

**Declaration Owner****Standard Carpets Ind. LLC**

PO Box 490014, Plot No. 5315801

Dubai Industrial Park, Dubai

United Arab Emirates

<https://www.standardcarpets.com> | info@standardcarpets.com

(971) 4 554 7137

Product

Broadloom Nylon Carpet - 750 GSM

Broadloom Nylon Carpet - 1200 GSM

Broadloom Nylon Carpet - 1500 GSM

(UNSPSC Class Code 30161709/CSI Code 09 68 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-10005

EPD Valid March 15, 2024 through March 14, 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 2022.

PCR Guidance for Building-Related Products and Services Part B: Flooring EPD Requirements. Version 2. UL Environment. September 2018.

Program Operator

SCS Global Services

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

+1.510.452.8000 | www.SCSglobalServices.com



Declaration Owner:	Standard Carpets Ind. LLC
Address:	PO Box 490014, Plot No. 5315801, Dubai Industrial Park, Dubai. United Arab Emirates
Declaration Number:	SCS-EPD-10005
Declaration Validity Period:	March 15, 2024 through March 14, 2029
Program Operator:	SCS Global Services
Declaration URL Link:	https://www.scsglobalservices.com/certified-green-products-guide
LCA Practitioner:	Gerard Mansell, Ph.D., SCS Global Services
LCA Software and LCI database:	OpenLCA v1.11 software and the Ecoinvent v3.9 database
Product RSL:	15 years
Markets of Applicability:	New Zealand
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:	 Jess Garvey, SCS Global Services
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 2022
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 Part B: Flooring EPD Requirements. Version 2. UL Environment. September 2018.
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. Standard Carpets Ind. LLC.....2 2. Product 2 3. LCA: Calculation Rules 5 4. LCA: Scenarios and Additional Technical Information 11 5. LCA: Results..... 14 6. LCA: Interpretation..... 21 7. References 22
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. Standard Carpets Ind. LLC

Standard Carpets, the region's largest producer & exporter of finest quality broadloom carpets, carpets tile, artificial turf including carpet yarn & artificial turf yarn among others.

It is under one roof vertically integrated facility, with having state-of-the-art infrastructure ranging from waterless yarn extrusion, twisting-cabling and heat-set facilities to tufting line, extending to finish coating & tiling, with range of finest flooring finishes including antimicrobial, water repellent, anti-soil, anti-stain, pro-soft, UV protect & lot more, catering the needs of reputed customers across not less than 60 countries.

Sustainability is a core value at Standard Carpets. We understand the importance of minimizing our environmental footprint, and therefore, we utilize eco-friendly materials and processes in our manufacturing. Our carpets are produced with a focus on reducing waste, energy consumption, and emissions. We actively seek out sustainable sourcing options, including recycled materials, to contribute to a greener and healthier planet.

Social responsibility is an integral part of our business philosophy. Standard Carpets is dedicated to creating a positive impact across the community where we operate. We prioritize fair labor practices, ensuring that our employees work in safe and ethical conditions, make everyone feel proud to be part of standard Carpets family.

2. Product

2.1 PRODUCT DESCRIPTION

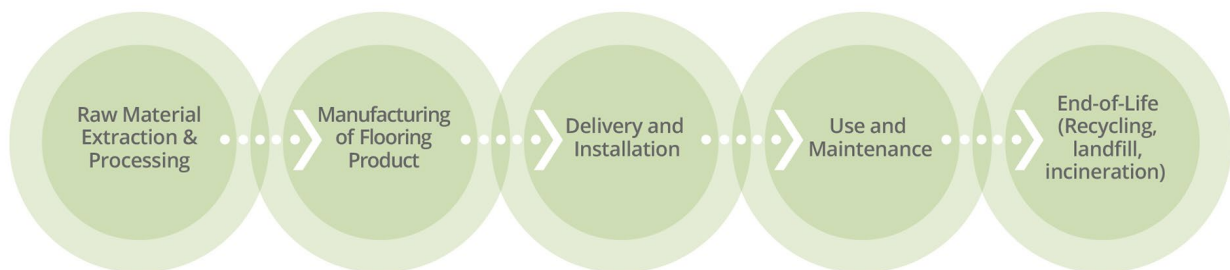
Broadloom Nylon Carpet

Discover unparalleled luxury with our Broadloom Nylon Carpets, available in widths starting from 3.66 Meter and beyond. Crafted with solution-dyed Nylon yarns, these carpets boast vivid, lasting colors and resist fading. Tailor-made with special finishes to meet individual customer needs, they provide superior comfort underfoot while ensuring safety with their high-performance design.

broadloom nylon carpets offer a varied style range and design options but also deliver on sustainability. Recognized as a low VOC Green Label Plus product, they contribute to healthier indoor air quality. Beyond aesthetics, these carpets enhance acoustic properties, creating a quieter, more peaceful environment. Choose Broadloom Nylon Carpets for a harmonious blend of style, comfort, safety, and environmental consciousness, providing the perfect flooring solution for your space.

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 Broadloom Nylon Carpet flooring product are summarized in Table 2 and Table 3.

Table 2. Product specifications for Broadloom Nylon Carpet .

Characteristic	Description	
Type of Manufacture	Tufted Carpet with SBR Latex Backing	
Yarn Type	100% Solution Dyed PA-6	
Additional characteristics according to NSF/ANSI 140	CRI Certified Product	
Sustainable certifications	-	
VOC emissions test method	CRI - Green Label Plus	
CRI TARR rating	-	
Characteristic	Nominal Value	Units
Total thickness	12.0 (0.47)	mm (inch)
Product weight	2,150 (63.4)	g/m ² (oz/yd ²)
Surface pile thickness	10.0 (0.39)	mm (inch)
Number of tufts or loops /dm ²	163,800 (10,568)	Tufts per dm ² (Tufts per in ²)
Surface pile weight	1,200 (35.39)	g/m ² (oz/yd ²)
Pile fiber composition	55.8%	%
Secondary backing	Polypropylene	NA

Table 3. Product performance results for the flooring products.

