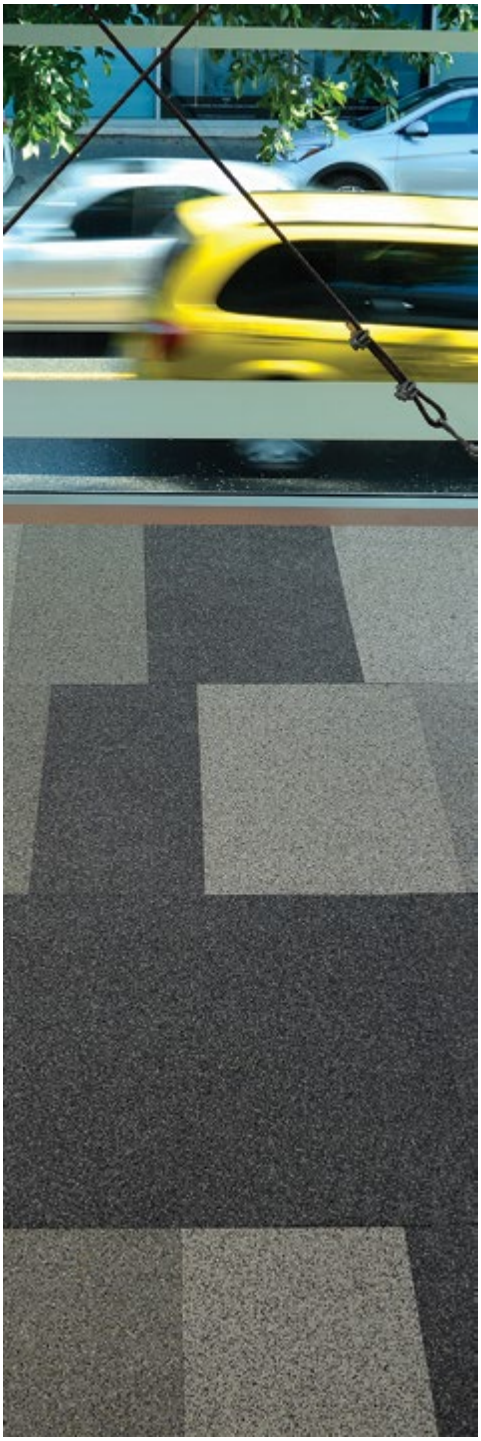

ENVIRONMENTAL PRODUCT DECLARATION

TO MARKET

1208 N. Council Road
Oklahoma City, OK 73127

PRODUCTS:

Atmosphere and Strata Performance

To Market has been designing and selling environmentally friendly commercial flooring since 1998 that utilizes recycled and sustainable content. To Market partners and licenses with manufacturers to produce its flooring textures for a variety of commercial end-use applications. Sustainable design and products that can be recycled are key elements of To Market's responsible approach to what it design and sells, founded on its principal of bringing "Alternative Materials for Interior Spaces" to the commercial marketplace.

FUNCTIONAL UNIT

1 m^2 of floor covering provided and maintained for a period of 60 years.

EPD NUMBER AND PERIOD OF VALIDITY

SCS-EPD-03785 Valid: December 8th, 2015 - December 7th, 2020

PRODUCT CATEGORY RULE

Product Category Rule (PCR) for preparing an Environmental Product Declaration (EPD) for Flooring: Carpet, Resilient, Laminate, Ceramic, Wood, Version 2. NSF International. 2014.

PROGRAM OPERATOR:

2000 Powell Street, Ste. 600, Emeryville, CA 94608
+1.510.452.8000 | www.SCSglobalServices.com

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Disclaimers: *This EPD conforms to ISO 14025, 14040, ISO 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.*

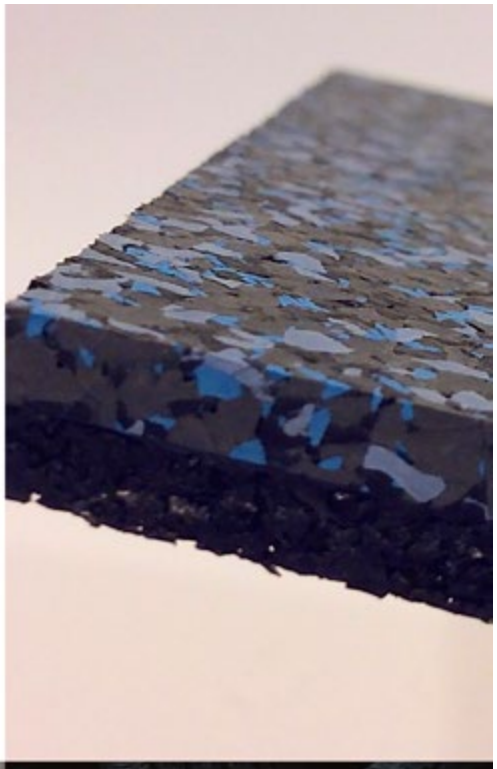
Comparability: *The PCR this EPD was based on was not written to support comparative assertions. EPDs based on different PCRs, or different calculation models, may not be comparable. When attempting to compare EPDs or life cycle impacts of products from different companies, the user should be aware of 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.*

