



Declaration Owner

Welspun Living Limited

SURVEY NO - 190, VILLAGE - CHANDANVELLY, MANDAL - SHABAD,
CHANDANVELLY, Ranga Reddy, Telangana, 501503

18001-2011-61

contact_flooring@welspun.com

Product:

Wall to Wall Carpet

CSI MasterFormat code 09 60 00

EPD represents delivery of product to customers globally.

Functional Unit

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

EPD Number and Period of Validity

SCS-EPD-10531

EPD Valid November 10, 2025 through November 9, 2030

Product Category Rule

PCR for Building-Related Products and Services - Part A: LCA
Calculation Rules and Report Requirements, UL 10010, UL v.4.0,
March 2022.

PCR Guidance for Building-Related Products and Services - Flooring
EPD Requirements, v.2.0, validity extended to March 31, 2026.

Program Operator

SCS Global Services

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Declaration Owner:	Welspun Living Limited, Inc.																
Address:	Survey No-190,Chandanvelly,next to Hytabad,Shabad Mandal, Dist Rangareddy, Telangana, 501503, India																
Declaration Number:	SCS-EPD-10531																
Declaration Validity Period:	November 10, 2025 through November 9, 2030																
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 2.4 software and the Ecoinvent v3.11 database																
Product RSL:	7 years																
Markets of Applicability:	Global																
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:	 Lindita Bushi, Ph.D., Athena Sustainable Materials Institute																
Part A Product Category Rule:	PCR for Building-Related Products and Services - Part A: LCA Calculation Rules and Report Requirements, UL 10010, UL v.4.0, March 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 - Flooring EPD Requirements, v.2.0, validity extended to March 31, 2026.																
Part B PCR Review conducted by:	Jack Geibig (Chair), Thomas Gloria, PhD., Thaddeus Owen																
Independent verification of the declaration and data, according to ISO 14025 and the PCR	☐ internal ☒ external																
EPD Verifier:	 Lindita Bushi, Ph.D., Athena Sustainable Materials Institute																
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Disclaimers: This EPD conforms to ISO 14025, 14040, 14044, and ISO 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. The owner of the declaration shall be liable for the underlying information and evidence; SCS shall not be liable with respect to manufacturer information, life cycle assessment data, and evidence supplied or made available to SCS.																	

1. Welspun Living Limited

Welspun Flooring is Welspun Group's newest brainchild with a state of the art manufacturing facility spread over 300 acres, we are set to disrupt the world of flooring. Crafted passionately by our dedicated team of experts, Welspun Flooring is a breakthrough in terms of engineering and design. With form meeting function in each style, you'll see flooring in a new light! The idea is to offer holistic flooring solutions for architects, designers, retailers and consumers.

2. Products

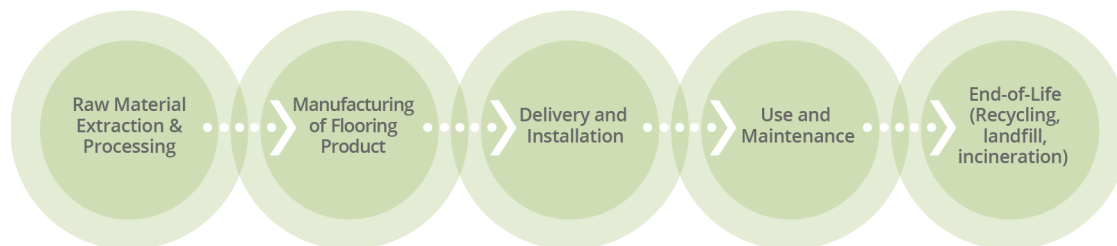
2.1 PRODUCT DESCRIPTION

Wall to Wall Carpet also known as broadloom carpet are made of 4 meters or greater in width to cover complete floor. Carpet consists of two major components face yarn and backing. Face yarn is made of synthetic yarn polyester, nylon or polypropylene. Yarn is made through bulk continuous filament extrusion process. Yarn used may be direct BCF (bulk continuous filament) or twisted and heat-set. All tufted carpets are tufted over polypropylene mesh backing. In coating SB (styrene-butadiene) latex and secondary coating PP woven mesh is used. Tufted carpet is available in different colors, design and tufting style to fulfil customer requirements.

Carpet may be treated with different functional finishes to suit customer needs like antistatic, stain resistant, soil resistant, fire resistant, antibacterial and many others. The advantages of carpet are many. For one, carpet offers many practical benefits: superior comfort, attractive acoustic, and thermal qualities, as well as greater safety, compared to hard surface alternatives. Carpet offers so much more than practical advantages, though. The way you deploy it in your design can affect the look, feel and sound of a 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 Welspun Wall to Wall Carpet products provide the primary function of flooring for interior applications. The products are floor-coverings with the intended use in the hospitality industry, as they are easy to clean and maintain with stain resistance and acoustic control. They can be used in larger areas.

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

The life cycle phases included in the product system boundary are shown below.

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

Product			Construction Process		Use							End-of-life				Benefits and loads beyond the system boundary
A1	A2	A3	A4	A5	B1	B1	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 = Module Included | MND = Module Not Declared

2.5 TECHNICAL DATA

Technical specifications for the Wall-to-Wall Carpet product is summarized in Table 2. While the products are available with various colors options, the impact of different pigments on the estimated impact indicators is expected to be less than $\pm 10\%$.

Table 2. Product specifications for the Welspun Wall-to-Wall Carpet flooring product.

Characteristic	Unit	Value
Yarn type	--	Nylon, PP, PET
Primary backing type	--	PP woven
Secondary backing type	--	PP Mesh Woven
Total thickness	mm	7.0-10.0
Product weight	kg/m ²	2.40 (2.30-2.50)
Surface pile thickness	mm	6.0-10.0
Surface pile weight	g/m ²	800-1,200

2.6 MARKET PLACEMENT/APPLICATION RULES

Technical specifications and product performance results for the flooring products can be found on the manufacturer's website: www.welspunflooring.com

2.7 PROPERTIES OF DECLARED PRODUCT AS DELIVERED

The products are delivered for installation in the form of rolls.

