste disposed	kg
NRPRE : Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	HLRW : High-level radioactive waste, conditioned, to final repository	kg
NRPRM : Non-renewable primary resources with energy content used as material	MJ, LHV	ILLRW : Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
SM : Secondary materials	kg	CRU : Components for re-use	kg
RSF : Renewable secondary fuels	MJ, LHV	MR : Materials for recycling	kg
NRSF : Non-renewable secondary fuels	MJ, LHV	MER : Materials for energy recovery	kg
RE : Recovered energy	MJ, LHV	EE : Recovered energy exported from the product system	MJ, LHV
FW : Use of net freshwater resources	m ³		

Modules B1, B3, B5, B6 and B7 are not associated with any impact and are therefore declared as zero. In addition, module C1 is likewise not associated with any impact as the floor is manually deconstructed. Additionally, as the flooring products do not typically contain significant amounts of bio-based materials, biogenic carbon emissions and removals are not declared. Module D is not declared. In the interest of space and table readability, these modules are not included in the results presented below.

Table 14. Life Cycle Impact Assessment (LCIA) results for the **Event PVC Tile Flooring** products over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Impact Category	A1	A2	A3	A4	A5	B2	B4	C2	C4
CML									
GWP (kg CO ₂ eq)	8.39	0.244	1.88	2.43	1.06	15.9	109	1.08	1.76
	5.9%	0.17%	1.3%	1.7%	0.75%	11%	77%	0.76%	1.2%
AP (kg SO ₂ eq)	2.90x10 ⁻²	1.36x10 ⁻³	4.17x10 ⁻³	1.94x10 ⁻²	2.81x10 ⁻³	5.47x10 ⁻²	0.398	4.09x10 ⁻³	4.92x10 ⁻⁴
	5.6%	0.26%	0.81%	3.8%	0.55%	11%	77%	0.79%	0.096%
EP (kg (PO ₄) ³⁻ eq)	1.29x10 ⁻²	2.63x10 ⁻⁴	1.35x10 ⁻²	3.67x10 ⁻³	6.00x10 ⁻³	1.97x10 ⁻²	0.525	9.39x10 ⁻⁴	4.35x10 ⁻²
	2.1%	0.042%	2.2%	0.59%	0.96%	3.1%	84%	0.15%	6.9%
POCP (kg C ₂ H ₄ eq)	2.87x10 ⁻³	5.17x10 ⁻⁵	3.73x10 ⁻⁴	6.40x10 ⁻⁴	2.76x10 ⁻⁴	3.82x10 ⁻³	3.09x10 ⁻²	1.82x10 ⁻⁴	3.72x10 ⁻⁴
	7.2%	0.13%	0.94%	1.6%	0.7%	9.7%	78%	0.46%	0.94%
ODP (kg CFC-11 eq)	3.59x10 ⁻⁶	2.90x10 ⁻⁹	1.40x10 ⁻⁸	2.65x10 ⁻⁸	1.65x10 ⁻⁷	2.62x10 ⁻⁷	2.48x10 ⁻⁵	1.32x10 ⁻⁸	1.24x10 ⁻⁹
	12%	0.01%	0.049%	0.092%	0.57%	0.91%	86%	0.046%	0.0043%
ADPF (MJ eq)	151	3.34	11.9	31.6	10.1	329	1,450	13.9	1.36
	7.5%	0.17%	0.59%	1.6%	0.51%	16%	72%	0.69%	0.068%
ADPE (kg Sb eq)	2.24x10 ⁻⁵	3.18x10 ⁻⁷	5.37x10 ⁻⁷	2.50x10 ⁻⁶	1.19x10 ⁻⁶	3.98x10 ⁻⁵	1.77x10 ⁻⁴	3.32x10 ⁻⁷	6.27x10 ⁻⁸
	9.1%	0.13%	0.22%	1%	0.49%	16%	73%	0.14%	0.026%
TRACI									
GWP (kg CO ₂ eq)	8.27	0.242	1.70	2.41	0.968	15.6	105	1.07	1.44
	6.1%	0.18%	1.2%	1.8%	0.71%	11%	77%	0.78%	1.1%
AP (kg SO ₂ eq)	3.17x10 ⁻²	1.54x10 ⁻³	4.30x10 ⁻³	2.24x10 ⁻²	3.20x10 ⁻³	6.01x10 ⁻²	0.450	5.22x10 ⁻³	9.16x10 ⁻⁴
	5.5%	0.27%	0.74%	3.9%	0.55%	10%	78%	0.9%	0.16%
EP (kg N eq)	2.69x10 ⁻²	2.57x10 ⁻⁴	3.60x10 ⁻²	3.03x10 ⁻³	1.56x10 ⁻²	3.95x10 ⁻²	1.32	5.33x10 ⁻⁴	0.120
	1.7%	0.016%	2.3%	0.19%	1%	2.5%	84%	0.034%	7.7%
SFP (kg O ₃ eq)	0.419	3.42x10 ⁻²	5.76x10 ⁻²	0.530	6.03x10 ⁻²	0.712	8.25	0.157	1.06x10 ⁻²
	4.1%	0.33%	0.56%	5.2%	0.59%	7%	81%	1.5%	0.1%
ODP (kg CFC-11 eq)	4.33x10 ⁻⁶	3.93x10 ⁻⁹	1.87x10 ⁻⁸	3.62x10 ⁻⁸	1.99x10 ⁻⁷	3.68x10 ⁻⁷	2.99x10 ⁻⁵	1.76x10 ⁻⁸	1.73x10 ⁻⁹
	12%	0.011%	0.054%	0.1%	0.57%	1.1%	86%	0.05%	0.005%
FFD (MJ surplus)	19.0	0.476	1.26	4.43	1.32	43.3	187	2.09	0.185
	7.3%	0.18%	0.49%	1.7%	0.51%	17%	72%	0.81%	0.072%