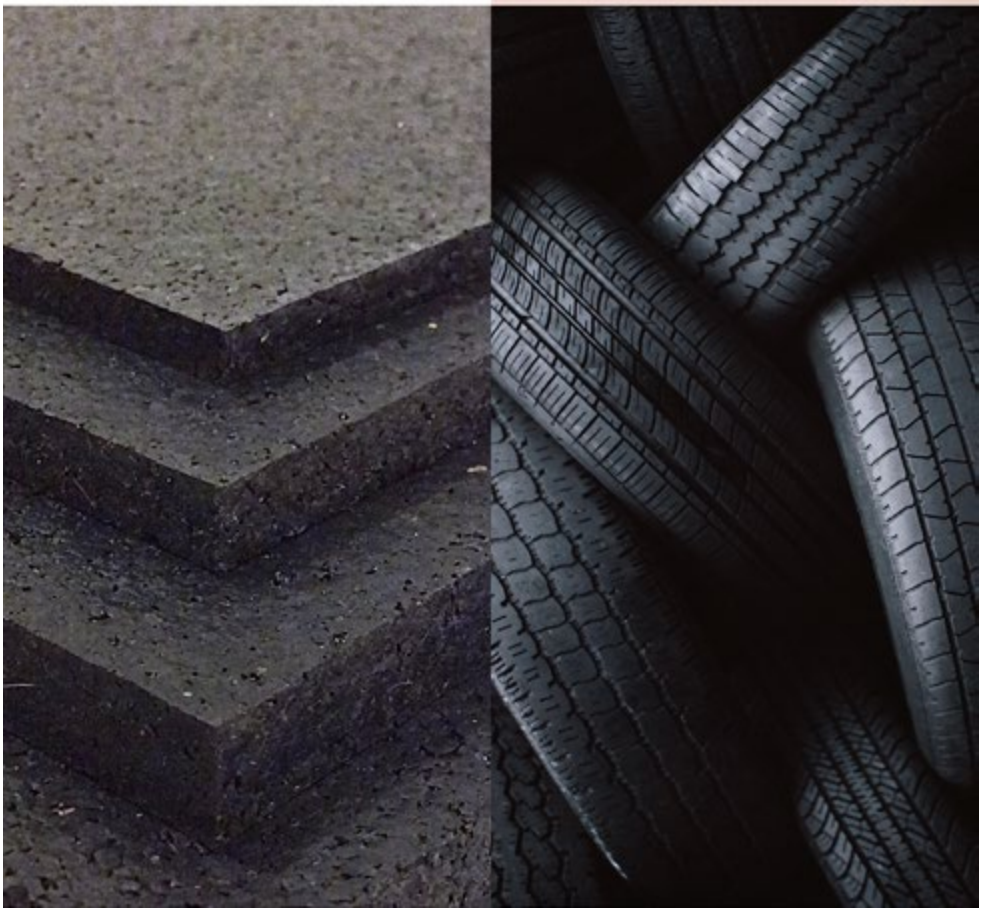
PCR review, was conducted by	Jack Geibig, Ecoform, jgeibig@ecoform.com
Valid: December 8th, 2015 - December 7th, 2020	
Independent verification of the declaration and data, according to ISO 14025:2006 and ISO 21930:2007.	☐ internal ☑ external
Third party verifier	Thomas Gloria, Industrial Ecology Consultants

PRODUCT DESCRIPTION:

Atmosphere is a non-laminated resilient flooring manufactured from post-consumer recycled tire and EPDM colored granules that are homogenously mixed throughout.

Strata Performance is optimal in providing a more professional appearance, with a specialized lamination process that provides a multitude of colors. It is slip resistant, strain resistant, sound reducing, composed of high recycled content, and has high traction.





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PRODUCT APPLICATIONS:

Table 1. *Typical applications for To Market rubber mats.*

Product	Applications
Atmosphere	Retail outlets, staff lounges, call centers, offices, schools, museums, libraries
Strata Performance	Projects with access flooring systems (8mm interlocking), retail applications (where thicker product is required because of rolling traffic), commercial fitness facilities, residential fitness, corporate/hospitality (ideal for fitness areas and staff break rooms), LEED projects

MATERIAL CONTENT:

Table 2. *Origin and availability of To Market rubber mats.*

Component	Materials	Availability			Origin of Raw Materials
		Renewable	Non-Renewable	Recycled	
Layer	Rubber, SBR		Fossil, Limited	Fossil, Limited	Global
Layer	Rubber, EPDM		Fossil, Limited	Fossil, Limited	Global
Adhesive	Polymer Binder		Fossil, Limited		Global
Adhesive	Hot Melt Adhesive		Fossil, Limited		Global
Catalyst	Chemicals, Organic		Fossil, Limited		Canada
Additive	Water	Region Dependent			Canada

Table 3. *Material content of To Market rubber mats.*

Component	Materials	Availability	
		Renewable	Non-Renewable
Layer	Rubber, SBR	88%	42-65%
Layer	Rubber, EPDM	0%	22-45%
Adhesive	Polymer Binder	12%	10-11%
Adhesive	Hot Melt Adhesive	0%	1.2-1.9%
Catalyst	Chemicals, Organic	0.17%	0.14-0.15%
Additive	Water	0.56%	0.48-0.52%

The following regulated hazardous chemicals may be present based on a review of Material Safety Data Sheets for the product component materials:

- 4,4'-Diphenylmethane Diisocyanate (CAS #101-68-8)

PRODUCTION OF MAIN MATERIALS:

Catalyst: A substance derived from petroleum feedstock that increases the rate of a chemical reaction without itself undergoing any permanent chemical change.

Polymer Binder: Derived from petroleum feedstock that is used to adhere particles such as rubber crumb and other solids together to form a final composite structure.

Rubber, EPDM: A synthetic elastomer produced as a copolymer of ethylene and propylene, with small amounts of a cross-linking agent.

