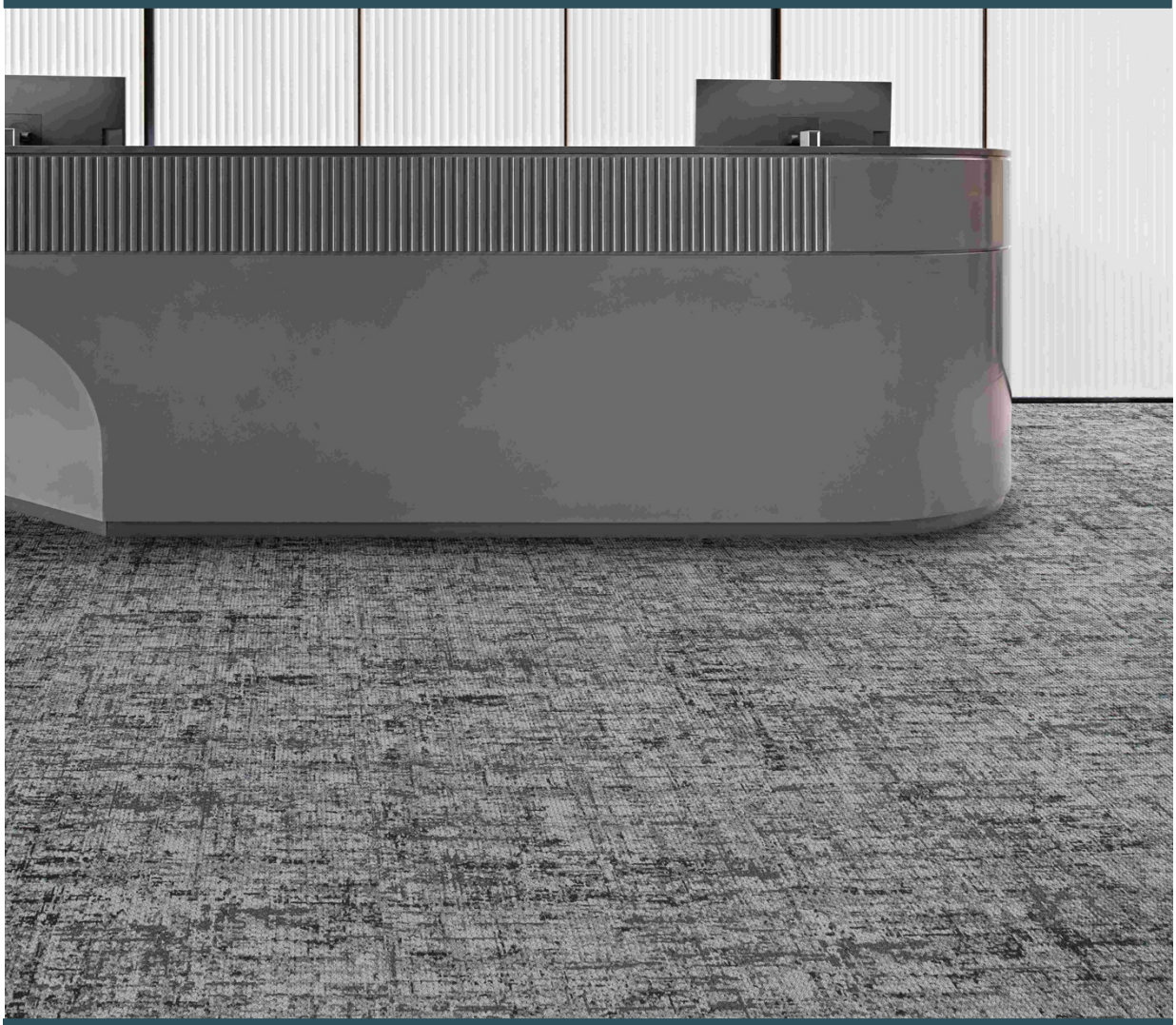
J+J FLOORING

Kinetex® Textile Composite Flooring



Environmental Product Declaration

Programme: The International EPD® System
Programme operator: EPD International AB
EPD registration number: S-P-12753
Publication Date: 2024-03-08
Valid Until: 2029-03-04
www.environdec.com
In accordance with ISO 14025:2006 and ISO 21930.
This EPD does not comply with EN15804+A2.