2.8 MATERIAL COMPOSITION

The primary materials include polymer yarn, backings, coatings and other fillers. Note that no recycled material content nor biogenic material content is used in the products. The products are packaged for shipment using primarily cardboard and plastic wrap.

Table 3. Material content for the Wall-to-Wall Carpet in kilograms per square meter and percentage of total mass.

Component	Wall to Wall Carpet	
	kg/m ²	%
Product		
Yarn	1.20	50%
Filler	0.615	26%
Plastic	0.521	22%
Additives/Coatings	5.45x10 ⁻²	2.3%
Pigment	8.45x10 ⁻³	0.35%
Total Product	2.40	100%
Packaging		
Plastic	7.11x10 ⁻³	15%
Corrugate/Paper	3.94x10 ⁻²	85%
Total Packaging	4.65x10⁻²	100%

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

2.9 MANUFACTURING

Welspun Living Limited Wall to Wall Carpet is produced at their manufacturing facility in India. The Wall to Wall Carpet is made primarily from synthetic materials, including yarn, backings, and coatings. The manufacturer provided primary data for their annual production, resource use and electricity consumption and waste generation at the facility. The production facility utilizes renewable energy sources (solar and wind) according to the manufacturer. In conformance with the PCR, electricity consumption is modeled using Ecoinvent datasets for the regional electricity grid resource mix as well as with the specified renewable energy sources.

2.10 PRODUCT INSTALLATION

Installation of the product is accomplished using hand tools with negligible impacts and waste. The impacts associated with packaging disposal are included with the installation phase as per PCR requirements.

2.11 USE CONDITIONS

No special conditions of use are noted.

2.12 PRODUCT REFERENCE SERVICE LIFE AND BUILDING ESTIMATED SERVICE LIFE

The Reference Service Life (RSL) of the flooring product is based on the manufacturer's warranted lifetime and is summarized in Table 6 below. The building Estimated Service Life (ESL) is 75 years, consistent with the PCR.

2.13 RE-USE PHASE

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

2.14 DISPOSAL

At end-of-life, the products are disposed of in a landfill

2.15 FURTHER INFORMATION

Further information on the product can be found on the manufacturer's website at www.welspunflooring.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 each product system is presented in Table 4. 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 product in Table 4.

Table 4. Reference flows and RSL for the Wall-to-Wall Carpet product

Product Name	Reference Flow (kg/m ²)	Reference Service Life – RSL (years)	Replacement Cycle (ESL/RSL-1)
Wall to Wall Carpet	2.40	7 years	9.7

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 5 and illustrated in Figure 1.

Table 5. The modules and unit processes included in the scope for the Welspun Wall-to-Wall Carpet product.

Module	Module Description	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 product components.
A2	Transport (to the manufacturer)	Transport of component materials to the manufacturing facilities
A3	Manufacturing, including ancillary material production	Manufacturing of the flooring products and packaging (incl. upstream unit processes)
A4	Transport (to the building site)	Transport of product (including packaging) to the building site
A5	Construction-installation process	Impacts from the installation of the product are assumed negligible. Impacts from the production, transport and disposal of waste material associated with installation are included in this phase in addition to impacts from packaging disposal
B1	Product use	Use of the product 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 product 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 product 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 uses 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 the product to waste treatment at end-of-life
C3	Waste processing for reuse, recovery and/or recycling	The products are disposed of by landfilling which requires no waste processing
C4	Disposal	Disposal of flooring product via landfilling
D	Reuse-recovery-recycling potential	Module Not Declared

