



## ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025:2006 and ISO 21930.

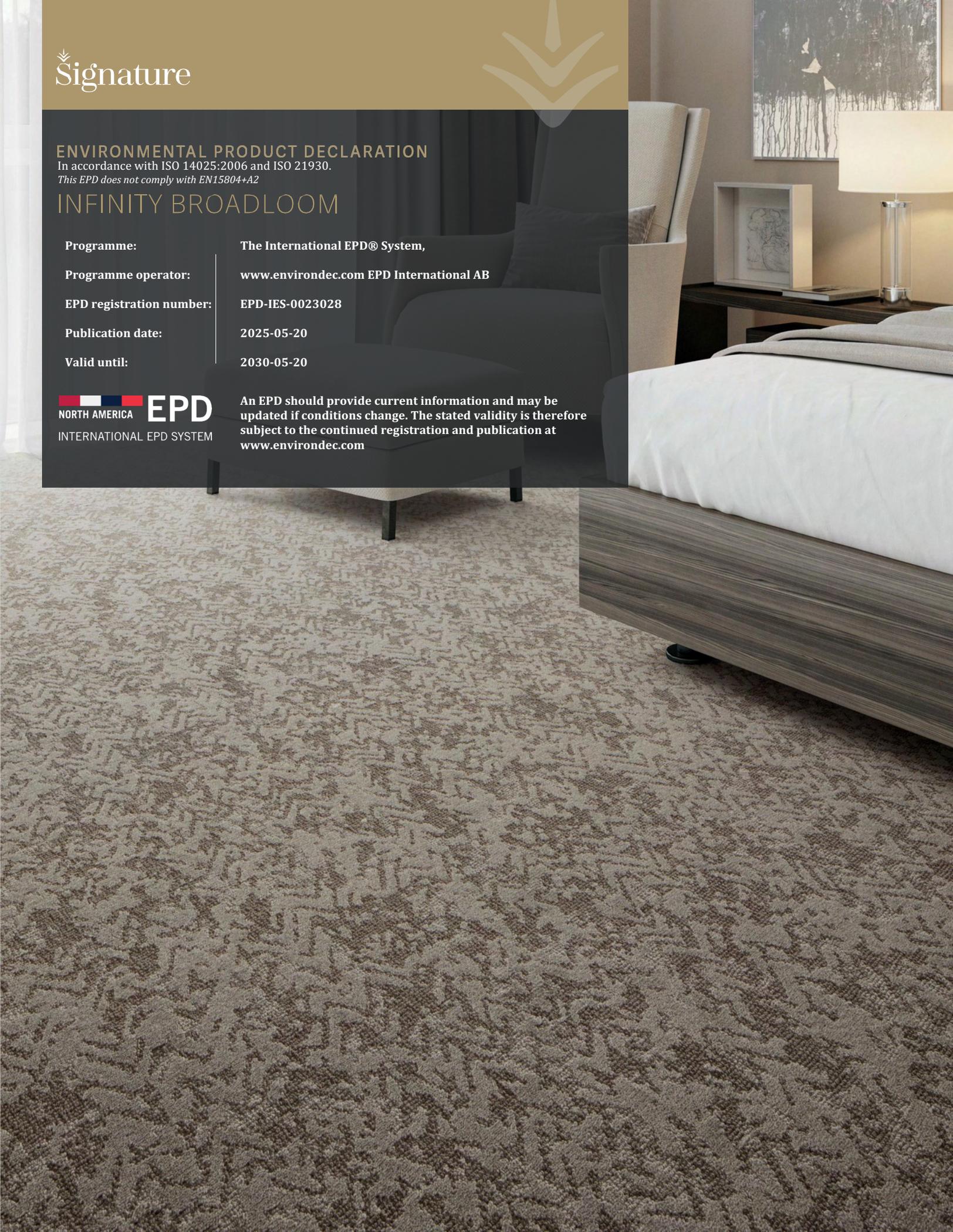
*This EPD does not comply with EN15804+A2*

## INFINITY BROADLOOM

Programme:	The International EPD® System,
Programme operator:	<a href="http://www.environdec.com">www.environdec.com</a> EPD International AB
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An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environdec.com](http://www.environdec.com)