EPD®
EPD

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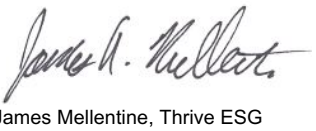
Programme and Programme Operator	The International EPD® System EPD International AB Box 210 60 SE-100 31 Stockholm Sweden www.environdec.com info@environdec.com as provided by EPD North America
General Program instructions and Version Number[1]	General Programme Instructions for the International EPD® System. Version 4.0. 2021-03-29
Manufacturer Name and Address	J+J Flooring 818 J and J Dr Dalton, GA 30721
Declaration Number	S-P-12753
Declared Product and Functional Unit	Kinetex® Textile Composite Flooring 1 m^2 of installed flooring and with a building service life of 75 years
Reference PCR and Version Number[2]	UL Part A: Life Cycle Assessment Calculation Rules and Report Requirements, Version 4.0 UL Part B: Flooring EPD Requirements. UL 10010-7, September 28, 2018
Product's intended Application and Use	Commercial Flooring Applications
Product RSL	30 years
Markets of Applicability	North America
Date of Issue	2024-03-08
Period of Validity	5 years from date of issue
EPD Type	Product Specific
Range of Dataset Variability	N/A
EPD Scope	Cradle to Grave
Year of reported manufacturer primary data	2022
LCA Software and Version Number	MLC Database 2023.02 (formerly GaBi Database)
LCI Database and Version Number	LCA FE 10.7 (formerly GaBi)
LCIA Methodology and Version Number	TRACI 2.1 CML 2001-Jan 2016 IPCC AR5
Part A PCR review ws conducted by:	Lindita Bushi, PhD, Chair Hugues Imbeault-Tétreault, Eng.,M.A. Sc. Jack Geibig
The sub-category PCR review was conducted by:	Jack Geibig (Chair) Thomas Gloria, PhD Thaddeus Owen
Independent third-party verification of the declaration and data, according to ISO 14025:2008.	☐EPD Process Certification ☒ EPD Verification ☐ Pre-Verified Tool
This declaration was independently verified in accordance with ISO 14025: 2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," v4.0, based on CEN Norm EN 15804 (2012) and ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017) **☐ Internal ☒ External**	 James Mellentine, Thrive ESG Approved by: The International EPD® System
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability Consulting
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	James Mellentine, Thrive ESG
The procedure for follow-up of data during EPD validity, as defined by the GPI, involves third party verifier:	☐ Yes ☒ No

1 Not all requirements in the GPI are fulfilled, particularly the requirement for construction products to follow EN 15804 for certain aspects of the LCA method.
2 This EPD is based on a PCR that satisfies procurement rules at the federal, state, and municipal levels which call for EPDs based on the UL Part B PCR. The UL Part B PCR was used to meet regulatory (example: Buy Clean California Act, etc.) and market expectations (example: Building Transparency EC3 comparisons, LEED and existing vendor procurement requirements, product scoring programs, etc.). The EPD should not be used outside of this context.
Limitations:
Environmental declarations from different programs (ISO 14025) may not be comparable.
Comparison of the environmental performance of Flooring Products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.
Full conformance with the PCR for Products 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.
The EPD owner has the sole ownership, liability, and responsibility of the EPD.

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Product Definition and Information

Company Description

Established in 1957, J+J Flooring is a leading manufacturer of specified commercial flooring. With broadloom and modular carpet, Kinetex® Textile Composite Flooring, and LVT (Luxury Vinyl Tile),we provide a range of product and service solutions to meet the needs of our customers in the corporate workplace, education, healthcare, retail, and hospitality sectors. That guiding ethic continues today as J+J Flooring strives to positively impact our associates, customers, and community on a daily basis. By putting our people first, we produce products with pride, provide value to our customers, and make a difference in our community. Our commitment to our associates and their families, as well as our larger community, requires J+J Flooring to provide gainful employment and economic development. In 2016, J+J Flooring joined Engineered Floors, LLC. Based in Dalton, Ga., Engineered Floors, LLC is a privately held carpet producer founded by Robert E. Shaw in 2009 and based in Dalton, Ga., with facilities in Calhoun and Dalton, Ga. The organization has procedures in place for keeping itself updated with relevant process- and product-related legislation and has access to all specific information of relevance concerning processes and products for the actual product category issued by central legislative authorities.

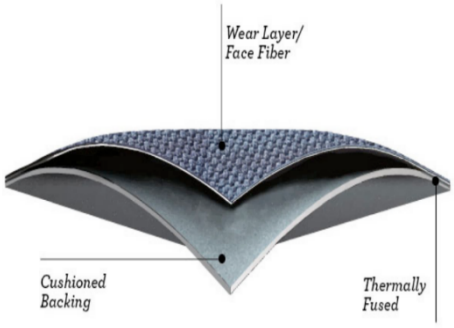

Figure 1: Product Construction

Product Description

J+J Flooring's Kinetex® is an advanced Textile Composite Flooring that combines key attributes of soft-surface floor covering with the long-wearing performance characteristics of hard-surface flooring. Kinetex® is a textile composite product family with polyester fabric wear layer and a PET felt cushion backing that are thermally fused. A representative product within the Kinetex® family was chosen. The composition within the Kinetex® family of products does not differ other than pigments and dyes used to give each style of carpet tile its own distinct appearance. The variation in terms of pigments and dyes used is less than 5% of the total product weight and is excluded from the study. This EPD covers all styles and colors under the Kinetex® product family. Specific products can be found on J+J's website. The key to the high-performance attributes of Kinetex® lies within its construction. Each layer, when used together, creates a versatile, lightweight, soft-surface flooring design with parallel qualities to that of hard-surface.