Table 15. Resource use and waste flows for the **Event PVC Tile Flooring** products over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits.

Parameter	A1	A2	A3	A4	A5	B2	B4	C2	C4
Resources									
RPR _E (MJ)	7.42	4.27x10 ⁻²	7.71	0.535	0.717	4.25	107	6.05x10 ⁻²	3.62x10 ⁻²
	5.8%	0.033%	6%	0.42%	0.56%	3.3%	84%	0.047%	0.028%
RPR _M (MJ)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0%	0%	0%	0%	0%	0%	0%	0%	0%
NRPR _E (MJ)	123	3.38	12.8	32.1	10.6	81.7	1,520	13.9	1.40
	6.8%	0.19%	0.71%	1.8%	0.59%	4.5%	84%	0.78%	0.078%
NRPR _M (MJ)	36.2	0.00	0.00	0.00	0.00	0.00	235	0.00	0.00
	13%	0%	0%	0%	0%	0%	87%	0%	0%
SM (kg)	0.922	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00
	13%	0%	0%	0%	0%	0%	87%	0%	0%
RSF/NRSF (MJ)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RE (MJ)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FW (m ³)	0.629	2.58x10 ⁻³	6.42x10 ⁻²	2.73x10 ⁻²	3.32x10 ⁻²	0.758	4.96	5.21x10 ⁻³	2.20x10 ⁻³
	9.7%	0.04%	0.99%	0.42%	0.51%	12%	77%	0.08%	0.034%
Wastes									
HWD (kg)	2.70x10 ⁻³	2.29x10 ⁻⁵	5.84x10 ⁻⁵	2.09x10 ⁻⁴	1.43x10 ⁻⁴	9.85x10 ⁻⁴	2.11x10 ⁻²	9.77x10 ⁻⁵	9.21x10 ⁻⁶
	11%	0.09%	0.23%	0.83%	0.57%	3.9%	83%	0.39%	0.036%
NHWD (kg)	0.639	0.144	1.59	0.896	0.690	0.173	57.6	6.62x10 ⁻²	4.83
	0.96%	0.22%	2.4%	1.3%	1%	0.26%	86%	0.099%	7.2%
HLRW (kg)	3.76x10 ⁻⁵	1.94x10 ⁻⁷	3.02x10 ⁻⁶	2.26x10 ⁻⁶	1.99x10 ⁻⁶	2.60x10 ⁻⁵	2.96x10 ⁻⁴	3.15x10 ⁻⁷	1.94x10 ⁻⁷
	10%	0.053%	0.82%	0.62%	0.54%	7.1%	81%	0.086%	0.053%
ILLRW (kg)	9.75x10 ⁻⁵	4.58x10 ⁻⁷	1.19x10 ⁻⁵	5.47x10 ⁻⁶	5.32x10 ⁻⁶	7.87x10 ⁻⁵	7.92x10 ⁻⁴	7.41x10 ⁻⁷	4.88x10 ⁻⁷
	9.8%	0.046%	1.2%	0.55%	0.54%	7.9%	80%	0.075%	0.049%
CRU (kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MR (kg)	0.00	0.00	0.00	0.00	3.55x10 ⁻²	0.00	0.231	0.00	0.00
	0%	0%	0%	0%	13%	0%	87%	0%	0%
MER (kg)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EE (MJ)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

6. LCA: Interpretation

The contributions to total impact indicator results are dominated by the product replacement phase of the assessment. With few exceptions, of the remaining life cycle phases, the raw material extraction and processing phase is the highest contributor followed by product distribution, use and maintenance and product disposal.