Rubber, Re-grind: Re-grind is made from post-consumer recycled rubber ground to specification.

Rubber, SBR: A resilient material derived from two petroleum-based monomers, styrene and butadiene, forming styrene-butadiene.

Water: The most widely used of all solvents. It is a natural resource that may be delivered from a public or private supplier, or be self-supplied.

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PRODUCT CHARACTERISTICS:

Table 4. *Product characteristics for Atmosphere.*

Characteristics			Average Value	Unit	Minimum Value	Maximum Value
Square Mat – 10.0 ft²						
Product Thickness			8.00 (0.310)	mm (inch)	4.00 (0.160)	12.0 (0.470)
Product Weight			13,633 (44.7)	g/m² (oz/ft²)	5,136 (16.8)	23,624 (77.4)
Product Form:	Mats	Dimension:	965 (38.0)	mm (inch)	965 (38.0)	965 (38.0)
VOC Emissions Test Method			California 01350			
Abrasion Class			ASTM C501 – Taber Abrasion			
Sustainable Certifications			Floorscore® certification			
Interlocking Mat – 9.51 ft²						
Product Thickness			8.00 (0.310)	mm (inch)	4.00 (0.160)	12.0 (0.470)
Product Weight			14,380 (47.1)	g/m² (oz/ft²)	5,136 (16.8)	23,624 (77.4)
Product Form:	Mats	Dimension:	940 (37.0)	mm (inch)	940 (37.0)	940 (37.0)
VOC Emissions Test Method			California 01350			
Abrasion Class			ASTM C501 – Taber Abrasion			
Sustainable Certifications			Floorscore® certification			

Table 5. *Product characteristics for Strata Performance.*

Characteristics			Average Value	Unit	Minimum Value	Maximum Value
Square Mat – 10.0 ft²						
Product Thickness			9.00 (0.350)	mm (inch)	8.00 (0.310)	10.0 (0.390)
Wear Layer Thickness			4.00 (0.160)	mm (inch)	NA	NA
Product Weight			12,902 (42.3)	g/m² (oz/ft²)	11,441 (37.5)	14,363 (47.1)
Product Form:	Mats	Dimension:	965 (38.0)	mm (inch)	965 (38.0)	965 (38.0)
VOC Emissions Test Method			California 01350			
Abrasion Class			ASTM C501 - Taber Abrasion			
Sustainable Certifications			Floorscore® certification			
Interlocking Mat – 9.51 ft²						
Product Thickness			9.00 (0.350)	mm (inch)	8.00 (0.310)	10.0 (0.390)
Wear Layer Thickness			4.00 (0.160)	mm (inch)	N/A	N/A
Product Weight			13,609 (44.6)	g/m² (oz/ft²)	12,068 (39.6)	15,150 (49.7)
Product Form:	Mats	Dimension:	940 (37.0)	mm (inch)	940 (37.0)	940 (37.0)
VOC Emissions Test Method			California 01350			
Abrasion Class			ASTM C501 - Taber Abrasion			
Sustainable Certifications			Floorscore® certification			

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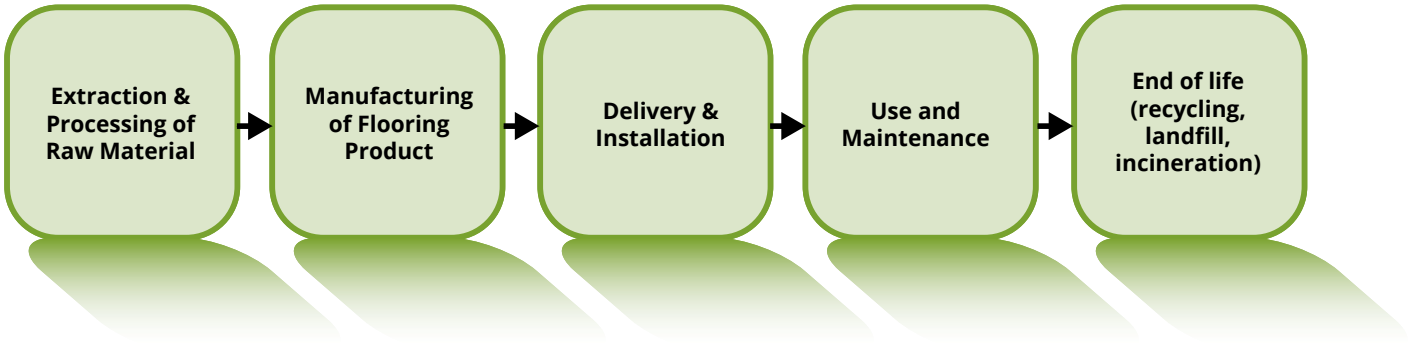
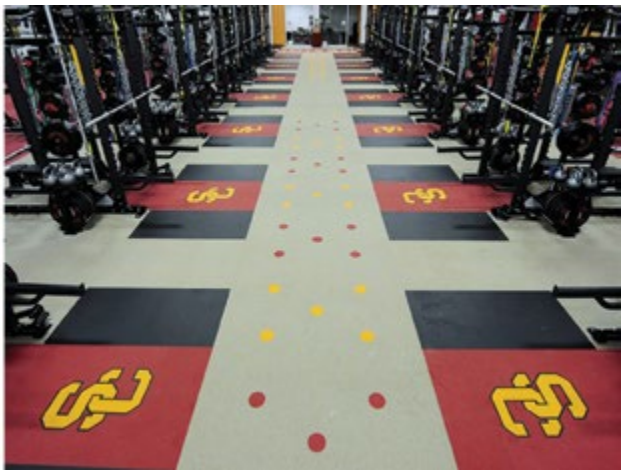
LIFE CYCLE ASSESSMENT:

A cradle to grave life cycle assessment (LCA) was completed for this product group in accordance with ISO 14040, ISO 14044, and Product Category Rule for Environmental Product Declarations Flooring: Carpet, Resilient, Laminate, Ceramic, Wood (Version 2).