Kinetex® is within CSI Master Format section 09 68 13, UN CPC 2730.

Figure 2: Product Application

Application

J+J Flooring's Contract's Kinetex® high-performance flooring is intended for use as a flooring tile in medium-to-high traffic commercial applications such as retail, healthcare, education, corporate, public spaces, and institutional environments. Further information about the product may be found on J+J Flooring's website.

Properties of Declared Product as Delivered

The product is usually delivered packaged in a cardboard box with plastic film and paper to protect the tiles during shipping. These are usually shipped in tile/ plank sizes of 12"x 48", 18"x 36", 24"x 24".

Table 1: Technical Data

Parameter	Value
Tile Size	12"x 48" 18"x 36" 24"x 24"
Yarn Type	PET
Primary backing type	PE
Secondary backing type	PET
TARR rating	4.5
Total thickness	<5 mm (<0.19 in)
Product weight	1.57 kg/m²

Table 2: Performance Testing

	Standard	Value
Flooring Radiant Panel	ASTM E648	Class 1; ≥ 0.45 watts/cm²
Smoke Density	ASTM E662	≤ 450
Static Test	AATCC-134	Less than 3kv
ADA Compliance	-	Compliance for Accessible Routes
Additional Characteristics	NSF/ ANSI 140	Platinum Certified
Additional Characteristics	NSF/ ANSI 140	Available Reclamation Program

Flow Diagram

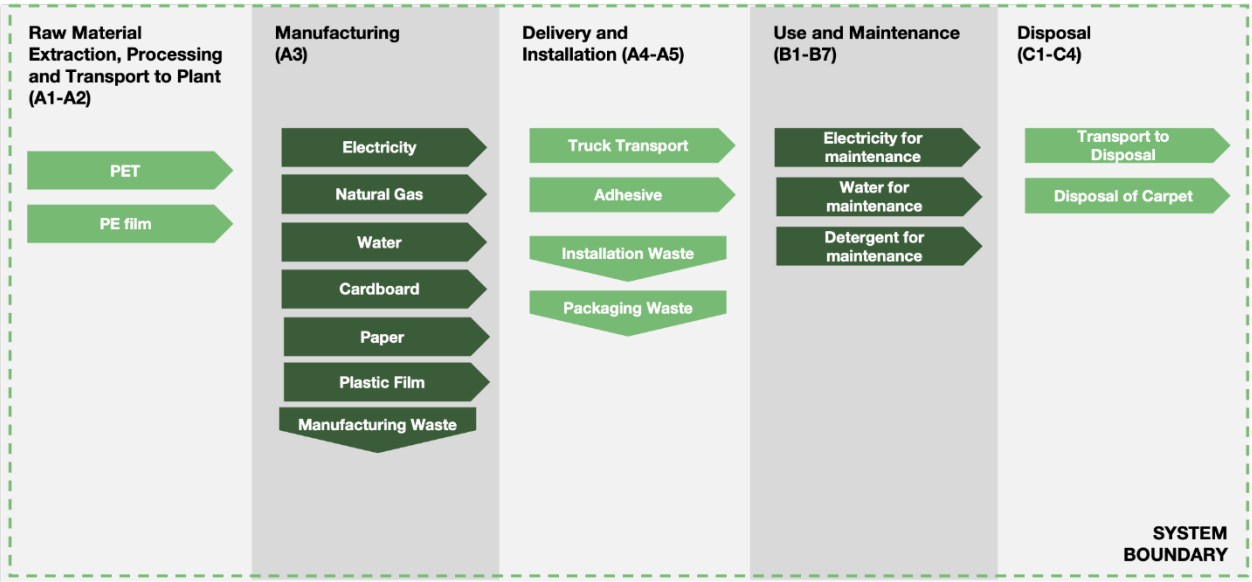

Figure 3: System Boundary

Manufacturing and Packaging

The first step in Kinetex® manufacturing is needle-punching. The process involves combining three different PET fibers into a felt product. The fibers are combined by teasing them together with a series of needles. The felt which forms a part of the secondary backing contains a combination of post-industrial and post-consumer recycled content. This has been incorporated into the LCA model. A wear layer is formed by stitching solution-dyed PET fiber into a face fabric. This wear layer is then sent laminating and embossing.

The laminating combines the fabric face and the felt product. This process involves heating the two intermediaries to a level in which they "melt" together. The process creates a permanent bond between the two layers.

Finally, the tile cutting process involves stamping out individual Kinetex tiles from the roll completed in the laminating phase. This is followed by packing the Textile Composite Flooring tiles for storage or immediate shipment. No substances required to be reported as hazardous waste are associated with the production of this product.