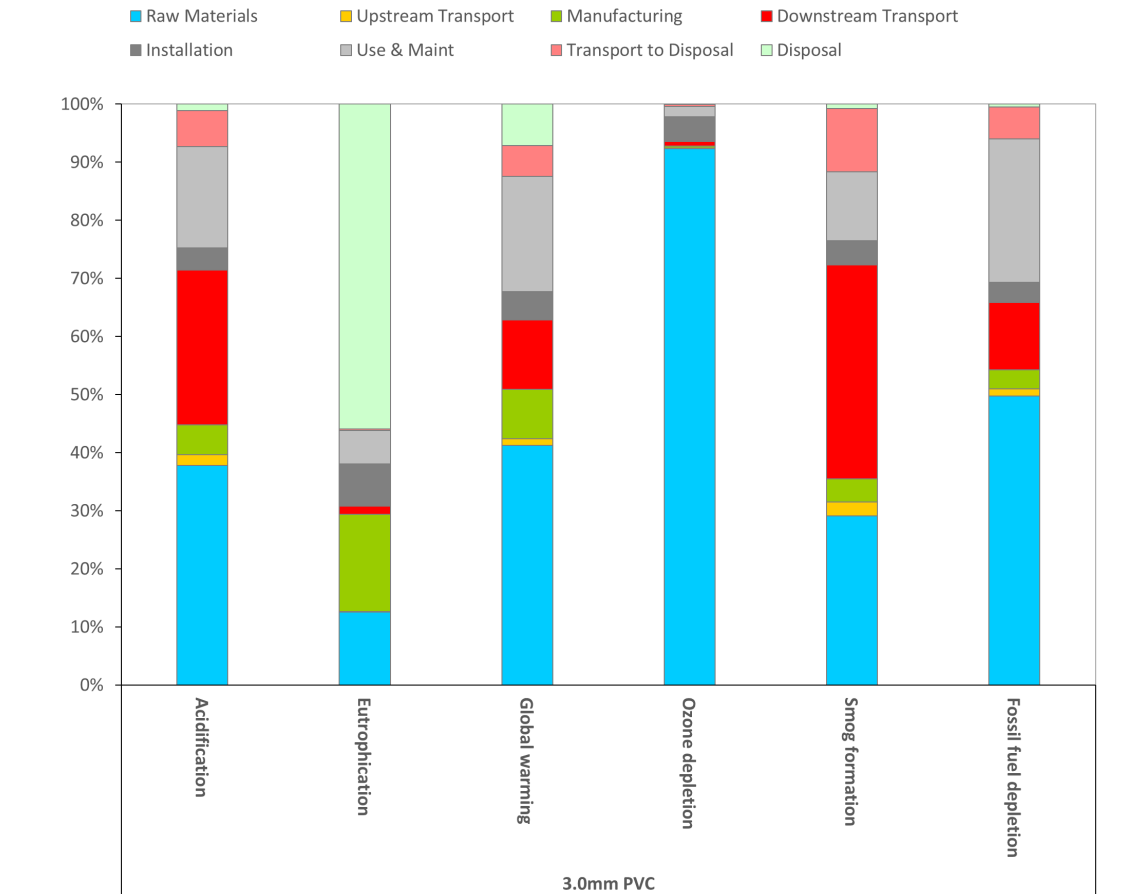


Figure 2. Contribution analysis for the Event flooring products - TRACI 2.1. (excluding product replacements)

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For more information, contact:



Tarkett, Inc.

30000 Aurora Road

Solon, Ohio 44139

United States

<https://www.tarkett.com> | +1 (800) 899-8916



SCS Global Services

2000 Powell Street, Ste. 600, Emeryville, CA 94608 USA

Main +1.510.452.8000 | fax +1.510.452.8001