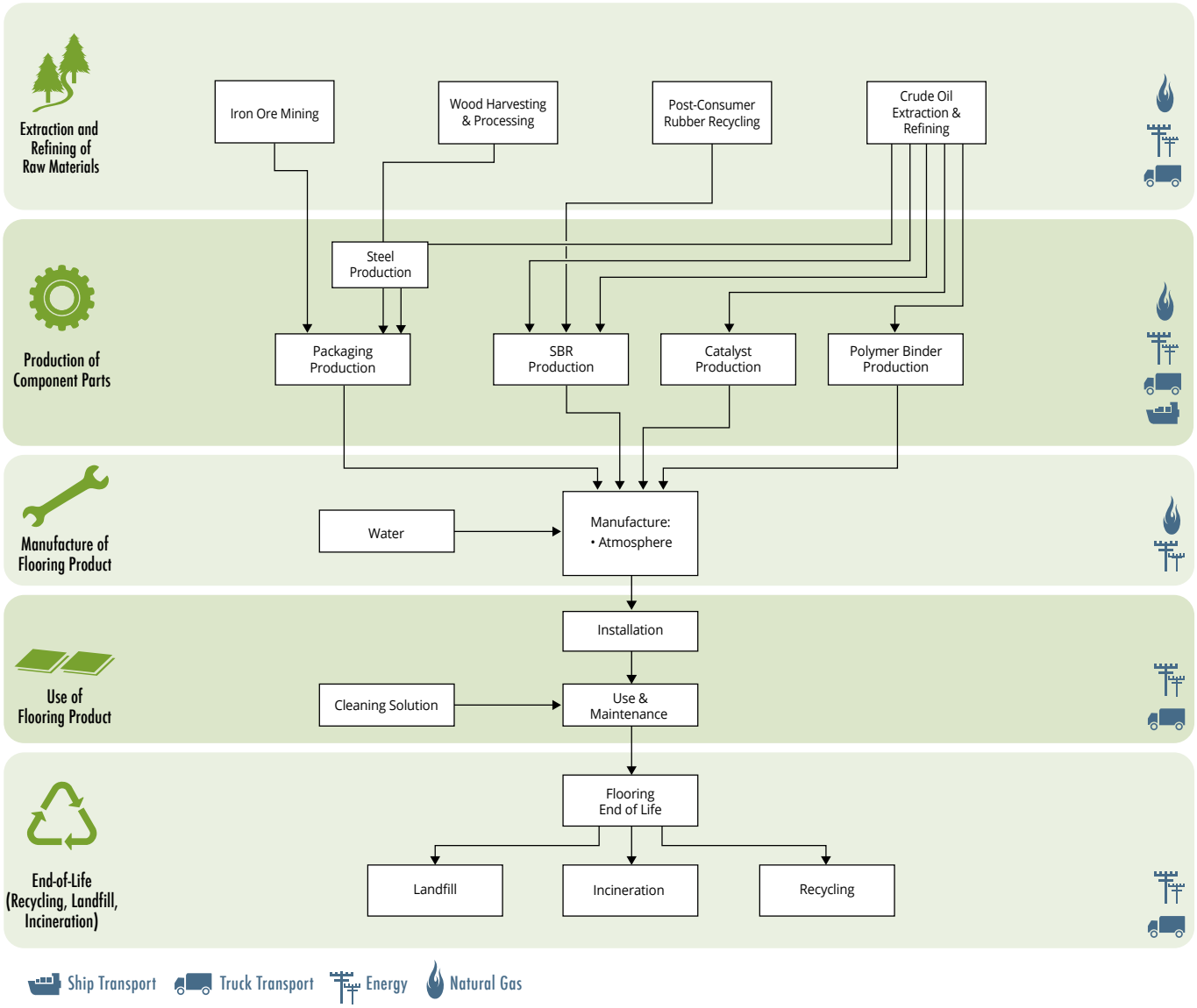
FUNCTIONAL UNIT:

The functional unit is, according to the PCR, the total impact for the expected life of the building (60 years). But the service life is dependent on the product, which is 10 or 25 years in this case. The PCR consequently requires separate reporting of LCA results for A) 1 m^2 of floor covering - extraction/processing, manufacturing, delivery & installation, and end of life, and B) the average 1-year use stage, and C) the 60 year life of the building as combined using A) and B), calculated from the reference service life (RSL) of the product.