Table 3: Product Composition

Material	Percent
PET	84%
PE	16%

Table 4: Packaging

Material	Value [kg per m²]
Cardboard	6.70E-02
Plastic Film	1.00E-03

Transportation

It is assumed that all raw materials are distributed by truck. Transport of raw material from supplier to the manufacturing facility was calculated for each raw material using primary data. Average distance to installation site was calculated to be 200 miles from the J+J facility in 2022.

Product Installation

The product is usually delivered to the customer via truck, depending on the location of the end-user. Detailed installation instructions are provided online. Installation equipment is required though not included in the study as these are multi-use tools and the impacts per declared unit is considered negligible. Packaging waste is generated and disposed of in this stage. For installation of Kinetex®, J+J requires Kinetex® adhesive to be used for optimum performance. This adhesive is formulated for Kinetex® Textile Composite flooring products and is built to bond the textile composite to the properly prepared substrates for the life of the installation. Kinetex installed using Kinetex® Adhesive will perform in elevated RH slabs up to 100%. Kinetex® Adhesive offers the flexibility to simply remove and replace individual modules if conditions warrant a quick fix.

Use

The table below shows the parameters for the use phase scenario while Table 11 shows the total material and energy inputs required in the study. Detailed maintenance instructions for resilient flooring are provided on J+J Flooring's website: https://www.jjflooringgroup.com/technical/installation-maintenance/.

Table 5: Maintenance Procedure

Maintenance	Count	Unit
Vacuum	250	#/ year
Spot Check/ Clean	2	#/ year

Reference Service Life and Estimated Building Service Life

The reference service life of Kinetex® textile composite flooring is assumed to be 15 years given that the product is installed as per manufacturer guidelines. Therefore, after initial installation in a building with an estimated service life (ESL) of 75 years there will be 4 replacements needed.

Reuse, Recycling and Energy Recovery

J+J Flooring, as a brand of the larger Engineered Floors family, offers customers the opportunity to use our Reclamation Program. With this program we facilitate the reclamation of used carpet and Kinetex® and guarantee that it will not reach a landfill. To initiate the carpet reclamation process, please call 1.800.241.4586 or email reclamation@engineeredfloors.com. In addition to reclamation, old flooring can be safely disposed of in municipal landfills or sent to waste-to-energy facilities (subject to local regulations).

Disposal

The product is considered to be 100% landfilled as specified in Sections 2.8.5 and 2.8.6 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements from UL Environment.

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Life Cycle Assessment Background Information

Declaration of Methodological Framework

The LCA follows an attributional approach.

Functional Unit

The functional unit of the flooring product is one (1) m^2 of floor covering. The mass per functional unit is 1.57 kg.

System Boundary

This EPD is a Cradle-to-Grave study.

Table 6: System Boundary and Modules

Module Name	Description	Analysis Period	Summary of Included Elements
A1	Product Stage: Raw Material Supply	2022	Raw Material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	2022	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and estimated distance.
A3	Product Stage: Manufacturing	2022	Energy inputs required for manufacturing products from raw materials. Packaging materials and manufacturing waste are included as well.
A4	Construction Process Stage: Transport	2022	Shipping from manufacturing site to project site. Fuel use requirements estimated based on product weights and mapped distance.
A5	Construction Process Stage: Installation	2022	Installation materials, installation waste and packaging material waste.
B1	Use Stage: Use	2022	Use of the product.
B2	Use Stage: Maintenance	2022	Cleaning energy, water, and materials, including refinishing the product.
B3	Use Stage: Repair	2022	Product typically not repaired during use.
B4	Use Stage: Replacement	2022	Total materials and energy required to manufacture a replacement.
B5	Use Stage: Refurbishment	2022	Product typically not refurbished during use.
B6	Operational Energy Use	2022	Operational Energy Use of Building Integrated System During Product Use
B7	Operational Water Use	2022	Operational Water Use of Building Integrated System During Product Use
C1	EOL: Deconstruction	2022	No inputs required for deconstruction.
C2	EOL: Transport	2022	Shipping from project site to waste disposal.
C3	EOL: Waste Processing	2022	Waste processing if incineration as chosen disposal pathway per Part A of the PCR.
C4	EOL: Disposal	2022	Disposal modeled by region as per Part A of the PCR.
D	Benefits beyond system	MND	Credits from energy or material capture.

Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The majority of the estimations are within the primary data. The primary data was collected as annual totals for utility usage and production and waste volume. For the LCA, utility usage and waste volume were divided by total production to determine utility use and waste production per square meter. Additionally, it is assumed that installation tools are used enough times that the per square meter impacts are negligible.

Cut-Off Criteria

All inputs in which data was available were included. Material inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. No known flows are deliberately excluded from this EPD. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit.

Data Sources

For all manufacturing processes, primary data were collected by facility personnel and utility bills. Whenever available, supplier data was used for raw materials used in the production process. When primary data did not exist, secondary data for raw material production was utilized from Sphera MLC Database 2023.02.