Test Method	Test Results & Supporting Documentation
Fibre Composition - ISO 1833 (Part 1): 2020.	100% NYLON
Odour Test - SASO GSO 1957	NO ODOUR
VOC /TVOC	PASS / GREEN LABEL PLUS / CRI CERTIFIED
Fire Test / AS ISO 9239-1 (2003)	Pass - Class -1
Colour Fastness to Rubbing - SASO ISO 105-X12	4-5
Colour Fastness to Water- SASO ISO 105-E01 / COLOUR STAINING	4, 4-5
Colour Fastness SASO ISO 105-E04 to Perspiration / COLOUR STAINING	4, 4-5
Opp 64 LFGB B82.02-8	BDL (Below Detectable Level)
Organotin Compounds SASO GSO 1957 or SASO ISO 14389	BDL (Below Detectable Level)
Extractable Heavy Metals SASO GSO 1957.	PASS - Refer Attach test report
Chlorinated Organic SASO GSO 1957.	BDL (Below Detectable Level)
Disperse Dye Test - SASO ISO 16373-1, SASO ISO 16373-2	BDL (Below Detectable Level)
Carcinogenic Dyes SASO ISO 16373-1,SASO ISO 16373-2,SASO ISO 16373-3	BDL (Below Detectable Level)
Pcp/Tecp § 64 LFGB B82.02-8	BDL (Below Detectable Level)
pH Value ISO 3071: 2020.	7.4 / pass
Formaldehyde SASO ISO 14184-1	PASS - Refer Attach test report
Soil Resistance / ASTM D6540	PASS - 4-5
Anti Microbial AATCC 174-II (2016) / AATCC 174-III (2016)	PASS
Hexapod Wear test - ASTM D5252	3.5 / PASS
Castor Chair Wear test - ISO4918	4/3
Slip Resistance / AS 4586	Rating p5 , SRV 73

2.6 MARKET PLACEMENT/APPLICATION RULES

Technical specifications of the flooring products are summarized above. Additional information can be found on the manufacturer's website <https://www.standardcarpets.com/>.

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

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

2.8 MATERIAL COMPOSITION

The nylon flooring products (UNSPSC Class Code 30161709/CSI Code 09 68 00) are manufactured at the production facility in the United Arab Emirates. The primary materials include nylon 6 pile fiber, rubber and polypropylene.

Table 4. Material content for the flooring products in kg per square meter and percent of total mass.

Component	Broadloom Nylon Carpet - 750 GSM	Broadloom Nylon Carpet - 1200 GSM	Broadloom Nylon Carpet - 1500 GSM
Nylon	0.750 (44%)	1.20 (56%)	1.50 (60%)
Rubber	0.790 (46%)	0.780 (36%)	0.822 (33%)
PP	0.178 (10%)	0.178 (8.2%)	0.178 (7.1%)
Total Product	1.72 (100%)	2.16 (100%)	2.50 (100%)

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

2.9 MANUFACTURING

The products are manufactured at the production facility in Dubai, United Arab Emirates. 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.

2.10 PACKAGING

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

Table 5. Material content for the flooring product packaging in kg per square meter of flooring.

Component	Broadloom Nylon Carpet - 750 GSM	Broadloom Nylon Carpet - 1200 GSM	Broadloom Nylon Carpet - 1500 GSM
Corrugated	3.92×10^{-2} (82%)	3.92×10^{-2} (81%)	3.92×10^{-2} (80%)
Plastic	8.57×10^{-3} (18%)	9.36×10^{-3} (19%)	9.93×10^{-3} (20%)
Total Packaging	4.78×10^{-2} (100%)	4.86×10^{-2} (100%)	4.91×10^{-2} (100%)

2.11 PRODUCT INSTALLATION

Installation of this product primarily involves hand tools for measuring and cutting floor materials. Approximately 4% of the total material is assumed to be trimmed and discarded as waste. While some of this waste could be recycled, this scrap is modeled as being disposed of in a landfill. Hand trowels are used to spread appropriate adhesive (110 g/sqm) which adheres flooring to subfloor.

2.12 USE CONDITIONS

No special conditions of use are noted.

2.13 REFERENCE SERVICE LIFE

The Reference Service Life (RSL) of the flooring products varies based on the manufacturer's warranted lifetime.

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.

2.16 FURTHER INFORMATION

Further information on the product can be found on the manufacturer's website <https://www.standardcarpets.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 6. 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 6.

Table 6. Reference flow and RSL for the flooring products.

Product	Reference Flow (kg/m ²)	Reference Service Lifetime (yr)	Replacement Cycle	Total # of Life Cycles
Broadloom Nylon Carpet - 750 GSM	1.77	15	4	5
Broadloom Nylon Carpet - 1200 GSM	2.21	15	4	5
Broadloom Nylon Carpet - 1500 GSM	2.55	15	4	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 7 and illustrated in Figure 1.

Table 7. 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	The product is installed using the manufacturer's recommended, or similar, adhesives. 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