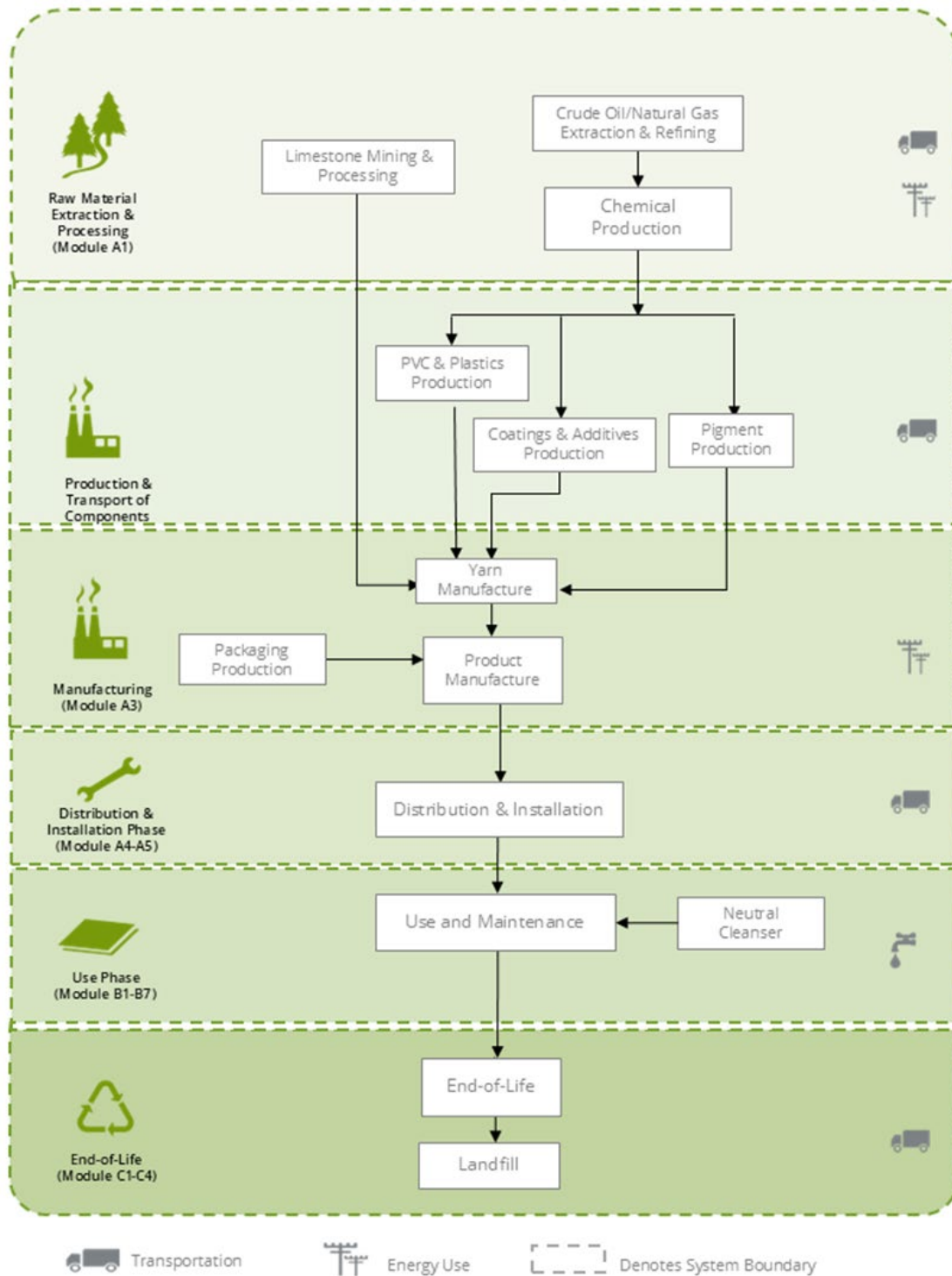


Figure 1. Flow Diagram for the life cycle of the Welspun Living Limited product system.

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. The manufacturer does not provide guidance for product maintenance.

3.4 UNITS

All data and results are presented using SI units.

3.5 ESTIMATES AND ASSUMPTIONS

- Electricity use at the manufacturing facilities was allocated to the Welspun flooring products based on the product area as a fraction of the total production
- The Welspun facility under review is located in India. An Ecoinvent inventory dataset for the Indian energy grid mix was used to model resource use and emissions from electricity use at the manufacturing facility. Results are also presented based on renewal energy sources at manufacturing.
- Welspun facility under review is located in India. An Ecoinvent inventory dataset for the Indian energy grid mix was used to model resource use and emissions from electricity use at the manufacturing facility.
- The Reference Service Life (RSL) of the products was modeled based on information provided by the manufacturer assuming their products are installed and maintained as recommended and used for the specific application noted.
- The installation and maintenance phases of the product life cycle were modeled based on information provided by the manufacturer including recommended installation and cleaning methods.
- 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 100 miles (161 km) by diesel truck to either a landfill or material reclamation facility (for recycling). Datasets representing disposal in a landfill and waste incineration are from Ecoinvent.
- Modeling of recycled materials follows the recycled content method (also known as 100-0 method or cut-off method) whereby only the burdens of reprocessing the waste material are allocated to the system from the use of the recycled material

The PCR requires the results for several inventory flows related to construction products to be reported including energy and resource use and waste and outflows. These are aggregated inventory flows, and do not characterize any potential impact; results should be interpreted considering 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 by Welspun Flooring for their manufacturing facility. The source of secondary LCI data is the Ecoinvent database.

Table 6. Data sources for the Welspun Wall-to-Wall Carpet product system.