Data Quality

The geographical scope of the manufacturing portion of the life cycle is in the United States. All primary data were collected from the manufacturer. The geographic coverage of primary data is considered excellent. The primary data provided by the manufacturer represent all information for calendar year 2022. Time coverage of this data is considered good. Primary data provided by the manufacturer is specific to the technology used in manufacturing their product. It is site-specific and considered of good quality. Data necessary to model cradle-to-gate unit processes was sourced from Sphera Managed LCA Content LCI datasets. Improved life cycle data from suppliers would improve technological coverage.

Period Under Review

The period under review is calendar year 2022.

Allocation

General principles of allocation were based on ISO 14040/44. To derive a per-unit value for manufacturing electricity, physical allocation of manufacturing inputs and outputs was adopted. For facilities producing fiber and yarn, allocation was performed based on mass. For facilities producing carpet, allocation was performed based on area since the production processes are similar for products of different weights. Allocation by weight and area was deemed appropriate for the type of production used at J+J facilities. As a default, secondary Sphera Managed LCA Content datasets use a physical basis for allocation.

Of relevance to the defined system boundary is the method in which recycled materials were handled. Throughout the study recycled materials were accounted for via the cut-off method. Under this method, impacts and benefits associated with the previous life of a raw material from recycled

stock are excluded from the system boundary. Additionally, impacts and benefits associated with secondary functions of materials at end of life are also excluded (i.e., production into a third life or energy generation from the incineration plant). The study does include the impacts associated with reprocessing and preparation of recycled materials that are part of the bill of materials of the products under study.

Comparability and Benchmarking

The user of the EPD should take care when comparing EPDs from different companies. Assumptions, data sources, and assessment tools may all impact the uncertainty of the final results and make comparisons misleading. Without understanding the specific variability, the user is therefore, not encouraged to compare EPDs. Even for similar products, differences in use and end-of-life stage assumptions, and data quality may produce incomparable results. Comparison of the environmental performance of Flooring Products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR. Full conformance with the PCR for Products 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.

Table 7: Life Cycle Stages Included in the Study

Production			Construction		Use							End of Life				Benefits & Loads Beyond 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 to Site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction	Transport	Waste Processing	Disposal	Reuse, Recovery, Recycling Potential
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

X = Module Included in LCA Report, MND = Module not Declared

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Life Cycle Assessment Scenarios

Table 8: Transportation to Building Site (A4)

	Shipping
Vehicle Type	Truck - Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b
Fuel Efficiency [L/100km]	42
Fuel Type	Diesel
Distance [km]	800
Capacity Utilization [%]	68%
Capacity Utilization Volume Factor	1
Weight of Products Transported [kg]	1.57
Volume of Products Transported [m^3]	1.02E-02

Table 9: Reference Service Life

Name	Reference Product
RSL [years]	15
Declared product properties (at the gate) and finishes, etc.	See Table 1 for technical details
An assumed quality of work, when installed in accordance with the manufacturer's instructions	Per industry standards
Maintenance	See Use section above for maintenance instructions
Indoor Environment	Standard building operating conditions.
Use Conditions	Standard building operating conditions.

Table 10: Installation at building site (A5)

	Value [kg per m^2]
Adhesive	2.53E-01
Product loss (to landfill) per m^2 of product	3.14E-02
Waste materials at the construction site before waste processing, generated by product installation [kg]	6.80E-02
Cardboard Packaging Waste to Landfill	1.34E-02
Cardboard Packaging Waste to Incineration	3.335E-03
Cardboard Packaging Waste to Recycling	5.02E-02
Plastic to Landfill	6.80E-04
Plastic to Incineration	1.70E-04
Plastic to Recycling	1.50E-04
Biogenic Carbon Content of Packaging	
Cardboard [kg CO_2eq.]	1.06E-01

Table 11: Maintenance (B2)

Name	Value	Unit
Vacuum	18,750	Cycles/ ESL
Electricity for vacuuming	0.95	kWh/m²/yr
Power output of vacuum	1,650	W
Deep Cleaning	150	Cycles/ ESL
Net freshwater consumption	1.9	kg/m²/yr
Detergent for deep cleaning	0.1	kg/m²/yr
Electricity for deep cleaning	0.05	kWh/m²/yr
Power output of commercial carpet cleaner	1,400	W

Table 12: End-of-Life Scenario Details (C1-C4)

	Value
Collected as mixed construction waste [kg per m²]	1.66
Waste to Landfill [kg per m²]	1.66
Distance to Landfill [km]	161
Waste to Incineration [kg per m²]	0
Distance to Incineration [km]	N/A
Waste to Recycling [kg per m²]	0
Distance to Recycling [km]	N/A

Table 13: Transport to End-of-Life (C1-C4) per m² of product.