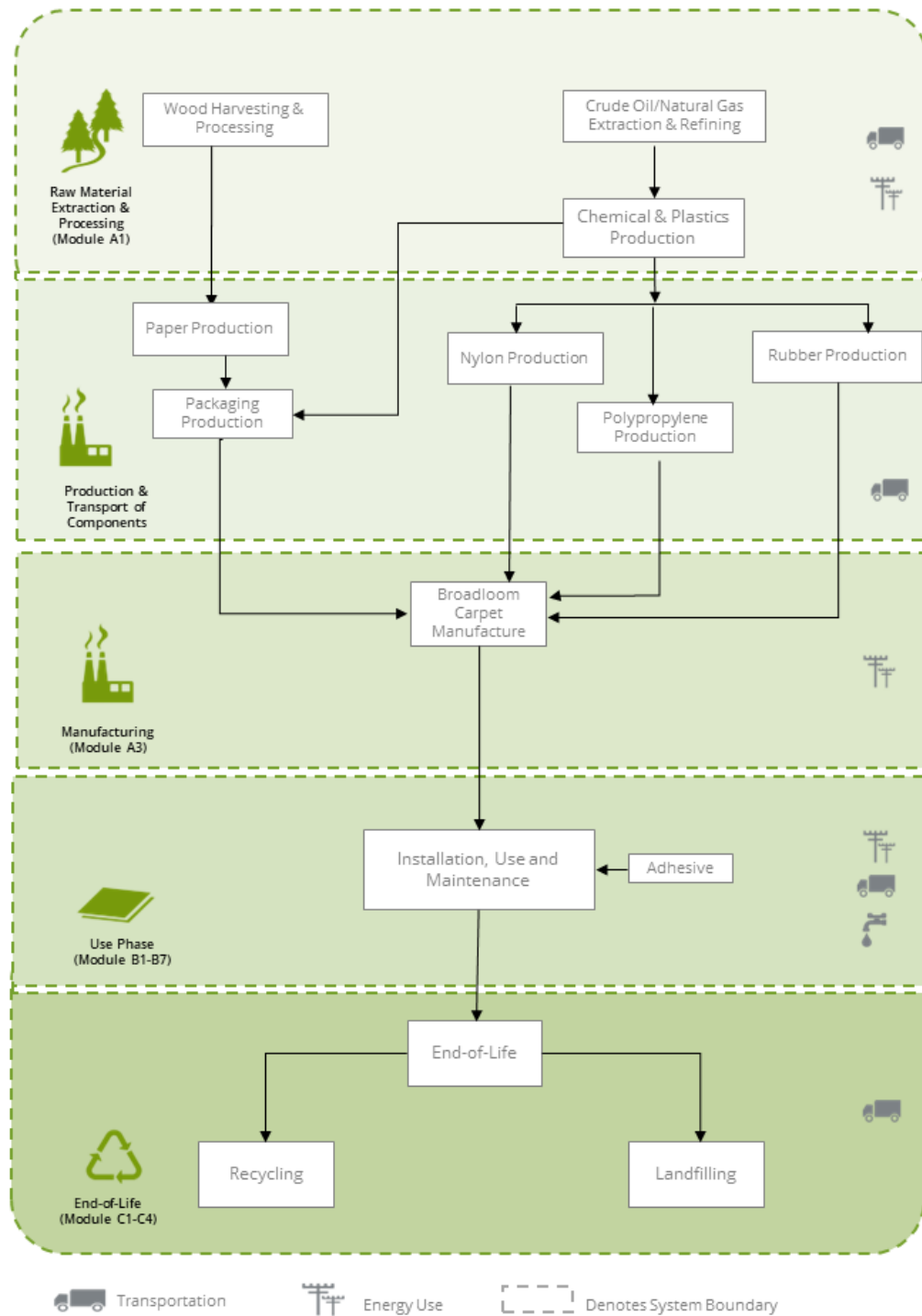


Figure 1. Flow diagram for the life cycle of the Broadloom Nylon Carpet flooring products.

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 (light 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 the United Arab Emirates. 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 New Zealand.
- The maintenance phase of the product life cycle was modeled based on information provided by the manufacturer 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.

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 database.

Table 8. *Data sources for the flooring products.*

Component	Dataset	Data Source	Publication data
PRODUCT			
Nylon			
Nylon 6	nylon 6 production nylon 6 Cutoff, S/RoW	EI v3.9	2022
Rubber			
Rubber	synthetic rubber production synthetic rubber Cutoff, S/RoW	EI v3.9	2022
PP			
Polypropylene	polypropylene production, granulate polypropylene, granulate Cutoff, S/RoW	EI v3.9	2022
PACKAGING			
Cardboard	corrugated board box production corrugated board box Cutoff, S/RoW	EI v3.9	2022
Plastic	packaging film production, low density polyethylene packaging film, low density polyethylene Cutoff, S/RoW;	EI v3.9	2022
TRANSPORT			
Road transport	transport, freight, lorry 16-32 metric ton, EURO4 transport, freight, lorry 16-32 metric ton, EURO4 Cutoff, S/RoW	EI v3.9	2022
Ship transport	transport, freight, sea, container ship transport, freight, sea, container ship Cutoff, S/GLO	EI v3.9	2022
RESOURCES			
Grid electricity	market for electricity, medium voltage electricity, medium voltage Cutoff, S/AE	EI v3.9	2022
Diesel	diesel, burned in building machine diesel, burned in building machine Cutoff, S/GLO	EI v3.9	2022
Propane	heat production, propane, at industrial furnace >100kW heat, district or industrial, other than natural gas Cutoff, S/RoW	EI v3.9	2022

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 9. *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 2022-23.
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 the United Arab Emirates. Surrogate data used in the assessment are representative of global or European operations. Data representative of European operations is considered sufficiently similar to actual processes. Data representing product 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 fabrication 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 v3.9 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 the manufacturing facility represents 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 v3.9 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 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 annualized production data for 2022-2023.

3.10 ALLOCATION

Resource use at the manufacturing facilities (e.g., water and energy) was allocated to the products based on the product area as a fraction of the total facility production volume (i.e., area-based allocation). Electricity use at the manufacturing facilities was modeled using ecoinvent inventory datasets for the country-specific electrical grid.

The product systems include the use of recycled materials. 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.

Impacts from transportation, including product distribution to point of sale, were attributed to the products based on the mass of material and distance transported.

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 in New Zealand are summarized in Table 10.

Table 10. 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	
Ocean transport			
Fuel type	-	Fuel oil	
Liters of fuel	L/tkm	2.23	
Vehicle type	-	Ocean freighter	
Capacity utilization	%	70	
Product Name	Gross mass transported (kg)	Transport Distance (km)	
		Road	Ship
Broadloom Nylon Carpet - 750 GSM	1.77	716	17,410
Broadloom Nylon Carpet - 1200 GSM	2.21	716	17,410
Broadloom Nylon Carpet - 1500 GSM	2.55	716	17,410

Installation and maintenance of the products are based on typical application and intended use. Approximately 4% of the product mass is assumed lost as waste during product installation which is disposed of via landfilling. Approximately 0.11 kg of adhesive is assumed required for installation per square meter of flooring. 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 11. *Installation parameters for the flooring products, per 1 m² (A5).*

Parameter		Broadloom Nylon Carpet - 750 GSM	Broadloom Nylon Carpet - 1200 GSM	Broadloom Nylon Carpet - 1500 GSM
Ancillary materials – adhesive (kg)		0.110	0.110	0.110
Net freshwater consumption (m ³)		0.00	0.00	0.00
Electricity consumption (kWh)		0.00	0.00	0.00
Product loss per functional unit (kg)		6.87x10 ⁻²	8.63x10 ⁻²	0.100
Waste materials generated by product installation (kg)		0.116	0.135	0.149
Output materials resulting from on-site waste processing (kg)		n/a	n/a	n/a
Mass of packaging waste (kg)	Plastic	8.57x10 ⁻³	9.36x10 ⁻³	9.93x10 ⁻³
	Corrugate	3.92x10 ⁻²	3.92x10 ⁻²	3.92x10 ⁻²
Biogenic carbon contained in packaging (kg CO ₂)		7.19x10 ⁻²	7.19x10 ⁻²	7.19x10 ⁻²
Direct emissions (kg)		0.00	0.00	0.00

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 vacuuming and periodic surface steam cleaning, as well as restorative steam cleaning. Based on the level of wear conditions and foot traffic, the manufacturer recommends cleaning methods and frequencies for the product as part of routine maintenance¹. The present assessment is based on a light traffic level. The parameters used to model the product maintenance are summarized in Table 12.