Component	Dataset	Data Source	Publication data
PRODUCT			
Yarns			

Component	Dataset	Data Source	Publication data
Nylon, PP, PP-PE	nylon 6-6 production nylon 6-6 Cutoff, S/RoW	EI v3.11	2024
	polypropylene production, granulate polypropylene, granulate Cutoff, S/RoW	EI v3.11	2024
	polyethylene terephthalate production, granulate, amorphous polyethylene terephthalate, granulate, amorphous Cutoff, S/RoW	EI v3.11	2024
	polyethylene production, low density, granulate polyethylene, low density, granulate Cutoff, S/RoW	EI v3.11	2024
Backings			
PP woven and nonwoven	polypropylene production, granulate polypropylene, granulate Cutoff, S/RoW;	EI v3.11	2024
	textile production, woven polypropylene textile, woven polypropylene Cutoff, S/RoW	EI v3.11	2024
PE Woven	polyethylene production, low density, granulate polyethylene, low density, granulate Cutoff, S/RoW	EI v3.11	2024
	weaving of synthetic fibre, for industrial use weaving, synthetic fibre Cutoff, S/GLO	EI v3.11	2024
Coatings			
Vinyl acetate	vinyl acetate production, from ethylene acetoxylation vinyl acetate Cutoff, S/RoW	EI v3.11	2024
Latex	market for latex latex Cutoff, U - GLO	EI v3.11	2024
Chemicals			
Various chemicals NEC	chemical production, inorganic chemical, inorganic Cutoff, S/GLO	EI v3.11	2024
	chemical production, organic chemical, organic Cutoff, S/GLO	EI v3.11	2024
	polycarboxylates production, 40% active substance polycarboxylates, 40% active substance Cutoff, S/RoW	EI v3.11	2024
Pigments			
Carbon black	carbon black production carbon black Cutoff, S/GLO	EI v3.11	2024
TiO2	market for titanium dioxide titanium dioxide Cutoff, S/RoW		
Fillers			
Limestone	limestone production, crushed, washed limestone, crushed, washed Cutoff, S/RoW	EI v3.11	2024
Acrylic filler	acrylic filler production acrylic filler Cutoff, S/RoW	EI v3.11	2024
PACKAGING			
Cardboard/Paper	corrugated board box production corrugated board box Cutoff, S/RoW	EI v3.11	2024
	kraft paper production kraft paper Cutoff, S/RoW		
Wrapping Film	packaging film production, low density polyethylene packaging film, low density polyethylene Cutoff, S/RoW	EI v3.11	2024
TRANSPORT			
Road transport	transport, freight, lorry, 16-32 metric ton, diesel, EURO 4 transport, freight, lorry, 16-32 metric ton, diesel, EURO 4 Cutoff, S/RoW	EI v3.11	2024
Rail transport	transport, freight, train, diesel transport, freight, train, fleet average Cutoff, S/RoW	EI v3.11	2024
Ship transport	transport, freight, sea, container ship, heavy fuel oil transport, freight, sea, container ship, heavy fuel oil Cutoff, S/GLO	EI v3.11	2024
RESOURCES			
Grid electricity	market for electricity, medium voltage electricity, medium voltage Cutoff, S/IN-Southern grid	EI v3.11	2024
Wind	electricity production, wind, <1MW turbine, onshore electricity, high voltage Cutoff, S - IN-AP	EI v3.11	2024
Solar	electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted electricity, low voltage Cutoff, S - IN-AP	EI v3.11	2024
Natural gas	market for heat, central or small-scale, natural gas heat, central or small-scale, natural gas Cutoff, S/RoW	EI v3.11	2024
Light fuel oil	heat production, light fuel oil, at industrial furnace 1MW heat, district or industrial, other than natural gas Cutoff, S/RoW	EI v3.11	2024
Diesel	diesel, burned in building machine diesel, burned in building machine Cutoff, S/GLO	EI v3.11	2024
Biomass	heat production, wood chips from industry, at furnace 50kW heat, central or small-scale, other than natural gas Cutoff, S/RoW	EI v3.11	2024
Water	tap water production, conventional treatment tap water Cutoff, S/RoW	EI v3.11	2024
MAINTENACE			
Grid electricity	market group for electricity, low voltage electricity, low voltage Cutoff, S/GLO	EI v3.11	2024
WASTE DISPOSAL			
Landfill	treatment of municipal solid waste, sanitary landfill municipal solid waste Cutoff, S/RoW	EI v3.11	2024
	treatment of waste polyethylene, sanitary landfill waste polyethylene Cutoff, S/RoW	EI v3.11	2024
	treatment of waste paperboard, sanitary landfill waste paperboard Cutoff, S/RoW	EI v3.11	2024
Incineration	treatment of waste polyethylene, municipal incineration waste polyethylene Cutoff, S/RoW	EI v3.11	2024
	treatment of waste polypropylene, municipal incineration waste polypropylene Cutoff, S/RoW	EI v3.11	2024
	treatment of waste paperboard, municipal incineration waste paperboard Cutoff, S/RoW	EI v3.11	2024

3.8 DATA QUALITY

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

Table 7. Data quality assessment for the Welspun Wall-to-Wall Carpet 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 all available data, specifically six months of data from April 2024 to March 2025.
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 India. Surrogate data used in the assessment are representative of global operations in most cases. Data representative of European operations are 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 which it was possible to model. 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 v3.11 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 Welspun's manufacturing facility represents an annual average and are considered of moderate 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 v3.11 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 moderate. Actual supplier data for upstream operations was not available for all suppliers and the study relied upon the use of existing representative datasets. These datasets contained relatively recent data (<5 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 period of review is April 2024 to March 2025.

3.10 ALLOCATION

Manufacturing resource use was allocated to the products based on surface area. Impacts from transportation were modeled 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 products to point of sale is included in the model, based on manufacturer-provided data on average transportation. Modeling parameters for product distribution, by transport mode and distance, are summarized in Table 8.

Table 8. Product distribution parameters, per 1 m².

Parameter	Unit	Value
Ground transport		
Fuel type	-	Diesel
Liters of fuel	L/100km	18.7
Vehicle type	-	Diesel truck
Capacity utilization	%	76
Transport Distance	km	60
Gross mass transported ¹	kg	2.45
Rail transport		
Fuel type	-	Diesel
Liters of fuel	L/tkm	9.01
Vehicle type	-	Diesel train
Capacity utilization	%	75
Transport Distance	km	1,225
Gross mass transported ¹	kg	2.45
Ocean transport		
Fuel type	-	Fuel oil
Liters of fuel	g/tkm	2.52
Vehicle type	-	Ocean freighter
Capacity utilization	%	70
Transport Distance	km	17,578
Gross mass transported ¹	kg	2.45

¹ Including packaging

Installation of the product is accomplished using hand tools with no associated emissions and negligible impacts. The impacts associated with packaging disposal are included with the installation phase as per PCR requirements. Assumptions for end-of-life of the packaging materials are based on regional statistics regarding municipal solid waste generation and disposal, including end-of-life recycling rates of packaging materials.

The VOC emissions associated with the installation, use and maintenance of the products are negligible. Modeling parameters for product installation are summarized in Table 9.

Table 9. *Installation parameters for the flooring products, per 1 m².*

Parameter		Value
Ancillary materials		negligible
Net freshwater consumption (m³)		0.00
Electricity consumption (kWh)		0.00
Product loss per functional unit (kg)		0.00
Waste materials generated by product installation (kg)		4.65x10 ⁻²
Output materials resulting from on-site waste processing (kg)		n/a
Mass of packaging waste (kg)	Plastic	7.11x10 ⁻³
	Corrugate/Paper	3.94x10 ⁻²
Biogenic carbon contained in packaging (kg CO ₂)		7.23x10 ⁻²
Direct emissions (kg)		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 scheduled maintenance involves vacuuming. The present assessment is based on a recommended regular cleaning schedule consisting of weekly vacuuming.

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

Parameter	Unit	Value
Maintenance cycle	Cycles / RSL	3,900
Maintenance process	-	Vacuuming
Electricity	kWh/m ² /yr	0.0267
Further assumptions	-	Moderate traffic; weekly maintenance

Repair/Refurbishment stage (B3; B5)

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

Replacement stage (B4)

The materials and energy required for replacement of the product over the 75-year estimated service lifetime of the assessment are included in this stage. Modeling parameters for the product replacement stage are summarized in Table 11.