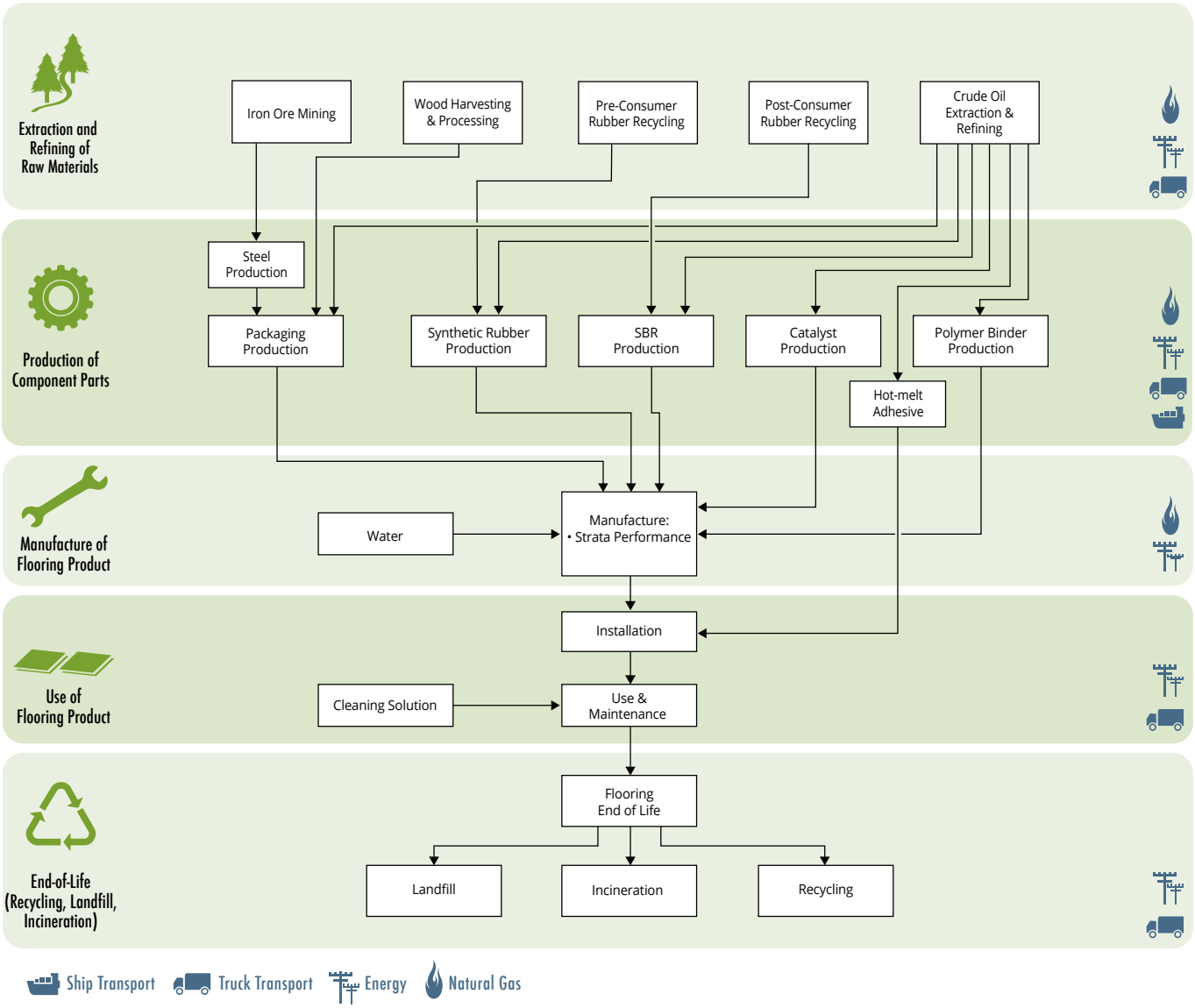


PRODUCT LIFE CYCLE FLOW DIAGRAMS:

Product Life Cycle Flow Diagram for Atmosphere:



Product Life Cycle Flow Diagram for Strata Performance:



LIFE CYCLE ASSESSMENT STAGES AND REPORTED EPD INFORMATION:

Sourcing/extraction (raw material acquisition) stage:

This stage includes extraction of virgin materials and reclamation of non-virgin feedstock. Resource use and emissions associated with both extraction of the raw materials and product component manufacturing are included. Upstream transportation is also included.

Manufacturing stage:

This stage includes all the relevant manufacturing processes and flows, excluding production of capital goods, infrastructure, production of manufacturing equipment, and personnel-related activities are not included. This stage includes the impacts from energy use and emissions associated with the processes occurring at the Salmon Arm, British Columbia, Canada facility. Energy use at the production facility is excluded unless used directly for the manufacturing process.

Delivery and installation stage:

Delivery

This stage includes the delivery of the rubber mats to the point of installation (downstream transportation). Modeling in the life cycle assessment used a conservative estimate for product distribution and assumed transport of 4,802 kilometers by diesel-fueled truck and 1,079 kilometers by ship.

Installation

To Market rubber mats and tiles may be installed with or without adhesive (for interlocking tiles). For the LCA modeling, it is assumed that an adhesive is used for installation. The manufacturer recommends use of Chemrex Urethane 941, a one component polyurethane adhesive that is VOC compliant. The recommended application rate is approximately 0.86 kg/m^2. Product specific installation information is available at: http://www.dinoflex.com/resources

Waste

Waste generated during product installation can be disposed of in a landfill or incinerated.

Table 6. *Packaging material table for To Market rubber mats.*

Material	Units	Atmosphere	Strata Performance
Pallet	Mats/pallet	100-200	80-110
Plastic Cozy Wrap	kg/m^2 flooring	0.0026-0.0052	0.0048-0.0065
Metal Banding	kg/m^2 flooring	0.0049-0.0098	0.0089-0.012
Saran Wrap	kg/m^2 flooring	0.0073-0.015	0.013-0.018
Dunnage (Pine Boards)	kg/m^2 flooring	0.010-0.020	0.018-0.025
Pallet	kg/m^2 flooring	0.16-0.32	0.29-0.40

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Use stage

Cleaning and maintenance

Table 7. *Cleaning and maintenance for To Market rubber mats.*

Cleaning Process	Frequency	Material and Resource Use
Vacuuming	Initial and weekly	Electricity – 1000W; 1 min/m^2
Damp Mopping	Initial and weekly	Mild pH detergent and water – 300:1 dilution

End-of-Life stage:

Recycling, reuse, or repurpose

Data for estimation of recycling rates for the product and packaging were taken from data prepared by the US Environmental Protection Agency's Municipal Solid Waste Report. These data provide recycling rates separately for containers and packaging, as well as for other goods and products.