Table 12. *Maintenance parameters for the flooring products, per 1 m².*

Parameter	Value	Unit
Maintenance process	Vacuuming	-
Maintenance cycle	1,560	Cycles / RSL
Maintenance cycle	7,800	Cycles / ESL
Electricity	0.043	kWh/m ² /yr
Maintenance process	Extraction Cleaning	-
Maintenance cycle	60	Cycles / RSL (twice annually)
Maintenance cycle	150	Cycles / ESL
Electricity	0.067	kWh/m ² /yr
Water	0.020	kg/m ² /yr
Further assumptions	Light traffic	-

Repair/Refurbishment stage (B3; B5)

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

¹ Standard-Carpets-Carpet-Care-Manual.pdf

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 13.

Table 13. Product replacement parameters for the flooring products, per 1 m².

Parameter	Units	Broadloom Nylon Carpet - 750 GSM	Broadloom Nylon Carpet - 1200 GSM	Broadloom Nylon Carpet - 1500 GSM
Reference service life	Years	15	15	15
Replacement cycle	-	4	4	4
Energy input	kWh	0	0	0
Freshwater consumption	m ³	0	0	0
Ancillary materials	kg	Negligible	Negligible	Negligible
Replacement parts	kg	7.06	8.83	10.2
Direct emissions	kg	0	0	0

Building operation stage (B6 – B7)

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

Disposal stage (C1 - C4)

Lacking specific data regarding the rates of recycling in New Zealand, the product is assumed to be disposed in a landfill at end-of-life. For packaging materials, a 10% recycling rate is assumed. Materials not recycled are landfilled (80%) and incinerated (20%).

Transportation of waste materials at end-of-life (C2) assumes a 161 km average distance to disposal, as specified by the PCR. No recycling of the product materials is assumed at end-of-life. The relevant disposal parameters used for the product system are summarized in Table 14.

Table 14. End-of-life disposal scenario parameters for the flooring products.

Product	Assumptions for scenario development	Collected with mixed construction waste (kg)	Recovery	Disposal - Landfill (kg)	Removals of biogenic carbon (kg CO ₂ eq)
Broadloom Nylon Carpet - 750 GSM	Landfill	1.72	n/a	1.72	n/a
Broadloom Nylon Carpet - 1200 GSM	Landfill	2.16	n/a	2.16	n/a
Broadloom Nylon Carpet - 1500 GSM	Landfill	2.50	n/a	2.50	n/a

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.

CMLI-A 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 (ADP_{fossil})	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
RPR_E : Renewable primary resources used as energy carrier (fuel)	MJ, LHV	HWD : Hazardous waste disposed	kg
RPR_M : Renewable primary resources with energy content used as material	MJ, LHV	NHWD : Non-hazardous waste disposed	kg
NRPR_E : Non-renewable primary resources used as an energy carrier (fuel)	MJ, LHV	HLRW : High-level radioactive waste, conditioned, to final repository	kg
NRPR_M : 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	MJ, LHV	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 15. Life Cycle Impact Assessment results for the 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. **(Broadloom Nylon Carpet - 750 GSM)**

Impact Category	A1	A2	A3	A4	A5	B2	B4	C2	C4
CML									
GWP (kg CO ₂ eq)	10.1	0.211	3.36	0.551	1.23	17.7	65.7	0.381	0.589
	10%	0.21%	3.4%	0.55%	1.2%	18%	66%	0.38%	0.59%
AP (kg SO ₂ eq)	3.49x10 ⁻²	3.33x10 ⁻³	2.97x10 ⁻²	8.22x10 ⁻³	5.71x10 ⁻³	7.36x10 ⁻²	0.334	1.51x10 ⁻³	1.70x10 ⁻⁴
	7.1%	0.68%	6%	1.7%	1.2%	15%	68%	0.31%	0.035%
EP (kg (PO ₄) ³⁻ eq)	8.64x10 ⁻³	4.12x10 ⁻⁴	7.18x10 ⁻³	1.03x10 ⁻³	1.95x10 ⁻³	9.47x10 ⁻²	0.104	3.40x10 ⁻⁴	6.40x10 ⁻³
	3.9%	0.18%	3.2%	0.46%	0.87%	42%	46%	0.15%	2.9%
POCP (kg C ₂ H ₄ eq)	1.79x10 ⁻³	9.64x10 ⁻⁵	7.70x10 ⁻⁴	2.40x10 ⁻⁴	4.88x10 ⁻⁴	2.61x10 ⁻³	1.43x10 ⁻²	6.53x10 ⁻⁵	1.24x10 ⁻⁴
	8.7%	0.47%	3.8%	1.2%	2.4%	13%	70%	0.32%	0.61%
ODP (kg CFC-11 eq)	5.06x10 ⁻⁸	2.69x10 ⁻⁹	4.14x10 ⁻⁸	7.04x10 ⁻⁹	2.87x10 ⁻⁸	9.85x10 ⁻⁸	5.43x10 ⁻⁷	4.80x10 ⁻⁹	4.51x10 ⁻¹⁰
	6.5%	0.35%	5.3%	0.91%	3.7%	13%	70%	0.62%	0.058%
ADPF (MJ eq)	156	2.73	42.0	7.16	18.1	184	924	4.95	0.491
	12%	0.2%	3.1%	0.53%	1.4%	14%	69%	0.37%	0.037%
ADPE (kg Sb eq)	8.66x10 ⁻⁵	3.93x10 ⁻⁷	1.37x10 ⁻⁶	1.08x10 ⁻⁶	9.44x10 ⁻⁶	8.24x10 ⁻⁵	3.97x10 ⁻⁴	2.46x10 ⁻⁷	7.44x10 ⁻⁸
	15%	0.068%	0.24%	0.19%	1.6%	14%	69%	0.043%	0.013%
TRACI									
GWP (kg CO ₂ eq)	10.2	0.210	3.30	0.547	1.20	17.7	65.2	0.378	0.486
	10%	0.21%	3.3%	0.55%	1.2%	18%	66%	0.38%	0.49%
AP (kg SO ₂ eq)	3.55x10 ⁻²	3.58x10 ⁻³	3.75x10 ⁻²	8.85x10 ⁻³	6.07x10 ⁻³	7.41x10 ⁻²	0.375	1.91x10 ⁻³	2.15x10 ⁻⁴
	6.5%	0.66%	6.9%	1.6%	1.1%	14%	69%	0.35%	0.04%
EP (kg N eq)	1.07x10 ⁻²	2.35x10 ⁻⁴	5.43x10 ⁻³	6.08x10 ⁻⁴	3.35x10 ⁻³	0.215	0.151	2.00x10 ⁻⁴	1.73x10 ⁻²
	2.7%	0.058%	1.3%	0.15%	0.83%	53%	37%	0.05%	4.3%
SFP (kg O ₃ eq)	0.512	6.89x10 ⁻²	1.11	0.171	0.114	0.875	8.17	5.71x10 ⁻²	3.97x10 ⁻³
	4.6%	0.62%	10%	1.5%	1%	7.9%	74%	0.52%	0.036%
ODP (kg CFC-11 eq)	6.82x10 ⁻⁸	3.54x10 ⁻⁹	5.47x10 ⁻⁸	9.27x10 ⁻⁹	3.15x10 ⁻⁸	1.73x10 ⁻⁷	6.97x10 ⁻⁷	6.38x10 ⁻⁹	6.18x10 ⁻¹⁰
	6.5%	0.34%	5.2%	0.89%	3%	17%	67%	0.61%	0.059%
FFD (MJ eq)	22.2	0.398	6.25	1.04	2.50	7.65	133	0.747	6.50x10 ⁻²
	13%	0.23%	3.6%	0.6%	1.4%	4.4%	76%	0.43%	0.037%