## GENERAL INFORMATION

### Program Information

<b>Program:</b>	The International EPD® System <sup>1</sup>
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	www.environdec.com
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<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR) <sup>2</sup> : UL PCR Part A: Life Cycle Assessment Calculation Rules and Report Requirements V 4.0 March 2022 Part B: Flooring EPD Requirements UL 10010-7 v2
Part A PCR review was conducted by Lindita Bushi, PhD, Chair, Hugues Imbeault-Tétreault, Eng., M.A.Sc., Jack Geibig. The subcategory PCR review was conducted by Jack Geibig (Chair), Thomas Gloria, PhD, Thaddeus Owen.
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: Rose Maylen, WAP Sustainability Consulting LCA Software and Version Number: Sphera LCA for Experts 10.7 (fka GaBi) LCI Database and Version Number: Sphera Managed LCA Content (fka GaBi) 2023.2 LCIA Methodology: TRACI 2.1, CML 2001, IPCC AR6 Period Under Review: 2023 Study completed: January 2025
<b>Third-party verification</b>
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by individual verifier Third-party verifier: Freddy Navarro, LCACHECK S.A.S. de C.V. Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

<sup>1</sup> 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.

<sup>2</sup> 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.

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programs, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025. When comparing EPDs created using this PCR, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to different results for upstream or downstream of the life cycle stages declared. Comparison of the environmental performance of carpet using EPD information shall be based on the product's use and impacts at the construction works level, and therefore EPDs may not be used for comparability purposes when not considering the construction works energy use phase as instructed under this PCR. In general, EPDs may not be used for comparability purposes when not considered in a construction works context. Given this PCR (UL 10010, V3.2) ensures products meet the same functional requirements, comparability is permissible provided the information given for such comparison is transparent and the limitations of comparability explained.

**Company Information**

**Owner of the EPD:** Signature Flooring  
**Contact:** Angie Law

**Description of the organization:** Signature Flooring is an industry leader focused solely on helping its clients create extraordinary hospitality and senior living spaces. Through creative styling, world-class custom design capabilities, sustainable innovations and the highest quality of service, Signature provides an experience as inspiring and authentic as its flooring.

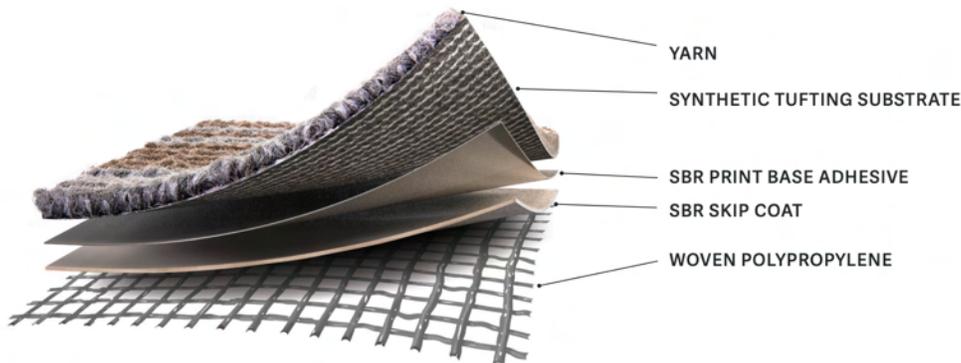
**Product Information**

**Product name:** Infinity Broadloom Printbase AB

**Product identification:** The products under study include Infinity Broadloom Printbase AB sold by signature flooring and manufactured in the US.

**Product description:** Infinity Broadloom Printbase AB tile draws its inspiration from the rugged, natural textures and accumulative layers of earthen forms. Signature Floorings’ Infinity Broadloom Printbase AB is used in hotels and office spaces.

**Geographical scope:** Europe and US



*Figure 1: Product Construction*

**Application**

Signature Floorings’ products such as Infinity Broadloom are used in hotels and office spaces.

**Properties of Declared Product as Delivered**

Table 1 shows the technical specifications of the products, including any testing data as appropriate.

*Table 1: Technical Data*

	<b>Infinity Broadloom Printbase AB</b>
Yarn Type	Solution dyed Nylon 6
Primary backing type	Woven Polypropylene
Secondary backing type	Woven Polypropylene, 100% virgin
CRI rating [2.5 Light, 3.0 Moderate, 3.5 Heavy]	3.5 Heavy
Total thickness [in]	11/32
Product weight [g/m2]	2407
Surface pile thickness [in]	0.184
Surface pile weight [g/m2]	1085

**Manufacturing Sites**

Signature Flooring carpet products are manufactured in the United States in Dalton, GA.