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

Parameter	Units	Value
Reference service life	Years	7
Replacement cycle	-	9.7
Energy input	kWh	-
Freshwater consumption	m ³	-
Ancillary materials	kg	Negligible
Replacement parts	kg	21.9
Direct emissions	kg	-

Building operation stage (B6 – B7)

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

Disposal stage (C1 - C4)

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

At end-of-life, the product is assumed to be disposed in a landfill. Transportation of waste materials at end-of-life (C2) assumes a 161 km (~100 miles) average distance to disposal. 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 12.

Table 12. *End-of-life disposal scenario parameters for the Welspun Wall-to-Wall Carpet per 1m².*

Parameter		Value
Assumptions for scenario development		100% landfill
Collection process	Collected with mixed construction waste (kg)	2.40
Recovery	n/a	0.0
Disposal	Landfill (kg)	2.40
Removals of biogenic carbon ¹ (kg CO ₂ eq)		0.0

¹ excluding packaging

5. LCA: Results

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

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

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 (FFD)	MJ Surplus, LHV
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ, LHV	-	-

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

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

Resources	Unit	Waste and Outflows	Unit
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	kg	CRU: Components for re-use	kg
RSF: Renewable secondary fuels	MJ, LHV	MR: Materials for recycling	kg
NRSF: Non-renewable secondary fuels	MJ, LHV	MER: Materials for energy recovery	kg
RE: Recovered energy	MJ, LHV	EE: Recovered energy exported from the product system	MJ, LHV
FW: Use of net freshwater resources	m ³	-	-

Modules B1, B3, B5, B6 and B7 are not associated with any impact and are therefore declared as zero. In addition, modules C1 and C3 are 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 13. Life Cycle Impact Assessment results for the Welspun products per 1 m² over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits. **(Wall to Wall Carpet)**

Parameter	Unit	A1	A2	A3	A4	A5	B2	B4	C2	C4
TRACI										
Global warming potential	kg CO ₂ eq	8.38	0.384	5.63	0.636	1.49x10 ⁻²	5.97	157	7.26x10 ⁻²	1.08
	%	4.7%	0.21%	3.1%	0.35%	0.0083%	3.3%	88%	0.04%	0.6%
Acidification potential	kg SO ₂ eq	3.39x10 ⁻²	3.59x10 ⁻³	2.37x10 ⁻²	1.25x10 ⁻²	3.13x10 ⁻⁶	2.71x10 ⁻²	0.720	2.67x10 ⁻⁴	2.98x10 ⁻⁴
	%	4.1%	0.44%	2.9%	1.5%	0.00038%	3.3%	88%	0.033%	0.036%
Eutrophication potential	kg N eq	3.75x10 ⁻²	5.58x10 ⁻⁴	5.01x10 ⁻²	9.11x10 ⁻⁴	4.43x10 ⁻⁴	3.09x10 ⁻²	1.49	7.15x10 ⁻⁵	6.36x10 ⁻²
	%	2.2%	0.033%	3%	0.055%	0.027%	1.9%	89%	0.0043%	3.8%
Smog formation potential	kg O ₃ eq	0.466	7.62x10 ⁻²	0.365	0.256	6.36x10 ⁻⁵	0.356	11.4	7.55x10 ⁻³	5.66x10 ⁻³
	%	3.6%	0.59%	2.8%	2%	0.00049%	2.8%	88%	0.058%	0.044%
Ozone depletion potential	kg CFC-11 eq	1.39x10 ⁻⁵	5.59x10 ⁻⁹	1.62x10 ⁻⁸	9.06x10 ⁻⁹	5.74x10 ⁻¹²	4.58x10 ⁻⁸	1.35x10 ⁻⁴	1.69x10 ⁻⁹	7.26x10 ⁻¹⁰
	%	9.3%	0.0038%	0.011%	0.0061%	0.0000039%	0.031%	91%	0.0011%	0.00049%
Fossil fuel depletion potential	MJ surplus	21.5	0.715	1.73	1.11	5.61x10 ⁻⁴	4.54	246	0.147	8.68x10 ⁻²
	%	7.8%	0.26%	0.63%	0.4%	0.0002%	1.6%	89%	0.053%	0.031%
CML										
Global warming potential	kg CO ₂ eq	8.38	0.384	5.63	0.636	1.50x10 ⁻²	5.97	157	7.26x10 ⁻²	1.09
	%	4.7%	0.21%	3.1%	0.35%	0.0084%	3.3%	88%	0.04%	0.61%
Acidification potential	kg SO ₂ eq	3.26x10 ⁻²	3.26x10 ⁻³	2.21x10 ⁻²	1.15x10 ⁻²	2.23x10 ⁻⁶	2.64x10 ⁻²	0.679	2.21x10 ⁻⁴	2.24x10 ⁻⁴
	%	4.2%	0.42%	2.9%	1.5%	0.00029%	3.4%	88%	0.029%	0.029%
Eutrophication potential	kg (PO ₄) ³⁻ eq	5.69x10 ⁻²	6.32x10 ⁻⁴	2.60x10 ⁻²	1.58x10 ⁻³	1.61x10 ⁻⁴	1.47x10 ⁻²	1.06	7.57x10 ⁻⁵	2.44x10 ⁻²
	%	4.8%	0.053%	2.2%	0.13%	0.014%	1.2%	90%	0.0064%	2.1%
Formation potential of tropospheric ozone	kg C ₂ H ₄ eq	2.27x10 ⁻³	1.91x10 ⁻⁴	1.50x10 ⁻³	6.06x10 ⁻⁴	2.49x10 ⁻⁶	1.40x10 ⁻³	4.68x10 ⁻²	1.91x10 ⁻⁵	2.38x10 ⁻⁴
	%	4.3%	0.36%	2.8%	1.1%	0.0047%	2.6%	88%	0.036%	0.45%
Depletion potential of the stratospheric ozone layer	kg CFC-11 eq	1.03x10 ⁻⁵	4.25x10 ⁻⁹	1.33x10 ⁻⁸	6.87x10 ⁻⁹	4.47x10 ⁻¹²	3.68x10 ⁻⁸	1.00x10 ⁻⁴	1.28x10 ⁻⁹	5.52x10 ⁻¹⁰
	%	9.3%	0.0038%	0.012%	0.0062%	0.000004%	0.033%	91%	0.0012%	0.0005%
Abiotic depletion potential for fossil resources	MJ	161	5.15	60.0	7.82	3.96x10 ⁻³	66.9	2,290	1.02	0.622
	%	6.2%	0.2%	2.3%	0.3%	0.00015%	2.6%	88%	0.039%	0.024%
Abiotic depletion potential for non-fossil resources	kg Sb eq	4.95x10 ⁻⁵	1.05x10 ⁻⁶	4.19x10 ⁻⁶	9.35x10 ⁻⁷	5.33x10 ⁻¹⁰	3.64x10 ⁻⁵	5.43x10 ⁻⁴	2.48x10 ⁻⁷	5.63x10 ⁻⁸
	%	7.8%	0.16%	0.66%	0.15%	0.000084%	5.7%	85%	0.039%	0.0089%