Table 16. Resource use and waste flows for the 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. **(Broadloom Nylon Carpet - 750 GSM)**

Parameter	A1	A2	A3	A4	A5	B2	B4	C2	C4
Resources									
RPR _E (MJ)	3.34	2.62x10 ⁻²	0.345	7.05x10 ⁻²	0.677	20.9	18.0	1.96x10 ⁻²	1.77x10 ⁻²
	7.7%	0.06%	0.79%	0.16%	1.6%	48%	41%	0.045%	0.041%
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)	117	2.76	42.3	7.23	19.7	185	776	4.97	0.513
	10%	0.24%	3.7%	0.63%	1.7%	16%	67%	0.43%	0.044%
NRPR _M (MJ)	52.3	0.00	0.00	0.00	0.00	0.00	209	0.00	0.00
	20%	0%	0%	0%	0%	0%	80%	0%	0%
SM (kg)	0.135	0.00	0.00	0.00	0.00	0.00	0.542	0.00	0.00
	20%	0%	0%	0%	0%	0%	80%	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)	0.317	1.54x10 ⁻³	3.17x10 ⁻²	4.16x10 ⁻³	5.48x10 ⁻²	1.08	1.65	1.77x10 ⁻³	8.85x10 ⁻⁴
	10%	0.049%	1%	0.13%	1.7%	34%	53%	0.056%	0.028%
Wastes									
HWD (kg)	1.98x10 ⁻⁴	1.54x10 ⁻⁵	2.78x10 ⁻⁴	4.10x10 ⁻⁵	3.76x10 ⁻⁵	2.68x10 ⁻⁴	2.43x10 ⁻³	3.37x10 ⁻⁵	2.87x10 ⁻⁶
	6%	0.47%	8.4%	1.2%	1.1%	8.1%	74%	1%	0.087%
NHWD (kg)	0.276	6.13x10 ⁻²	0.357	0.175	0.193	0.847	11.2	2.51x10 ⁻²	1.72
	1.9%	0.41%	2.4%	1.2%	1.3%	5.7%	75%	0.17%	12%
HLRW (kg)	1.14x10 ⁻⁵	1.21x10 ⁻⁷	1.53x10 ⁻⁶	3.27x10 ⁻⁷	2.13x10 ⁻⁶	3.66x10 ⁻⁶	6.27x10 ⁻⁵	1.08x10 ⁻⁷	9.42x10 ⁻⁸
	14%	0.15%	1.9%	0.4%	2.6%	4.5%	76%	0.13%	0.11%
ILLRW (kg)	2.80x10 ⁻⁵	2.90x10 ⁻⁷	3.84x10 ⁻⁶	7.81x10 ⁻⁷	5.48x10 ⁻⁶	8.15x10 ⁻⁶	1.56x10 ⁻⁴	2.55x10 ⁻⁷	2.40x10 ⁻⁷
	14%	0.14%	1.9%	0.39%	2.7%	4%	77%	0.13%	0.12%
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	4.78x10 ⁻³	0.00	1.91x10 ⁻²	0.00	0.00
	0%	0%	0%	0%	20%	0%	80%	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

Table 17. Life Cycle Impact Assessment results for the 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. **(Broadloom Nylon Carpet - 1200 GSM)**