**LCA Information**

**Functional Unit:** 1m<sup>2</sup> of installed flooring

**Reference Service Life:** 15 years

**Time Representativeness:** All data was taken from 2023

**Database(s) and LCA Software Used:** Sphera Managed LCA Content (fka GaBi Database) 2023.2 and Sphera LCA for Experts 10.7 (fka GaBi)

**Declaration of Methodological Framework:** LCA follows an attributional approach.

**Description of System Boundaries:** This LCA is a Cradle-to-Grave study. An overview of the system boundary is shown below and a summary of the life cycle stages included in this LCA. Impacts from capital goods projects such as construction of facilities and infrastructure necessary to create the product have been excluded.

**Flow Diagram**

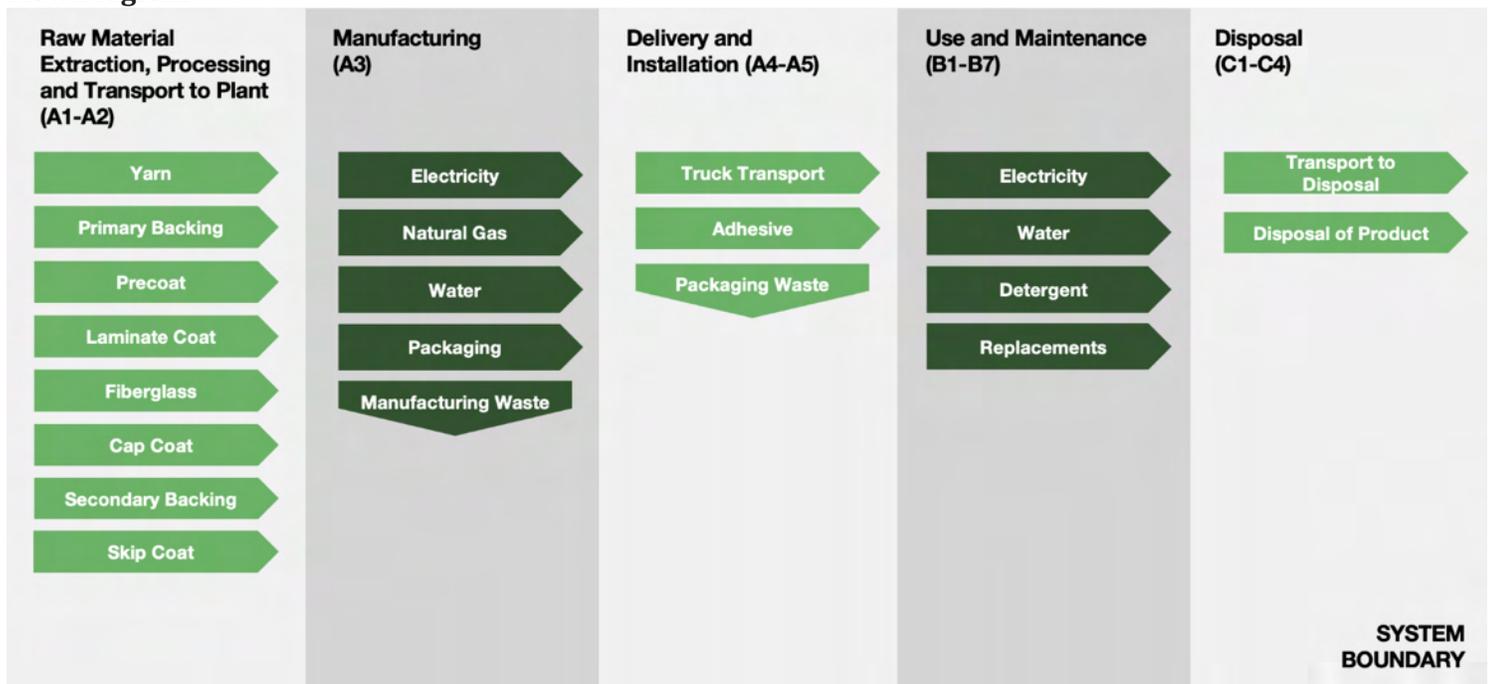


Figure 2: System Boundary

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

Table 2: Life Cycle Stages Included in the Study

	Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Resource Recovery Stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules Declared	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	MND
Geography	GLO	GLO	US														MND

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

### 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 were collected as annual totals for manufacturing utilities and production volume. For the LCA, the manufacturing utilities were divided by the production to find an energy use per square meter or per pound, depending on manufacturing stage and process. Another assumption is that the installation tools are used enough times that the per-square meter impacts are negligible.