End-of-Life Transportation Parameter	Value
Vehicle Type	Truck - Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b
Fuel Efficiency [L/100km]	42
Fuel Type	Diesel
Distance [km]	161
Capacity Utilization [%]	67%
Weight of Products Transported [kg]	1.66

Life Cycle Assessment Results

All results are given per functional unit, which is 1 m^2 of installed flooring over an estimated building life of 75 years. Environmental Impacts were calculated using the Sphera LCA for Experts software platform. Impact results have been calculated using IPCC AR5, TRACI 2.1 and CML 2001-Jan 2016 characterization factors. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. The Impact Category Key table gives definitions of relevant acronyms.

Table 14: Impact Category Key – LCIA Indicators

Abbreviation	Parameter	Unit
IPCC AR5		
GWPi	Global warming potential (100 years, includes biogenic CO_2)	kg CO_2 eq
GWPe	Global warming potential (100 years, excludes biogenic CO_2)	kg CO_2 eq
CML 2001-Jan 2016		
GWP	Global warming potential (100 years, includes biogenic CO_2)	kg CO_2 eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
AP	Acidification potential of soil and water	kg SO_2 eq
EP	Eutrophication potential	kg Phosphate eq
POCP	Photochemical ozone creation potential	kg Ethene eq
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb eq
ADPF	Abiotic depletion potential for fossil resources	MJ, net calorific value
TRACI 2.1		
AP	Acidification potential of soil and water	kg SO_2 eq
EP	Eutrophication potential	kg N eq
GWP	Global warming potential (100 years, includes biogenic CO_2)	kg CO_2 eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
Resources	Depletion of non-renewable fossil fuels	MJ, surplus energy
SFP	Smog formation potential	kg O_3 eq

Table 15: Impact Category Key – Biogenic Carbon Indicators

Abbreviation	Parameter	Unit
BCRP	Biogenic Carbon Removal from Product	[kg CO_2]
BCEP	Biogenic Carbon Emission from Product	[kg CO_2]
BCRK	Biogenic Carbon Removal from Packaging	[kg CO_2]
BCEK	Biogenic Carbon Emission from Packaging	[kg CO_2]
BCEW	Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	[kg CO_2]
CCE	Calcination Carbon Emissions	[kg CO_2]
CCR	Carbonation Carbon Removals	[kg CO_2]
CWNR	Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes	[kg CO_2]

Table 16: Impact Category Key – Resource Use, Waste, and Output Flow Indicators

Abbreviation	Parameter	Unit
Resource Use Parameters		
RPRE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPRM	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
RPRT	Total use of renewable primary energy resources	MJ, net calorific value
NRPRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRM	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRT	Total use of non-renewable primary energy resources	MJ, net calorific value
SM	Use of secondary materials	kg
RSF	Use of renewable secondary fuels	MJ, net calorific value
NRSF	Use of non-renewable secondary fuels	MJ, net calorific value
RE	Recovered energy	MJ, net calorific value
FW	Net use of fresh water	m3
Waste Parameters and Output Flows		
HWD	Disposed-of-hazardous waste	kg
NHWD	Disposed-of non-hazardous waste	kg
HLRW	High-level radioactive waste, conditioned, to final repository	kg
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
CRU	Components for reuse	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg
EEE	Exported electrical energy	MJ
EET	Exported thermal energy	MJ

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Table 17: LCIA results for Nexus® Modular Carpet Tileper one square meter of installed flooring.