Table 14. Resource use for the Welspun products per 1 m² over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits. **(Wall to Wall Carpet)**

Parameter	Unit	A1	A2	A3	A4	A5	B2	B4	C2	C4
Resources										
Use of renewable primary energy resources used as energy carrier	MJ	5.08	6.47x10 ⁻²	9.86	0.111	3.28x10 ⁻⁴	12.7	147	1.70x10 ⁻²	1.39x10 ⁻²
	%	2.9%	0.037%	5.6%	0.064%	0.00019%	7.3%	84%	0.0097%	0.008%
Use of renewable primary energy resources used as raw materials	MJ	0.00	0.00	0.670	0.00	0.00	0.00	6.50	0.00	0.00
	%	0%	0%	9.3%	0%	0%	0%	91%	0%	0%
Total use of renewable primary energy resources	MJ	5.08	6.47x10 ⁻²	10.5	0.111	3.28x10 ⁻⁴	12.7	153	1.70x10 ⁻²	1.39x10 ⁻²
	%	2.8%	0.036%	5.8%	0.061%	0.00018%	7%	84%	0.0093%	0.0076%
Use of nonrenewable primary energy resources used as energy carrier	MJ	148	5.17	64.1	7.86	4.22x10 ⁻³	79.3	2,200	1.03	0.631
	%	5.9%	0.21%	2.6%	0.31%	0.00017%	3.2%	88%	0.041%	0.025%
Use of nonrenewable primary energy resources used as raw materials	MJ	19.3	0.00	0.00	0.00	0.00	0.00	190	0.00	0.00
	%	9.2%	0%	0%	0%	0%	0%	91%	0%	0%
Total use of nonrenewable primary energy resources	MJ	170	5.21	65.1	7.91	4.27x10 ⁻³	80.4	2,430	1.04	0.636
	%	6.2%	0.19%	2.4%	0.29%	0.00016%	2.9%	88%	0.038%	0.023%
Use of secondary materials	kg	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%
Use of renewable secondary fuels	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%
Use of nonrenewable secondary fuels	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%
Recovered energy	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%
Use of net fresh water	m ³	0.110	6.24x10 ⁻⁴	4.33x10 ⁻²	7.89x10 ⁻⁴	-4.99x10 ⁻⁵	3.74x10 ⁻²	1.41	1.26x10 ⁻⁴	-9.27x10 ⁻³
	%	6.9%	0.039%	2.7%	0.05%	-0.0031%	2.4%	89%	0.0079%	-0.58%

Table 15. Waste and outflows for the Welspun products per 1 m² over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits. **(Wall to Wall Carpet)**

Parameter	Unit	A1	A2	A3	A4	A5	B2	B4	C2	C4
Wastes										
Hazardous waste disposed	kg	0.262	8.00x10 ⁻³	0.242	1.30x10 ⁻²	6.37x10 ⁻⁵	0.310	5.11	1.06x10 ⁻³	9.44x10 ⁻⁴
	%	4.4%	0.13%	4.1%	0.22%	0.0011%	5.2%	86%	0.018%	0.016%
Nonhazardous waste disposed	kg	5.89	4.78x10 ⁻²	1.00	8.60x10 ⁻²	6.15x10 ⁻²	0.623	141	1.13x10 ⁻²	7.45
	%	3.8%	0.031%	0.64%	0.055%	0.039%	0.4%	90%	0.0072%	4.8%
Radioactive waste disposed	kg	7.06x10 ⁻⁵	9.13x10 ⁻⁷	9.89x10 ⁻⁵	1.48x10 ⁻⁶	4.77x10 ⁻⁹	2.06x10 ⁻⁴	1.67x10 ⁻³	3.07x10 ⁻⁷	2.15x10 ⁻⁷
	%	3.4%	0.045%	4.8%	0.072%	0.00023%	10%	82%	0.015%	0.01%
High-level radioactive waste disposed	kg	2.08x10 ⁻⁵	2.69x10 ⁻⁷	5.33x10 ⁻⁵	4.29x10 ⁻⁷	9.79x10 ⁻¹⁰	5.72x10 ⁻⁵	7.27x10 ⁻⁴	7.55x10 ⁻⁸	6.05x10 ⁻⁸
	%	2.4%	0.031%	6.2%	0.05%	0.00011%	6.7%	85%	0.0088%	0.007%
Low-level radioactive waste disposed	kg	4.99x10 ⁻⁵	6.45x10 ⁻⁷	4.56x10 ⁻⁵	1.05x10 ⁻⁶	3.80x10 ⁻⁹	1.48x10 ⁻⁴	9.46x10 ⁻⁴	2.31x10 ⁻⁷	1.54x10 ⁻⁷
	%	4.2%	0.054%	3.8%	0.088%	0.00032%	12%	79%	0.019%	0.013%
Components for re-use	kg	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%
Materials for recycling	kg	0.00	0.00	0.00	0.00	3.06x10 ⁻²	0.00	0.297	0.00	0.00
	%	0%	0%	0%	0%	9.3%	0%	91%	0%	0%
Materials for energy recovery	kg	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%
Exported electrical energy	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%
Exported thermal energy	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%