### Cut-Off Criteria

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. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit.

The list of excluded materials and energy inputs include:

- As the tools used during the installation of the product are multi-use tools and can be reused after each installation, the per-declared unit impacts are considered negligible and therefore are not included.
- Topical on Infinity Broadloom Printbase AB was assumed to be negligible given the low application rate to the product.
- Some material inputs may have been excluded within the MLC datasets used for this project. All MLC datasets have been critically reviewed and conform to the exclusion requirement of the PCR, Part A: "Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report".

## Data Sources

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

## Data Quality

The geographical scope of the manufacturing portion of the life cycle is 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 2023. Time coverage of this data is considered excellent. Primary data provided by the manufacturer are specific to the technology used in manufacturing their product. They are site-specific and considered of good quality. Data necessary to model cradle-to-gate unit processes were sourced from Sphera Managed LCA Content LCI datasets.

Table 3: Declaration of data sources and share of primary data

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP GHG results for A1-A31
Production of granulate for yarn	Database	Sphera LCA for experts 2023.2	2023	Secondary Data	0%
Generation of electricity used in manufacturing yarn	Database	Sphera LCA for experts 2023.2	2023	Primary Data	19%
Generation of natural gas used in manufacturing yarn	Database	Sphera LCA for experts 2023.2	2023	Primary Data	4%
Generation of electricity used in manufacturing product	Database	Sphera LCA for experts 2023.2	2023	Primary Data	1%
Generation and use of natural gas in manufacturing product	Database	Sphera LCA for experts 2023.2	2023	Primary Data	2%
Raw material transportation	Database	Sphera LCA for experts 2023.2	2023	Primary Data	<1%
<b>Total share of primary data, of GWP-GHG results for A1-A3</b>					<b>27%</b>
<i><sup>1</sup>The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that do not capture all relevant aspects of data quality. The indicator is not comparable across product categories.</i>					

## Allocation

General principles of allocation were based on ISO 14040/44. There are no products other than the product under study that are produced as part of the manufacturing processes. Since there are no co-products, no allocation based on co-products is required. To derive a per-unit value for manufacturing inputs such as electricity, thermal energy and water, allocation based on total production by mass was adopted. As a default, secondary MLC 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. Comparison of the environmental performance of construction works and construction products using EPD information shall be based on the product's use and impacts at the construction works level. In general, EPDs may not be used for comparability purposes when not considered in a construction works context. Given this PCR ensures products meet the same functional requirements, comparability is permissible provided the information given for such comparison is transparent and the limitations of comparability explained.

## CONTENT INFORMATION

### Manufacturing and Packaging

The manufacturing stage begins with the yarn formation. The yarn is created by extruding polymer that is then twisted, heat set and then wound. The processing of raw yarn usually requires electricity, natural gas, and water. The yarn is then tufted. The tufting process involves using a tufting machine utilizing needles to insert the finished yarn into primary backing. The tufting process requires electricity, natural gas, and water. The product is finished with various layers depending on the spec. The product is cut, packaged and ready for shipment at the end of the finishing process. The finishing process requires electricity, natural gas and water.

Table 4: Product Composition

Product Components	Weight, oz/yd <sup>2</sup>	Post-Consumer Material, Weight-%	Biogenic Material, Weight-% and kg C/kg
Face Yarn	32	0%	0% and 0 kg C/kg
Precoat	24	0%	0% and 0 kg C/kg
Primary Backing	5	0%	0% and 0 kg C/kg
Secondary Backing	2	0%	0% and 0 kg C/kg
Skip Coat	8	0%	0% and 0 kg C/kg
Packaging Materials	Weight, oz/yd <sup>2</sup>	Weight-% (Versus the Product)	Weight Biogenic Carbon, kg C/yd <sup>2</sup>
Cardboard	0.944	1.3%	0.55 kg C/kg
Plastic	0.191	0.27%	0 kg C/kg

### Transportation

Raw materials are sourced from the United States and Europe. It is assumed that all raw materials sourced from the United States are delivered to the manufacturing facility via truck, based on global region, while materials sourced from Europe travel on an ocean ship, followed by a shipping leg by truck. Distances were calculated using the supplier location and the location of manufacturing.