Impact Category	A1	A2	A3	A4	A5	B2	B4	C2	C4
CML									
GWP (kg CO ₂ eq)	14.4	0.209	3.38	0.688	1.42	17.7	84.7	0.479	0.626
	12%	0.17%	2.7%	0.56%	1.1%	14%	69%	0.39%	0.51%
AP (kg SO ₂ eq)	4.88x10 ⁻²	3.30x10 ⁻³	2.97x10 ⁻²	1.03x10 ⁻²	6.35x10 ⁻³	7.36x10 ⁻²	0.402	1.89x10 ⁻³	1.99x10 ⁻⁴
	8.5%	0.57%	5.2%	1.8%	1.1%	13%	70%	0.33%	0.035%
EP (kg (PO ₄) ³⁻ eq)	1.18x10 ⁻²	4.08x10 ⁻⁴	7.24x10 ⁻³	1.29x10 ⁻³	2.14x10 ⁻³	9.47x10 ⁻²	0.127	4.28x10 ⁻⁴	8.53x10 ⁻³
	4.7%	0.16%	2.9%	0.51%	0.84%	37%	50%	0.17%	3.4%
POCP (kg C ₂ H ₄ eq)	2.43x10 ⁻³	9.55x10 ⁻⁵	7.75x10 ⁻⁴	3.00x10 ⁻⁴	5.18x10 ⁻⁴	2.61x10 ⁻³	1.73x10 ⁻²	8.21x10 ⁻⁵	1.31x10 ⁻⁴
	10%	0.39%	3.2%	1.2%	2.1%	11%	71%	0.34%	0.54%
ODP (kg CFC-11 eq)	5.21x10 ⁻⁸	2.67x10 ⁻⁹	4.15x10 ⁻⁸	8.80x10 ⁻⁹	2.89x10 ⁻⁸	9.85x10 ⁻⁸	5.62x10 ⁻⁷	6.03x10 ⁻⁹	5.52x10 ⁻¹⁰
	6.5%	0.33%	5.2%	1.1%	3.6%	12%	70%	0.75%	0.069%
ADPF (MJ eq)	204	2.71	42.0	8.95	20.2	184	1,140	6.21	0.602
	13%	0.17%	2.6%	0.56%	1.3%	11%	71%	0.39%	0.037%
ADPE (kg Sb eq)	1.17x10 ⁻⁴	3.90x10 ⁻⁷	1.38x10 ⁻⁶	1.35x10 ⁻⁶	1.07x10 ⁻⁵	8.24x10 ⁻⁵	5.25x10 ⁻⁴	3.09x10 ⁻⁷	8.60x10 ⁻⁸
	16%	0.053%	0.19%	0.18%	1.4%	11%	71%	0.042%	0.012%
TRACI									
GWP (kg CO ₂ eq)	14.5	0.208	3.32	0.684	1.39	17.7	84.5	0.475	0.521
	12%	0.17%	2.7%	0.55%	1.1%	14%	69%	0.39%	0.42%
AP (kg SO ₂ eq)	4.97x10 ⁻²	3.55x10 ⁻³	3.75x10 ⁻²	1.11x10 ⁻²	6.73x10 ⁻³	7.41x10 ⁻²	0.445	2.40x10 ⁻³	2.52x10 ⁻⁴
	7.9%	0.56%	6%	1.8%	1.1%	12%	71%	0.38%	0.04%
EP (kg N eq)	1.34x10 ⁻²	2.33x10 ⁻⁴	5.59x10 ⁻³	7.59x10 ⁻⁴	3.60x10 ⁻³	0.215	0.188	2.52x10 ⁻⁴	2.31x10 ⁻²
	3%	0.052%	1.2%	0.17%	0.8%	48%	42%	0.056%	5.1%
SFP (kg O ₃ eq)	0.730	6.82x10 ⁻²	1.11	0.214	0.124	0.875	9.31	7.18x10 ⁻²	4.84x10 ⁻³
	5.8%	0.55%	8.9%	1.7%	0.99%	7%	74%	0.57%	0.039%
ODP (kg CFC-11 eq)	6.95x10 ⁻⁸	3.51x10 ⁻⁹	5.47x10 ⁻⁸	1.16x10 ⁻⁸	3.17x10 ⁻⁸	1.73x10 ⁻⁷	7.19x10 ⁻⁷	8.01x10 ⁻⁹	7.55x10 ⁻¹⁰
	6.5%	0.33%	5.1%	1.1%	3%	16%	67%	0.75%	0.07%
FFD (MJ eq)	29.4	0.394	6.26	1.30	2.80	7.65	165	0.938	8.06x10 ⁻²
	14%	0.18%	2.9%	0.61%	1.3%	3.6%	77%	0.44%	0.038%

Table 18. Resource use and waste flows for the 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. **(Broadloom Nylon Carpet - 1200 GSM)**

Parameter	A1	A2	A3	A4	A5	B2	B4	C2	C4
Resources									
RPR _E (MJ)	3.57	2.60x10 ⁻²	0.348	8.81x10 ⁻²	0.688	20.9	19.1	2.46x10 ⁻²	2.00x10 ⁻²
	8%	0.058%	0.78%	0.2%	1.5%	47%	43%	0.055%	0.045%
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)	151	2.73	42.4	9.04	21.8	185	934	6.24	0.628
	11%	0.2%	3.1%	0.67%	1.6%	14%	69%	0.46%	0.046%
NRPR _M (MJ)	70.5	0.00	0.00	0.00	0.00	0.00	282	0.00	0.00
	20%	0%	0%	0%	0%	0%	80%	0%	0%
SM (kg)	0.135	0.00	0.00	0.00	0.00	0.00	0.539	0.00	0.00
	20%	0%	0%	0%	0%	0%	80%	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)	0.399	1.53x10 ⁻³	3.19x10 ⁻²	5.20x10 ⁻³	5.81x10 ⁻²	1.08	2.00	2.22x10 ⁻³	1.02x10 ⁻³
	11%	0.043%	0.89%	0.15%	1.6%	30%	56%	0.062%	0.028%
Wastes									
HWD (kg)	1.97x10 ⁻⁴	1.53x10 ⁻⁵	2.78x10 ⁻⁴	5.13x10 ⁻⁵	3.80x10 ⁻⁵	2.68x10 ⁻⁴	2.50x10 ⁻³	4.23x10 ⁻⁵	3.42x10 ⁻⁶
	5.8%	0.45%	8.2%	1.5%	1.1%	7.9%	74%	1.2%	0.1%
NHWD (kg)	0.312	6.09x10 ⁻²	0.380	0.219	0.215	0.847	13.5	3.16x10 ⁻²	2.16
	1.8%	0.34%	2.1%	1.2%	1.2%	4.8%	76%	0.18%	12%
HLRW (kg)	1.13x10 ⁻⁵	1.20x10 ⁻⁷	1.54x10 ⁻⁶	4.08x10 ⁻⁷	2.13x10 ⁻⁶	3.66x10 ⁻⁶	6.29x10 ⁻⁵	1.35x10 ⁻⁷	1.06x10 ⁻⁷
	14%	0.15%	1.9%	0.5%	2.6%	4.4%	76%	0.16%	0.13%
ILLRW (kg)	2.78x10 ⁻⁵	2.88x10 ⁻⁷	3.88x10 ⁻⁶	9.77x10 ⁻⁷	5.49x10 ⁻⁶	8.15x10 ⁻⁶	1.56x10 ⁻⁴	3.20x10 ⁻⁷	2.70x10 ⁻⁷
	14%	0.14%	1.9%	0.48%	2.7%	4%	77%	0.16%	0.13%
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	4.86x10 ⁻³	0.00	1.94x10 ⁻²	0.00	0.00
	0%	0%	0%	0%	20%	0%	80%	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

Table 19. Life Cycle Impact Assessment results for the 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. **(Broadloom Nylon Carpet - 1500 GSM)**