Disposal

For materials not recycled at end of life, it is assumed 20% are incinerated, and 80% go to landfill, based on US Environmental Protection Agency's Municipal Solid Waste Report. Transportation of waste materials at end of life assumes a 20 mile average distance to disposal, consistent with assumptions used in the US EPA WARM model.

LIFE CYCLE INVENTORY:

In accordance with ISO 21930, the following aggregated inventory flows are included in the EPD:

- Use of renewable material resources
- Consumption of freshwater
- Hazardous Wastes
- Non-hazardous Wastes

All results are calculated using the SimaPro 8.0 model using primary and secondary inventory data. Classification for Use of Renewable Material Resources is based on review of elementary flows and resources considered renewable on a human time scale. Elementary flows related to use of wood, minerals, and land occupation were not included. Water consumption is not included, as it is reported separately. Based on this classification process, the use of renewable material resources for the product system is considered to be negligible.

Table 8. *Results for aggregated inventory flows, shown per 1 m^2 of flooring maintained for 60 years.*

Parameter	Unit	Atmosphere	Strata Performance
Consumption of Freshwater	kg	17,000	22,000
Hazardous Waste	kg	$6.8x10^{-3}$	$1.2x10^{-2}$
Non-hazardous Waste	kg	26	70

LIFE CYCLE IMPACT ASSESSMENT:

Life cycle impact assessment is the process of converting the life cycle inventory results into a representation of environmental and human health impacts. For example, emissions of carbon dioxide, methane, and nitrous oxide (inventory) together contribute to climate change (impact assessment). The impact assessment for the EPD is conducted in accordance with requirements of the Product Category Rule (PCR). Impact category indicators were estimated using the CML 2001 (Oct 2013, v. 3.0) characterization method. Aggregated inventory flows were also calculated including energy use and waste generation. The LCIA and inventory flow results were calculated using SimaPro 8.0.2 software.

To Market flooring are available in a range of thicknesses and color options. For each product line, at least two versions of the product, representing an upper and lower extreme for the product line, were included in the LCA model. Table 11 shows the range in life cycle impact assessment results for the product line. Table 12 and Table 13 show results for 1 m^2 of flooring, including extraction of raw materials through installation and end of life. Table 14 shows the average use stage impacts for 1 m^2 of flooring over 1 year. Table 15 lists the assumptions used for product maintenance over the Reference Service Life (RSL). Table 16 and Table 17 show the life cycle impact assessment results for 1 m^2 of flooring over a 60 year period.

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Table 9. *Range in life cycle impact assessment results for 1 m² of flooring covering maintained for 60 years.*

Impact Category	Units	Range	Atmosphere	Strata Performance
Global warming, 100 year time horizon	kg CO_2 eq	Min	120	300
		Max	180	370
Acidification Potential	kg SO_2 eq	Min	1.3	1.9
		Max	1.5	2.1
Ozone depletion potential	kg CFC-11 eq	Min	$2.5x10^{-6}$	$2.3x10^{-5}$
		Max	$1.3x10^{-5}$	$2.7x10^{-5}$
Photochemical oxidation	kg C_2H_4 eq	Min	$7.1x10^{-2}$	0.11
		Max	$8.5x10^{-2}$	0.12
Eutrophication Potential	kg PO_4^{3-} eq	Min	0.15	0.41
		Max	0.24	0.52
Abiotic depletion, elements	kg Sb eq	Min	$1.3x10^{-4}$	$1.7x10^{-3}$
		Max	$1.1x10^{-3}$	$2.2x10^{-3}$
Abiotic depletion, fossil fuels	MJ	Min	2,500	5,800
		Max	3,900	6,500

Table 10. *Cradle to Install and End of life for an average 1 m² Atmosphere. (Table A of the PCR)*

Impact Category	Units	Sourcing & Extraction	Manufacturing	Delivery & Installation	End of Life	Total
Global warming, 100 year time horizon	kg CO_2 eq	17	4.3	4.8	14	41
Acidification Potential	kg SO_2 eq	$7.5x10^{-2}$	$1.5x10^{-2}$	$2.2x10^{-2}$	$2.7x10^{-3}$	0.12
Ozone depletion potential	kg CFC-11 eq	$1.7x10^{-6}$	$4.4x10^{-7}$	$2.4x10^{-8}$	$5.6x10^{-8}$	$2.3x10^{-6}$
Photochemical oxidation	kg C_2H_4 eq	$4.2x10^{-3}$	$8.0x10^{-4}$	$9.9x10^{-4}$	$1.7x10^{-3}$	$7.6x10^{-3}$
Eutrophication Potential	kg PO_4^{3-} eq	$2.2x10^{-2}$	$4.8x10^{-3}$	$4.5x10^{-3}$	$3.3x10^{-2}$	$6.4x10^{-2}$
Abiotic depletion, elements	kg Sb eq	$1.2x10^{-4}$	$1.3x10^{-6}$	$2.0x10^{-8}$	$6.8x10^{-7}$	$1.2x10^{-4}$
Abiotic depletion, fossil fuels	MJ	350	70	61	6.0	480
Renewable Energy	MJ	9.7	24	4.7x10-2	0.32	34
Non-renewable Energy	MJ	400	83	66	7.7	560