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
IPCC AR5															
GWPi [kg CO_2 eq]	5.86E+00	1.06E-01	1.79E-01	0.00E+00	3.74E+01	0.00E+00	2.48E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-02	0.00E+00	3.40E-02	MND
GWPe [kg CO_2 eq]	5.91E+00	1.06E-01	1.72E-01	0.00E+00	3.74E+01	0.00E+00	2.50E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-02	0.00E+00	3.41E-02	MND
CML LCIA Impacts (Europe, Rest of World)															
GWP [kg CO_2 eq]	5.81E+00	1.05E-01	1.74E-01	0.00E+00	3.67E+01	0.00E+00	2.46E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.03E-02	0.00E+00	3.33E-02	MND
ODP [kg CFC 11 eq]	3.61E-11	1.52E-14	7.74E-13	0.00E+00	2.07E-10	0.00E+00	1.48E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.94E-15	0.00E+00	9.10E-14	MND
AP [kg SO_2 eq]	4.60E-03	3.51E-04	1.64E-04	0.00E+00	4.92E-02	0.00E+00	2.13E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.17E-05	0.00E+00	1.65E-04	MND
EP [kg Phosphate eq]	-2.05E-04	1.02E-04	2.41E-05	0.00E+00	7.20E-03	0.00E+00	9.49E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-05	0.00E+00	3.03E-04	MND
POCP [kg Ethene eq]	5.83E-04	-1.30E-04	2.09E-05	0.00E+00	4.06E-03	0.00E+00	1.89E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.45E-05	0.00E+00	1.24E-05	MND
ADPE [kg Sb eq]	7.04E-08	7.73E-09	1.18E-07	0.00E+00	3.99E-06	0.00E+00	8.31E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.50E-09	0.00E+00	9.92E-09	MND
ADPF [MJ]	9.33E+01	1.47E+00	2.71E+00	0.00E+00	4.70E+02	0.00E+00	3.93E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.84E-01	0.00E+00	5.13E-01	MND
TRACI LCIA Impacts (North America)															
AP [kg SO_2 eq]	4.42E-03	4.84E-04	1.84E-04	0.00E+00	5.21E-02	0.00E+00	2.13E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.68E-05	0.00E+00	1.75E-04	MND
EP [kg N eq]	5.61E-04	4.29E-05	2.80E-05	0.00E+00	1.07E-02	0.00E+00	3.50E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.95E-06	0.00E+00	2.38E-04	MND
GWP [kg CO_2 eq]	5.80E+00	1.05E-01	1.65E-01	0.00E+00	3.64E+01	0.00E+00	2.45E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-02	0.00E+00	3.32E-02	MND
ODP [kg CFC 11 eq]	8.01E-13	2.71E-16	1.69E-14	0.00E+00	3.72E-12	0.00E+00	3.28E-12	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.26E-17	0.00E+00	1.63E-15	MND
Resources [MJ]	1.24E+01	1.96E-01	3.61E-01	0.00E+00	4.21E+01	0.00E+00	5.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.79E-02	0.00E+00	6.66E-02	MND
POCP [kg O_3 eq]	2.37E-02	1.12E-02	2.01E-03	0.00E+00	7.16E-01	0.00E+00	1.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.30E-03	0.00E+00	3.20E-03	MND
Carbon Emissions and Uptake															
BCRP [kg CO_2]	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	0.00E+00	0.00E+00	0.00E+00	MND
BCEP [kg CO_2]	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	0.00E+00	0.00E+00	0.00E+00	MND
BCRK [kg CO_2]	1.06E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
BCEK [kg CO_2]	0.00E+00	0.00E+00	1.06E-01	0.00E+00	0.00E+00	0.00E+00	4.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
BCEW [kg CO_2]	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	0.00E+00	0.00E+00	0.00E+00	MND
CCE [kg CO_2]	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	0.00E+00	0.00E+00	0.00E+00	MND
CCR [kg CO_2]	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	0.00E+00	0.00E+00	0.00E+00	MND
CWNR [kg CO_2]	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	0.00E+00	0.00E+00	0.00E+00	MND

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Table 18: Resource use, waste, and output flow results for Nexus® Modular Carpet Tile per one square meter of installed flooring.

Impact Category	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Resource Use Indicators															
RPR_E [MJ]	2.07E+01	5.89E-02	4.52E-01	0.00E+00	1.46E+02	0.00E+00	8.50E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-02	0.00E+00	6.20E-02	MND
RPR_M [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	0.00E+00	0.00E+00	0.00E+00	MND
RPR_T [MJ]	2.07E+01	5.89E-02	4.52E-01	0.00E+00	1.46E+02	0.00E+00	8.50E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.14E-02	0.00E+00	6.20E-02	MND
$NRPR_E$ [MJ]	1.03E+02	1.48E+00	2.93E+00	0.00E+00	6.39E+02	0.00E+00	4.32E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-01	0.00E+00	5.29E-01	MND
$NRPR_M$ [MJ]	1.13E+01	0.00E+00	2.27E-01	0.00E+00	0.00E+00	0.00E+00	4.63E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
$NRPR_T$ [MJ]	1.14E+02	1.48E+00	3.16E+00	0.00E+00	6.39E+02	0.00E+00	4.78E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-01	0.00E+00	5.29E-01	MND
SM [kg]	3.82E-02	0.00E+00	7.64E-04	0.00E+00	0.00E+00	0.00E+00	1.56E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
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	0.00E+00	0.00E+00	0.00E+00	MND
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	0.00E+00	0.00E+00	0.00E+00	MND
RE [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	0.00E+00	0.00E+00	0.00E+00	MND
FW [m^3]	3.59E-02	2.02E-04	9.45E-04	0.00E+00	2.59E-01	0.00E+00	1.49E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.92E-05	0.00E+00	6.56E-05	MND
Output Flows and Waste Categories															
HWD [kg]	6.86E-07	4.25E-12	1.38E-08	0.00E+00	-6.61E-09	0.00E+00	2.80E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.24E-13	0.00E+00	1.32E-11	MND
NHWD [kg]	4.14E-01	1.29E-04	5.15E-02	0.00E+00	2.62E-01	0.00E+00	8.16E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-05	0.00E+00	1.58E+00	MND
HLRW [kg]	7.28E-06	5.03E-09	1.62E-07	0.00E+00	7.17E-05	0.00E+00	2.98E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.75E-10	0.00E+00	6.55E-09	MND
ILLRW [kg]	7.36E-03	4.23E-06	1.61E-04	0.00E+00	5.99E-02	0.00E+00	3.01E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.21E-07	0.00E+00	5.85E-06	MND
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	0.00E+00	0.00E+00	0.00E+00	MND
MR [kg]	0.00E+00	0.00E+00	1.01E-01	0.00E+00	0.00E+00	0.00E+00	4.03E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
MER [kg]	0.00E+00	0.00E+00	3.52E-03	0.00E+00	0.00E+00	0.00E+00	1.41E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	MND
EEE [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	0.00E+00	0.00E+00	0.00E+00	MND
EET [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	0.00E+00	0.00E+00	0.00E+00	MND