Impact Category	A1	A2	A3	A4	A5	B2	B4	C2	C4
CML									
GWP (kg CO ₂ eq)	17.4	0.218	3.39	0.795	1.55	17.7	98.4	0.554	0.681
	12%	0.15%	2.4%	0.57%	1.1%	13%	70%	0.39%	0.48%
AP (kg SO ₂ eq)	5.86x10 ⁻²	3.45x10 ⁻³	2.97x10 ⁻²	1.19x10 ⁻²	6.82x10 ⁻³	7.36x10 ⁻²	0.452	2.19x10 ⁻³	2.25x10 ⁻⁴
	9.2%	0.54%	4.7%	1.9%	1.1%	12%	71%	0.34%	0.035%
EP (kg (PO ₄) ³⁻ eq)	1.42x10 ⁻²	4.26x10 ⁻⁴	7.29x10 ⁻³	1.49x10 ⁻³	2.28x10 ⁻³	9.47x10 ⁻²	0.145	4.95x10 ⁻⁴	1.01x10 ⁻²
	5.1%	0.15%	2.6%	0.54%	0.83%	34%	53%	0.18%	3.7%
POCP (kg C ₂ H ₄ eq)	2.89x10 ⁻³	9.98x10 ⁻⁵	7.78x10 ⁻⁴	3.47x10 ⁻⁴	5.41x10 ⁻⁴	2.61x10 ⁻³	1.96x10 ⁻²	9.51x10 ⁻⁵	1.42x10 ⁻⁴
	11%	0.37%	2.9%	1.3%	2%	9.6%	72%	0.35%	0.52%
ODP (kg CFC-11 eq)	5.58x10 ⁻⁸	2.77x10 ⁻⁹	4.15x10 ⁻⁸	1.02x10 ⁻⁸	2.91x10 ⁻⁸	9.85x10 ⁻⁸	5.88x10 ⁻⁷	6.99x10 ⁻⁹	6.34x10 ⁻¹⁰
	6.7%	0.33%	5%	1.2%	3.5%	12%	71%	0.84%	0.076%
ADPF (MJ eq)	241	2.81	42.1	10.3	21.7	184	1,300	7.20	0.692
	13%	0.16%	2.3%	0.57%	1.2%	10%	72%	0.4%	0.038%
ADPE (kg Sb eq)	1.39x10 ⁻⁴	4.03x10 ⁻⁷	1.39x10 ⁻⁶	1.56x10 ⁻⁶	1.16x10 ⁻⁵	8.24x10 ⁻⁵	6.19x10 ⁻⁴	3.58x10 ⁻⁷	9.68x10 ⁻⁸
	16%	0.047%	0.16%	0.18%	1.4%	9.6%	72%	0.042%	0.011%
TRACI									
GWP (kg CO ₂ eq)	17.6	0.216	3.33	0.790	1.53	17.7	98.2	0.551	0.569
	13%	0.15%	2.4%	0.56%	1.1%	13%	70%	0.39%	0.4%
AP (kg SO ₂ eq)	5.98x10 ⁻²	3.71x10 ⁻³	3.75x10 ⁻²	1.28x10 ⁻²	7.21x10 ⁻³	7.41x10 ⁻²	0.496	2.78x10 ⁻³	2.85x10 ⁻⁴
	8.6%	0.53%	5.4%	1.8%	1%	11%	71%	0.4%	0.041%
EP (kg N eq)	1.55x10 ⁻²	2.43x10 ⁻⁴	5.73x10 ⁻³	8.77x10 ⁻⁴	3.80x10 ⁻³	0.215	0.215	2.91x10 ⁻⁴	2.73x10 ⁻²
	3.2%	0.05%	1.2%	0.18%	0.79%	44%	44%	0.06%	5.6%
SFP (kg O ₃ eq)	0.883	7.13x10 ⁻²	1.11	0.247	0.132	0.875	10.1	8.31x10 ⁻²	5.55x10 ⁻³
	6.5%	0.53%	8.2%	1.8%	0.97%	6.5%	75%	0.61%	0.041%
ODP (kg CFC-11 eq)	7.42x10 ⁻⁸	3.65x10 ⁻⁹	5.47x10 ⁻⁸	1.34x10 ⁻⁸	3.20x10 ⁻⁸	1.73x10 ⁻⁷	7.52x10 ⁻⁷	9.28x10 ⁻⁹	8.66x10 ⁻¹⁰
	6.7%	0.33%	4.9%	1.2%	2.9%	16%	68%	0.83%	0.078%
FFD (MJ eq)	34.8	0.410	6.27	1.50	3.03	7.65	189	1.09	9.30x10 ⁻²
	14%	0.17%	2.6%	0.62%	1.2%	3.1%	77%	0.45%	0.038%

Table 20. Resource use and waste flows for the 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. **(Broadloom Nylon Carpet - 1500 GSM)**

Parameter	A1	A2	A3	A4	A5	B2	B4	C2	C4
Resources									
RPR _E (MJ)	3.89	2.69×10 ⁻²	0.351	0.102	0.701	20.9	20.5	2.85×10 ⁻²	2.23×10 ⁻²
	8.4%	0.058%	0.75%	0.22%	1.5%	45%	44%	0.061%	0.048%
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)	177	2.84	42.5	10.4	23.5	185	1,060	7.23	0.721
	12%	0.19%	2.8%	0.69%	1.6%	12%	70%	0.48%	0.048%
NRPR _M (MJ)	83.6	0.00	0.00	0.00	0.00	0.00	334	0.00	0.00
	20%	0%	0%	0%	0%	0%	80%	0%	0%
SM (kg)	0.137	0.00	0.00	0.00	0.00	0.00	0.549	0.00	0.00
	20%	0%	0%	0%	0%	0%	80%	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)	0.463	1.59×10 ⁻³	3.21×10 ⁻²	6.01×10 ⁻³	6.08×10 ⁻²	1.08	2.27	2.58×10 ⁻³	1.14×10 ⁻³
	12%	0.041%	0.82%	0.15%	1.6%	28%	58%	0.066%	0.029%
Wastes									
HWD (kg)	2.08×10 ⁻⁴	1.59×10 ⁻⁵	2.78×10 ⁻⁴	5.92×10 ⁻⁵	3.89×10 ⁻⁵	2.68×10 ⁻⁴	2.61×10 ⁻³	4.90×10 ⁻⁵	3.89×10 ⁻⁶
	5.9%	0.45%	7.9%	1.7%	1.1%	7.6%	74%	1.4%	0.11%
NHWD (kg)	0.348	6.27×10 ⁻²	0.399	0.253	0.233	0.847	15.4	3.66×10 ⁻²	2.51
	1.7%	0.31%	2%	1.3%	1.2%	4.2%	77%	0.18%	13%
HLRW (kg)	1.19×10 ⁻⁵	1.25×10 ⁻⁷	1.55×10 ⁻⁶	4.72×10 ⁻⁷	2.16×10 ⁻⁶	3.66×10 ⁻⁶	6.58×10 ⁻⁵	1.57×10 ⁻⁷	1.18×10 ⁻⁷
	14%	0.14%	1.8%	0.55%	2.5%	4.3%	77%	0.18%	0.14%
ILLRW (kg)	2.93×10 ⁻⁵	2.98×10 ⁻⁷	3.91×10 ⁻⁶	1.13×10 ⁻⁶	5.56×10 ⁻⁶	8.15×10 ⁻⁶	1.63×10 ⁻⁴	3.70×10 ⁻⁷	3.00×10 ⁻⁷
	14%	0.14%	1.8%	0.53%	2.6%	3.8%	77%	0.17%	0.14%
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	4.91×10 ⁻³	0.00	1.97×10 ⁻²	0.00	0.00
	0%	0%	0%	0%	20%	0%	80%	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 and product maintenance phases are the highest contributors followed by product manufacture and product distribution.