### Product Installation

The recommended method for installing Infinity Broadloom Printbase AB is to use the full adhesive method. The instructions for this installation procedure can be found on the Signature Floorings [website](#).

The life cycle assessment modeled the installation stage with adhesive being applied at a rate of 0.121 kg/m<sup>2</sup>.

All waste generated during installation, including packaging waste, is disposed of according to the tables found in Section 2.8.5 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements from UL Environment.

### Use

The table below shows the parameters for the use phase scenario undergoing study while Table 9 shows the total material and energy inputs required in the study. These inputs were estimated based on Signature Flooring's carpet maintenance instructions. Infinity Broadloom Printbase AB products are traditionally not repaired or refurbished and are only replaced if the product fails or a new look is desired. Detailed maintenance instructions for soft surface flooring are provided on Signature Flooring's [website](#).

Table 5: Maintenance Procedure

Cleaning Process	Cleaning Frequency per year	Consumption of energy and resources
Vacuuming	250	Electricity
Deep cleaning	2	Hot water, neutral detergent

**Reference Service Life and Estimated Building Service Life**

The service life for Infinity Broadloom Printbase AB will vary depending on the amount of floor traffic, level of maintenance and the desired appearance of the floor covering. The reference service life for Infinity Broadloom Printbase AB is 15 years.

**Reuse, Recycling and Energy Recovery**

Infinity Broadloom Printbase AB can be easily disposed of, without any special handling requirements and without the threat of contamination.

**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.

Table 6: Transportation to Building Site (A4)

	A4 Details
Weight of Products Transported [oz/yd2]	72.1
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

Table 7: Reference Service Life

	Value
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
Indoor environment	Can be installed in any typical indoor environment, assuming manufacturer’s installation instructions and recommendations are followed
Maintenance	See Use section above for maintenance instructions

Table 8: Installation at building site (A5)

	Value
Adhesive [oz/m <sup>2</sup> ]	4.26
Product wastage [%]	5
Plastic Packaging Waste to Landfill [oz/m <sup>2</sup> ]	0.16
Plastic Packaging Waste to Incineration [oz/m <sup>2</sup> ]	0.036
Plastic Packaging Waste to Recycling [oz/m <sup>2</sup> ]	0.024
Cardboard Packaging Waste to Landfill [oz/m <sup>2</sup> ]	0.23
Cardboard Packaging Waste to Incineration [oz/m <sup>2</sup> ]	0.059
Cardboard Packaging Waste to Recycling [oz/m <sup>2</sup> ]	0.77
<i>No freshwater, electricity, or fuels are used in installation.</i>	

Table 9: Maintenance (B2)

Activity	Details	Value	Unit
Vacuum	Frequency	18,750	Cycles/ ESL
	Electricity for vacuuming	0.95	kWh/m <sup>2</sup> /yr
	Power output of vacuum	1,650	W
Deep Cleaning	Frequency	150	Cycles/ ESL
	Net freshwater consumption	1.9	kg/m <sup>2</sup> /yr
	Detergent for deep cleaning	0.1	kg/m <sup>2</sup> /yr
	Electricity for deep cleaning	0.05	kWh/m <sup>2</sup> /yr
	Power output of commercial carpet cleaner	1,400	W

Table 10: End-of-Life Scenario Details (C1-C4)

	Value
Collected as mixed construction waste [oz/yd <sup>2</sup> ]	108
Waste to Landfill [oz/yd <sup>2</sup> ]	108
Distance to Landfill [km]	161

## Environmental Performance

All results are given per functional unit, which is 1 m<sup>2</sup> of installed flooring over an estimated building life of 75 years. The results of the end-of-life stage (module C) should be considered when using the results of the production stage. 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.

The LCIA impact categories referenced in the abbreviations section 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.