Table 11. *Cradle to Install and End of life for an average 1 m² Strata Performance.*

Impact Category	Units	Sourcing & Extraction	Manufacturing	Delivery & Installation	End of Life	Total
Global warming, 100 year time horizon	kg CO_2 eq	79	15	14	39	150
Acidification Potential	kg SO_2 eq	0.35	$5.1x10^{-2}$	$6.4x10^{-2}$	$7.6x10^{-3}$	0.47
Ozone depletion potential	kg CFC-11 eq	$1.1x10^{-5}$	$1.6x10^{-6}$	$6.8x10^{-8}$	$1.5x10^{-7}$	$1.3x10^{-5}$
Photochemical oxidation	kg C_2H_4 eq	$1.9x10^{-2}$	$2.6x10^{-3}$	$2.8x10^{-3}$	$4.6x10^{-3}$	$2.9x10^{-2}$
Eutrophication Potential	kg PO_4^{3-} eq	0.10	$1.6x10^{-2}$	$1.3x10^{-2}$	$9.0x10^{-2}$	0.22
Abiotic depletion, elements	kg Sb eq	$1.0x10^{-3}$	$4.1x10^{-6}$	$5.6x10^{-8}$	$1.9x10^{-6}$	$1.0x10^{-3}$
Abiotic depletion, fossil fuels	MJ	1,800	240	170	17	2,200
Renewable Energy	MJ	45	72	0.13	0.89	120
Non-renewable Energy	MJ	2,000	290	190	21	2,500

Table 12. *Average 1 year use stage impacts for 1m² flooring. (Table B of the PCR)*

Impact Category	Units	Sourcing & Extraction	
		Atmosphere	Strata Performance
Global warming, 100 year time horizon	kg CO_2 eq	42	42
Acidification Potential	kg SO_2 eq	0.59	0.60
Ozone depletion potential	kg CFC-11 eq	$7.1x10^{-7}$	$7.1x10^{-7}$
Photochemical oxidation	kg C_2H_4 eq	$3.3x10^{-2}$	$3.3x10^{-2}$
Eutrophication Potential	kg PO_4^{3-} eq	$4.8x10^{-2}$	$4.8x10^{-2}$
Abiotic depletion, elements	kg Sb eq	$6.1x10^{-5}$	$6.1x10^{-5}$
Abiotic depletion, fossil fuels	MJ	1,100	1,100
Renewable Energy	MJ	120	120
Non-renewable Energy	MJ	1,200	1,200

Table 13. *List of use and maintenance activities over the Reference Service Life (RSL).*

Maintenance Activity	Frequency over user defined RSL of product	
	Atmosphere	Strata Performance
Initial Cleaning	Once over 25 year RSL	Once over 10 year RSL
Weekly Cleaning	Up to 1,350 times over 25 year RSL	Up to 520 times over 10 year RSL

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Table 14. *Atmosphere: Life cycle stage impacts for an average building life of 60 years. The Reference Service Life is 25 years. (Table C of the PCR)*

Impact Category	Units	Sourcing & Extraction	Manufacturing	Delivery & Installation	Use	End of Life	Total
Global warming, 100 year time horizon	kg CO_2 eq	31	8.7	6.9	20	82	150
Acidification Potential	kg SO_2 eq	0.13	$3.0x10^{-2}$	$3.2x10^{-2}$	$3.8x10^{-3}$	1.2	1.4
Ozone depletion potential	kg CFC-11 eq	$3.9x10^{-6}$	$9.1x10^{-7}$	$3.4x10^{-8}$	$7.8x10^{-8}$	$1.4x10^{-6}$	$6.3x10^{-6}$
Photochemical oxidation	kg C_2H_4 eq	$7.3x10^{-3}$	$1.5x10^{-3}$	$1.4x10^{-3}$	$2.3x10^{-3}$	$6.5x10^{-2}$	$7.8x10^{-2}$
Eutrophication Potential	kg PO_4^{3-} eq	$3.9x10^{-2}$	$9.4x10^{-3}$	$6.5x10^{-3}$	$4.6x10^{-2}$	$9.5x10^{-2}$	0.19
Abiotic depletion, elements	kg Sb eq	$3.4x10^{-4}$	$2.4x10^{-6}$	$2.8x10^{-8}$	$9.4x10^{-7}$	$1.2x10^{-4}$	$4.7x10^{-4}$
Abiotic depletion, fossil fuels	MJ	670	140	86	8.4	2,200	3,100
Renewable Energy	MJ	18	43	$6.6x10^{-2}$	0.45	240	300
Non-renewable Energy	MJ	770	170	94	11	2,400	3,410

Table 15. *Strata Performance: Life cycle stage impacts for an average building life of 60 years. The Reference Service Life is10 years. (Table C of the PCR)*