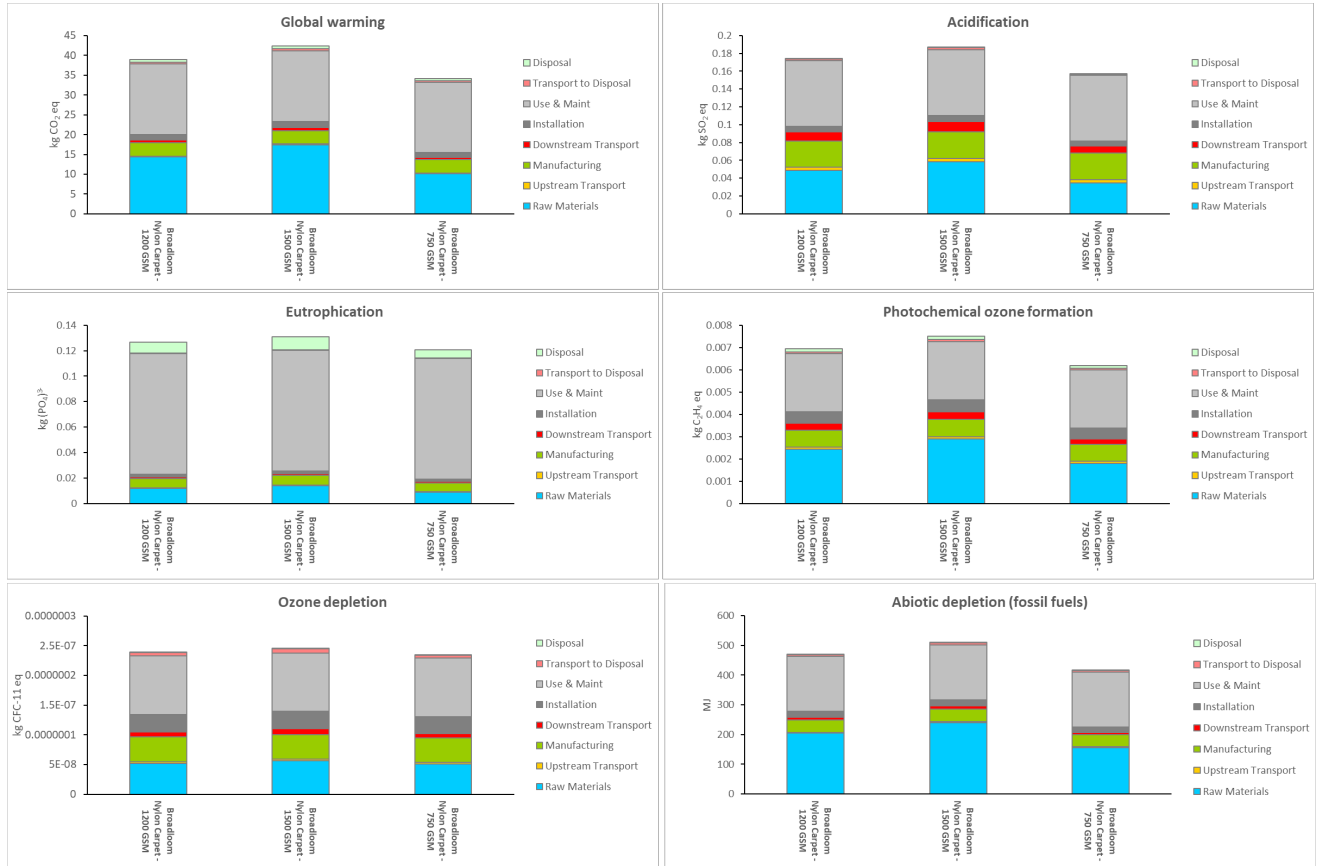


Figure 2. Contribution analysis for the flooring products – CML-IA. (excluding product replacements) .

7. References

- Life Cycle Assessment of Broadloom and Carpet Tile Flooring. SCS Global Services Report. Prepared for client. March 2024.
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
- ISO 14040: 2006 Environmental Management – Life cycle assessment – Principles and Framework
- ISO 14044: 2006/Amd 1:2017/ Amd 2:2020 Environmental Management – Life cycle assessment – Requirements and Guidelines.
- PCR Guidance for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements. Version 3.2. UL Environment. December 2022.
- PCR Guidance for Building-Related Products and Services Part B: Flooring EPD Requirements. Version 2. UL Environment. September 2018.
- SCS Type III Environmental Declaration Program: Program Operator Manual. V12.0 November 2023. SCS Global Services.
- Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI). Dr. Bare, J., <https://www.epa.gov/chemical-research/tool-reduction-and-assessment-chemicals-and-other-environmental-impacts-traci>
- CML-IA Characterization Factors. Leiden University, Institute of Environmental Sciences. April 2013. <https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors>
- Ecoinvent Centre (2022) ecoinvent data from v3.9. Swiss Center for Life Cycle Inventories, Dübendorf, 2022, <http://www.ecoinvent.org>
- European Joint Research Commission. International Reference Life Cycle Data System handbook. *General guide for Life Cycle Assessment – Detailed Guidance*. © European Union, 2010.

For more information, contact:



Standard Carpets Ind. LLC

PO Box 490014, Plot No. 5315801

Dubai Industrial Park, Dubai

United Arab Emirates

<https://www.standardcarpets.com> | info@standardcarpets.com

(971) 4 554 7137



SCS Global Services

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

Main +1.510.452.8000 | fax +1.510.452.8001