Table 16. Life Cycle Impact Assessment results for the Welspun products per 1 m² over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits. **(Wall to Wall Carpet) – Manufactured utilizing renewable energy sources.**

Parameter	Unit	A1	A2	A3	A4	A5	B2	B4	C2	C4
TRACI										
Global warming potential	kg CO ₂ eq	8.38	0.384	0.645	0.636	1.49x10 ⁻²	5.97	109	7.26x10 ⁻²	1.08
	%	6.7%	0.3%	0.51%	0.5%	0.012%	4.7%	86%	0.058%	0.86%
Acidification potential	kg SO ₂ eq	3.39x10 ⁻²	3.59x10 ⁻³	4.06x10 ⁻³	1.25x10 ⁻²	3.13x10 ⁻⁶	2.71x10 ⁻²	0.530	2.67x10 ⁻⁴	2.98x10 ⁻⁴
	%	5.5%	0.59%	0.66%	2%	0.00051%	4.4%	87%	0.044%	0.049%
Eutrophication potential	kg N eq	3.75x10 ⁻²	5.58x10 ⁻⁴	6.94x10 ⁻³	9.11x10 ⁻⁴	4.43x10 ⁻⁴	3.09x10 ⁻²	1.07	7.15x10 ⁻⁵	6.36x10 ⁻²
	%	3.1%	0.046%	0.57%	0.075%	0.037%	2.6%	88%	0.0059%	5.3%
Smog formation potential	kg O ₃ eq	0.466	7.62x10 ⁻²	9.78x10 ⁻²	0.256	6.36x10 ⁻⁵	0.356	8.81	7.55x10 ⁻³	5.66x10 ⁻³
	%	4.6%	0.76%	0.97%	2.5%	0.00063%	3.5%	87%	0.075%	0.056%
Ozone depletion potential	kg CFC-11 eq	1.39x10 ⁻⁵	5.59x10 ⁻⁹	2.11x10 ⁻⁸	9.06x10 ⁻⁹	5.74x10 ⁻¹²	4.58x10 ⁻⁸	1.35x10 ⁻⁴	1.69x10 ⁻⁹	7.26x10 ⁻¹⁰
	%	9.3%	0.0038%	0.014%	0.0061%	0.0000039%	0.031%	91%	0.0011%	0.00049%
Fossil fuel depletion potential	MJ surplus	21.5	0.715	0.851	1.11	5.61x10 ⁻⁴	4.54	237	0.147	8.68x10 ⁻²
	%	8.1%	0.27%	0.32%	0.42%	0.00021%	1.7%	89%	0.055%	0.033%
CML										
Global warming potential	kg CO ₂ eq	8.38	0.384	0.646	0.636	1.50x10 ⁻²	5.97	109	7.26x10 ⁻²	1.09
	%	6.6%	0.3%	0.51%	0.5%	0.012%	4.7%	86%	0.058%	0.87%
Acidification potential	kg SO ₂ eq	3.26x10 ⁻²	3.26x10 ⁻³	3.40x10 ⁻³	1.15x10 ⁻²	2.23x10 ⁻⁶	2.64x10 ⁻²	0.497	2.21x10 ⁻⁴	2.24x10 ⁻⁴
	%	5.7%	0.57%	0.59%	2%	0.00039%	4.6%	86%	0.038%	0.039%
Eutrophication potential	kg (PO ₄) ³⁻ eq	5.69x10 ⁻²	6.32x10 ⁻⁴	6.83x10 ⁻³	1.58x10 ⁻³	1.61x10 ⁻⁴	1.47x10 ⁻²	0.879	7.57x10 ⁻⁵	2.44x10 ⁻²
	%	5.8%	0.064%	0.69%	0.16%	0.016%	1.5%	89%	0.0077%	2.5%
Formation potential of tropospheric ozone	kg C ₂ H ₄ eq	2.27x10 ⁻³	1.91x10 ⁻⁴	4.82x10 ⁻⁴	6.06x10 ⁻⁴	2.49x10 ⁻⁶	1.40x10 ⁻³	3.69x10 ⁻²	1.91x10 ⁻⁵	2.38x10 ⁻⁴
	%	5.4%	0.45%	1.1%	1.4%	0.0059%	3.3%	88%	0.045%	0.57%
Depletion potential of the stratospheric ozone layer	kg CFC-11 eq	1.03x10 ⁻⁵	4.25x10 ⁻⁹	1.88x10 ⁻⁸	6.87x10 ⁻⁹	4.47x10 ⁻¹²	3.68x10 ⁻⁸	1.00x10 ⁻⁴	1.28x10 ⁻⁹	5.52x10 ⁻¹⁰
	%	9.3%	0.0038%	0.017%	0.0062%	0.000004%	0.033%	91%	0.0012%	0.0005%
Abiotic depletion potential for fossil resources	MJ	161	5.15	7.32	7.82	3.96x10 ⁻³	66.9	1,780	1.02	0.622
	%	8%	0.25%	0.36%	0.39%	0.0002%	3.3%	88%	0.05%	0.031%
Abiotic depletion potential for non-fossil resources	kg Sb eq	4.95x10 ⁻⁵	1.05x10 ⁻⁶	1.11x10 ⁻⁵	9.35x10 ⁻⁷	5.33x10 ⁻¹⁰	3.64x10 ⁻⁵	6.11x10 ⁻⁴	2.48x10 ⁻⁷	5.63x10 ⁻⁸
	%	7%	0.15%	1.6%	0.13%	0.000075%	5.1%	86%	0.035%	0.0079%