## Life Cycle Assessment Interpretation

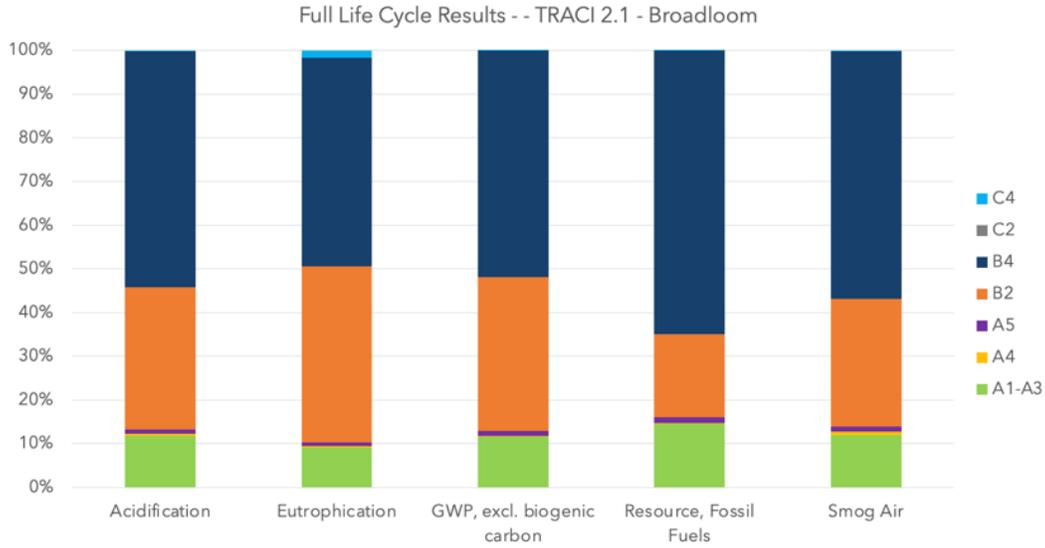


Figure 3: Infinity Broadloom Printbase AB Life Cycle Results

Within the Infinity Broadloom Printbase AB lifecycle, replacements (B4) drive impacts across all TRACI 2.1 categories, to the 15-year service life of the product. Over the 75-year estimated service life of the building, there will be four replacements of the carpet tile. Each replacement includes A1-A5 and C1-C4 lifecycle stages. After replacements, maintenance (B2) drives TRACI 2.1 impacts. B2 includes all maintenance inputs for the 75-year service life of the building.

## ADDITIONAL ENVIRONMENTAL INFORMATION

### **Environmental and Health During Manufacturing**

There is no additional environmental or health information to be declared.

### **Environment and Health During Installation**

The product should be installed according to the manufacturer's instructions on Signature Flooring's [website](#).

This is a non-hazardous product. According to the product's SDS, due to solid, inert properties, scrap pieces from installation may simply be swept up and disposed of as solid, non-hazardous waste per local, state, and federal regulations.

### **Extraordinary Effects**

#### **Fire**

ASTM E662 - NBS Smoke Test. – Less than 450 (Flaming Mode)

#### **Water**

Should the product become flooded, the floor covering 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**

According to the product's SDS, this building product is relatively non-toxic, presenting no known hazard to people, except under thermal decomposition conditions which may yield hazardous by-products.

### **Environmental Activities and Certifications**

CRI Green Label Plus: GLP 2121 Certified

## ABBREVIATIONS

Table 12: LCIA Indicators

Abbreviation	Parameter	Unit
IPCC AR6		
GWP	Global warming potential (100 years, excludes biogenic CO <sub>2</sub> )	kg CO <sub>2</sub> eq
CML 2001-Jan 2016		
GWP	Global warming potential (100 years, excludes biogenic CO <sub>2</sub> )	kg CO <sub>2</sub> eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
AP	Acidification potential of soil and water	kg SO <sub>2</sub> 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 <sub>2</sub> eq
EP	Eutrophication potential	kg N eq
GWP	Global warming potential (100 years, excludes biogenic CO <sub>2</sub> )	kg CO <sub>2</sub> 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 <sub>3</sub> eq

In addition to the environmental parameters described in the previous section, the following resource use and waste categories are also disclosed.

Table 13: 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	m <sup>3</sup>
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

Abbreviation	Parameter	Unit
MER	Materials for energy recovery	kg
EEE	Exported electrical energy	MJ
EET	Exported thermal energy	MJ

## REFERENCES

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Signature