Impact Category	Units	Sourcing & Extraction	Manufacturing	Delivery & Installation	Use	End of Life	Total
Global warming, 100 year time horizon	kg CO_2 eq	140	26	24	67	82	340
Acidification Potential	kg SO_2 eq	0.61	$8.7x10^{-2}$	0.11	$1.3x10^{-2}$	1.2	2.0
Ozone depletion potential	kg CFC-11 eq	$2.0x10^{-5}$	$2.7x10^{-6}$	$1.2x10^{-7}$	$2.6x10^{-7}$	$1.4x10^{-6}$	$2.4x10^{-5}$
Photochemical oxidation	kg C_2H_4 eq	$3.3x10^{-2}$	$4.4x10^{-3}$	$4.9x10^{-3}$	$7.9x10^{-3}$	$6.5x10^{-2}$	0.12
Eutrophication Potential	kg PO_4^{3-} eq	0.17	$2.7x10^{-2}$	$2.2x10^{-2}$	0.15	$9.5x10^{-2}$	0.47
Abiotic depletion, elements	kg Sb eq	$1.8x10^{-3}$	$6.9x10^{-6}$	$9.6x10^{-8}$	$3.2x10^{-6}$	$1.2x10^{-4}$	$2.0x10^{-3}$
Abiotic depletion, fossil fuels	MJ	3,100	410	300	28	2,200	6,000
Renewable Energy	MJ	79	120	0.23	1.5	240	440
Non-renewable Energy	MJ	3,600	490	330	36	2,400	6,800

SUPPORTING TECHNICAL INFORMATION:

Data sources:

Table 16. *Data sources used for the LCA.*

Material	Data Source	Flow Name	Date
Rubber, SBR	Primary data; Ecoinvent[1]	SBR - Regrind, recycled (/kg); Synthetic rubber, at plant/RER	2014; 2003
Rubber, EPDM	Primary data; Ecoinvent	EPDM – 18% RC (/kg); Synthetic rubber, at plant/RER	2014; 2003
Binder	Ecoinvent	Methylene diphenyl diisocyanate, at plant/RER	2010
Catalyst	Ecoinvent	Chemicals organic, at plant/GLO	2010
Rubber, EPDM, Regrind	Primary data; Ecoinvent	EPDM – 86-100% RC (/kg); Synthetic rubber, at plant/RER	2014; 2003
Pigment	Ecoinvent	Titanium dioxide, production mix, at plant/RER	2003
Water	Ecoinvent	Process water (unspecified origin)	2003
Cleanser	US LCI; Ecoinvent	Liquid laundry detergent/US; tap water, at user /RER	2012; 2005
Packaging			
Plastic Wrap	Ecoinvent	Packaging film, LDPE, at plant/RER	2003
Metal Banding	Ecoinvent	Steel, converter, un-alloyed at plant/RER	2011; 2007
Packaging Film	Ecoinvent	Packaging film, LDPE, at plant/RER	2007
Padding/Support	Ecoinvent	Surface dried lumber, at planer mill, US PNW/kg/US	2003; 2003
Pallet	US LCI	Pallet (22kg)/US - US-EI	2003
Transportation			
Truck	US LCI	Transport, combination truck, diesel powered/US	2008
Ship	US LCI	Transport, transoceanic freight ship/OCE	2008

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Data Quality:

Table 17. *Data Quality of Life Cycle Inventory.*

Data Quality Parameter	Data Quality Discussion
Time-Related Coverage: Age of data and the minimum length of time over which data should be 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 10 years old (typically 2003 or more recent). 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 2013 annual production.
Geographical Coverage: Geographical area from which data for unit processes should be collected to satisfy the goal of the study	The data used in the analysis provide the best possible representation available with current data. Actual processes for upstream operations are primarily North American. Surrogate data used in the assessment are representative of North American or European operations. Data representative of European operations are considered sufficiently similar to actual processes. Data representing product disposal are based on US 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 minimal amount 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 rubber 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. In total, these missing data represent less than 5% of the mass or energy flows.
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 data where available. Different portions of the product life cycle are equally considered; however, it must be noted that final disposition of the product is based on assumptions of current average practices in the United States.
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: Data quality assessment examples include (but not limited to) USLCI and ILCD.	Data representing energy use at the Dinoflex manufacturing facility represent an annual average and are considered of high quality due to the length of time over which these data are collected, as compared to a snapshot that may not accurately reflect fluctuations in production. For secondary LCI datasets, both Ecoinvent and the US LCI data are used, with a bias towards Ecoinvent data.
Uncertainty of the information: E.g. data, models, and assumptions.	Uncertainty related to the rubber flooring product materials and packaging is low. Actual supplier data for upstream operations was sought but not available for all suppliers and the study relied upon 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.

Allocation:

Resource use at the manufacturing facility in Salmon Arm, British Columbia facility (e.g., water and energy) was allocated to the product based on the unit price as a fraction of the total facility sales. Sales price data for each of the products considered in the assessment were provided by the manufacturer along with total annual sales and used to allocate resource use and emissions to each of the assessed products.

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

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

System boundaries:

The life cycle assessment for To Market rubber flooring products was a cradle to grave study. The system boundaries for this study are as follows:

- **Sourcing/extraction stage –** This stage includes extraction of virgin materials and reclamation of non-virgin feedstock. Resource use and emissions associated with both extraction of the raw materials product component manufacturing are included. Upstream transportation is also included.
- **Manufacturing stage –** This stage includes all the relevant manufacturing processes and flows, including packaging. Production of capital goods, infrastructure, production of manufacturing equipment, and personnel-related activities are not included.
- **Delivery and installation stage –** This stage includes the delivery of the product to the point of installation.
- **Use stage –** The use stage includes the cleaning and maintenance of the floor covered during its lifetime, as well as extraction, manufacturing and transport of all sundry material for maintenance and cleaning.
- **End of life stage –** The end of life stage includes the transport of the floor covering to end of life processes including landfill, incineration, and recycling.

Cut-off criteria:

According to the PCR, processes contributing greater than 1% of the total environmental impact indicator for each impact must be included in the inventory. In the present study, except as noted, all known materials and processes were included in the life cycle inventory.

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