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Life Cycle Assessment Interpretation

In terms of Global Warming Potential, B2 and B4 emerge as the major contributors. This follows the fact that over a 75-year ESL of the building. This is primarily due to the consumption of energy and resources used to maintain Kinetex over the course of its lifetime. Additionally, Kinetex has a lower weight and thus requires less raw materials than other products. This is why B2, rather than B4, is the major contributor for Kinetex.

If the impacts from B2 are set aside, B4 emerges as the next major contributor. With an RSL of 15 years, there are 4 replacements that need to occur during the 75 years of building operation, apart from the initial product installation. This includes raw material extraction, manufacturing, distribution, install and end of life (for replaced product) for every replacement. Figure 4 shows the dominance analysis to highlight which of the life cycle modules contributes to the majority of the impacts.

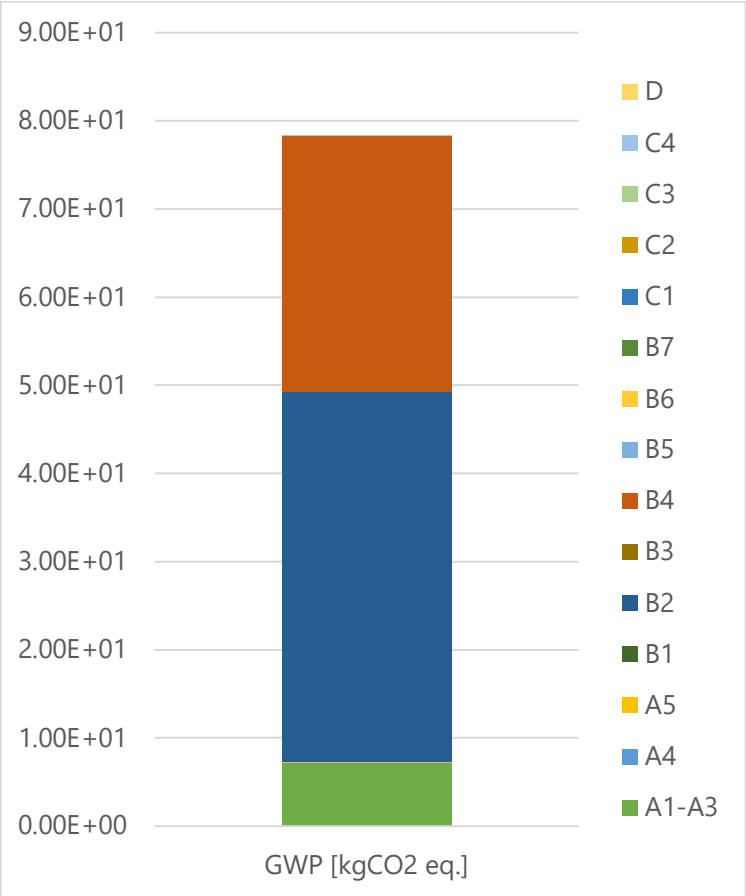

Figure 4: Global Warming Potential Over Estimated Service Life (75 years)

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Additional Environmental Information

Environment and Health During Manufacturing

More information on J+J's sustainability resources can be found on J+J's website.

Environment and Health During Installation

The product should be installed according to the manufacturer's instructions found at https://www.jjflooringgroup.com/technical/installation-maintenance/. All recommended personal protective equipment (PPE) should be utilized during installation, as indicated on the SDS and installation guidelines, found online. Kinetex® meets requirements of the Carpet and Rug Institute's Green Label Plus Program for indoor air quality (Certificate Number: GLP2690).

Extraordinary Effects

Fire

Kinetex® achieves <450 for ASTM6 E662: Specific Optical Density of Smoke Generated by Solid Materials.

Water

Should the product become flooded, the floorcovering should be removed and the subfloor should be evaluated and repaired as needed. There are no environmental impacts associated with the product being flooded.

Mechanical Destruction

In the event that the product is mechanically destroyed, please revert to disposing the product using standard procedure and ensure timely replacement.

Environmental Activities and Certifications

J+J Flooring's carpets and adhesives emit minimal levels of volatile organic compounds (VOCs). Products included in this EPD are Green Label Plus and NSF 140 Platinum certified and contribute to LEED credits.

Additional information about the products can be found on J+J Flooring's Technical Resources page.

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