Table 17. Resource use for the Welspun products per 1 m² over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits. **(Wall to Wall Carpet) – Manufactured utilizing renewable energy sources.**

Parameter	Unit	A1	A2	A3	A4	A5	B2	B4	C2	C4
Resources										
Use of renewable primary energy resources used as energy carrier	MJ	5.08	6.47x10 ⁻²	22.6	0.111	3.28x10 ⁻⁴	12.7	270	1.70x10 ⁻²	1.39x10 ⁻²
	%	1.6%	0.021%	7.3%	0.036%	0.00011%	4.1%	87%	0.0055%	0.0045%
Use of renewable primary energy resources used as raw materials	MJ	0.00	0.00	0.670	0.00	0.00	0.00	6.50	0.00	0.00
	%	0%	0%	9.3%	0%	0%	0%	91%	0%	0%
Total use of renewable primary energy resources	MJ	5.08	6.47x10 ⁻²	23.3	0.111	3.28x10 ⁻⁴	12.7	277	1.70x10 ⁻²	1.39x10 ⁻²
	%	1.6%	0.02%	7.3%	0.035%	0.0001%	4%	87%	0.0053%	0.0044%
Use of nonrenewable primary energy resources used as energy carrier	MJ	148	5.17	7.63	7.86	4.22x10 ⁻³	79.3	1,650	1.03	0.631
	%	7.8%	0.27%	0.4%	0.41%	0.00022%	4.2%	87%	0.054%	0.033%
Use of nonrenewable primary energy resources used as raw materials	MJ	19.3	0.00	0.00	0.00	0.00	0.00	190	0.00	0.00
	%	9.2%	0%	0%	0%	0%	0%	91%	0%	0%
Total use of nonrenewable primary energy resources	MJ	170	5.21	7.79	7.91	4.27x10 ⁻³	80.4	1,870	1.04	0.636
	%	7.9%	0.24%	0.36%	0.37%	0.0002%	3.8%	87%	0.049%	0.03%
Use of secondary materials	kg	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%
Use of renewable secondary fuels	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%
Use of nonrenewable secondary fuels	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%
Recovered energy	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%
Use of net fresh water	m ³	0.110	6.24x10 ⁻⁴	1.88x10 ⁻²	7.89x10 ⁻⁴	-4.99x10 ⁻⁵	3.74x10 ⁻²	1.17	1.26x10 ⁻⁴	-9.27x10 ⁻³
	%	8.3%	0.047%	1.4%	0.059%	-0.0038%	2.8%	88%	0.0095%	-0.7%

Table 18. Waste and outflows for the Welspun products per 1 m² over a 75-yr time horizon. Results reported in MJ are calculated using lower heating values. All values are rounded to three significant digits. **(Wall to Wall Carpet) – Manufactured utilizing renewable energy sources.**

Parameter	Unit	A1	A2	A3	A4	A5	B2	B4	C2	C4
Wastes										
Hazardous waste disposed	kg	0.262	8.00x10 ⁻³	3.19x10 ⁻²	1.30x10 ⁻²	6.37x10 ⁻⁵	0.310	3.07	1.06x10 ⁻³	9.44x10 ⁻⁴
	%	7.1%	0.22%	0.86%	0.35%	0.0017%	8.4%	83%	0.029%	0.026%
Nonhazardous waste disposed	kg	5.89	4.78x10 ⁻²	0.913	8.60x10 ⁻²	6.15x10 ⁻²	0.623	140	1.13x10 ⁻²	7.45
	%	3.8%	0.031%	0.59%	0.055%	0.04%	0.4%	90%	0.0073%	4.8%
Radioactive waste disposed	kg	7.06x10 ⁻⁵	9.13x10 ⁻⁷	7.08x10 ⁻⁶	1.48x10 ⁻⁶	4.77x10 ⁻⁹	2.06x10 ⁻⁴	7.82x10 ⁻⁴	3.07x10 ⁻⁷	2.15x10 ⁻⁷
	%	6.6%	0.086%	0.66%	0.14%	0.00045%	19%	73%	0.029%	0.02%
High-level radioactive waste disposed	kg	2.08x10 ⁻⁵	2.69x10 ⁻⁷	2.03x10 ⁻⁶	4.29x10 ⁻⁷	9.79x10 ⁻¹⁰	5.72x10 ⁻⁵	2.29x10 ⁻⁴	7.55x10 ⁻⁸	6.05x10 ⁻⁸
	%	6.7%	0.087%	0.65%	0.14%	0.00032%	18%	74%	0.024%	0.02%
Low-level radioactive waste disposed	kg	4.99x10 ⁻⁵	6.45x10 ⁻⁷	5.05x10 ⁻⁶	1.05x10 ⁻⁶	3.80x10 ⁻⁹	1.48x10 ⁻⁴	5.53x10 ⁻⁴	2.31x10 ⁻⁷	1.54x10 ⁻⁷
	%	6.6%	0.085%	0.67%	0.14%	0.0005%	20%	73%	0.03%	0.02%
Components for re-use	kg	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%
Materials for recycling	kg	0.00	0.00	0.00	0.00	3.06x10 ⁻²	0.00	0.297	0.00	0.00
	%	0%	0%	0%	0%	9.3%	0%	91%	0%	0%
Materials for energy recovery	kg	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%
Exported electrical energy	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%
Exported thermal energy	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%

6. LCA: Interpretation

The contributions to total impact indicator results are dominated by the product replacement phase (B4) of the assessment. Of the remaining life cycle phases, the raw material extraction and processing phase (A1) is generally the largest contributor followed by the manufacturing (A3) phase, the product maintenance (B2) phase and product distribution (A4). Other life cycle phase contributions are minimal.

7. Additional Environmental Information

For more information on Welspun's certifications and environmental initiatives please view the website at <https://www.welspunindia.com/environment-management.php>

8. References

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