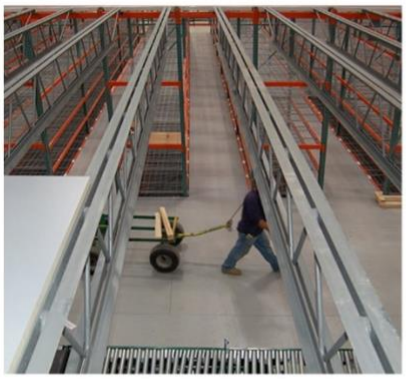
resinDEK®

A Brand of UW Solutions



Environmental Product Declaration

ResinDek® Xspan®

Program operator:	NSF
EPD number:	EPD10963
Publication Date:	July 22, 2024
Valid Until:	July 22, 2029

NSF

Certified Environmental Product Declaration

www.nsf.org

EPD Program and Program Operator Name, Address, Logo, and Website	NSF Certification, LLC 789 North Dixboro Road. Ann Arbor, MI, 48105, United States https://www.nsf.org/
General Program Instructions and Version Number	NSF International National Center for Sustainability Standards, General Program Instructions, 2015
Manufacturer Name and Address	Cornerstone Specialty Wood Products, LLC, dba UW Solutions 264 Eiler Ave. Louisville, KY 40214
Declaration Number	EPD10963
Declared Product and Functional Unit	1 m^2 of installed ResinDek® Xspan® flooring
Reference PCR and Version Number	UL Part A: Life Cycle Assessment Calculation Rules and Report Requirements, Version 3.2 UL Part B: Flooring EPD Requirements. UL 10010-7, Version 2.0
Product's intended Application and Use	Commercial Flooring Applications
Product RSL	60 years
Markets of Applicability	North America
Date of Issue	July 22, 2024
Period of Validity	5 years from date of issue
EPD Type	Product Specific
Range of Dataset Variability	N/A
EPD Scope	Cradle-to-Grave
Year of reported manufacturer primary data	2022
LCA Software and Version Number	SimaPro V9
LCI Database and Version Number	Ecoinvent v3.9.1, USLCI 2014
LCIA Methodology and Version Number	TRACI 2.1, IPCC AR5, CML 2001-Jan 2016
Part A PCR review was conducted by:	Lindita Bushi, PhD, Chair Hugues Imbeault-Tétreault, Eng., M.A.Sc. Jack Geibig
The sub-category PCR review was conducted by:	Jack Geibig (Chair) Thomas Gloria, PhD Thaddeus Owen
This declaration was independently verified in accordance with ISO 21930:2017, UL Part A, and ISO 14025:2006.	Jack Geibig - EcoForm jgeibig@ecoform.com  ☐ Internal ☒ External
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	Jack Geibig - EcoForm jgeibig@ecoform.com 
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability Consulting

Limitations

Environmental declarations from different programs (ISO 14025) may not be comparable.

Comparison of the environmental performance of Flooring Products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.

Full conformance with the PCR for Products allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Product Definition and Information

Company Description

Since 2004, UW Solutions, a leading manufacturer of advanced surface coated products, has operated Cornerstone Specialty Wood Products as a subsidiary. In 2024, Cornerstone's operations were fully integrated under the UW Solutions name. Our signature brand, ResinDek®, which has revolutionized the material handling industry since its invention in 1994, continues as a core offering of UW Solutions. ResinDek® composite engineered flooring panels deliver unmatched performance, durability, and sustainability for various applications in the material handling industry.

Initially focused on durable flooring solutions for elevated platforms, UW Solutions expanded ResinDek's applications into the robotics realm in 2007, providing panels for automated guided vehicles (AGVs). This initial expansion paved the way for extensive research and development, enabling ResinDek to address the evolving needs of AGVs and autonomous mobile robots (AMRs). Today, as a trusted partner for numerous AGV and AMR manufacturers, millions of square feet of ResinDek panels have been deployed in distribution centers, warehouses, and retail environments worldwide, facilitating seamless robotic traffic. UW Solutions' commitment to continuous improvement and adaptability has propelled its ResinDek brand to become the premier mezzanine flooring panel, renowned for its exceptional quality and performance.

Figure 1: Product Construction

Product Description

ResinDek® Xspan® is a structural flooring product that does not require a corrugated deck substructure. It is an engineered structural flooring system for industrial platforms. ResinDek® Xspan® panels have been extensively tested and approved by the IBC Code Officials for use as a structural flooring system in certain applications where a metal corrugated substructure is not required.

Product literature and other resources for installation, maintenance, and technical data can be found on https://www.resindek.com/.

Application

The flooring assemblies are installed in a commercial warehouse and are intended to support storage and movement of products with pallet jacks, AGV, or AMRs.

Properties of Declared Product as Delivered

ResinDek® Xspan® is delivered packaged in dunnage (tempered hardboard) with plastic strapping. Technical Data for ResinDek® Xspan® is shown in Table 1.

Table 1: Technical Data

	Value
Panel Thickness [mm (in)]	28.6 (1-1/8)
Panel Dimensions [mm x mm (ft x ft)]	1,220 x 3,050 (4 x 10)
Panel Weight [g/m^2 (psf)]	25,200 (5.16)
Pallet Jack & Product Load Limits	Pallet jack rolling loads up to 3,000 lbs.
Mobile Robot & Product Load Limits:	AGV/AMR rolling loads up to 2,500 lbs.*
Single Panel Solution (No Corrugated B-Deck) for use with AMRs only	AGV and AMR rolling loads up to 2,500 lbs.
*allowable rolling load is a function of span of steel framing	

Flow Diagram

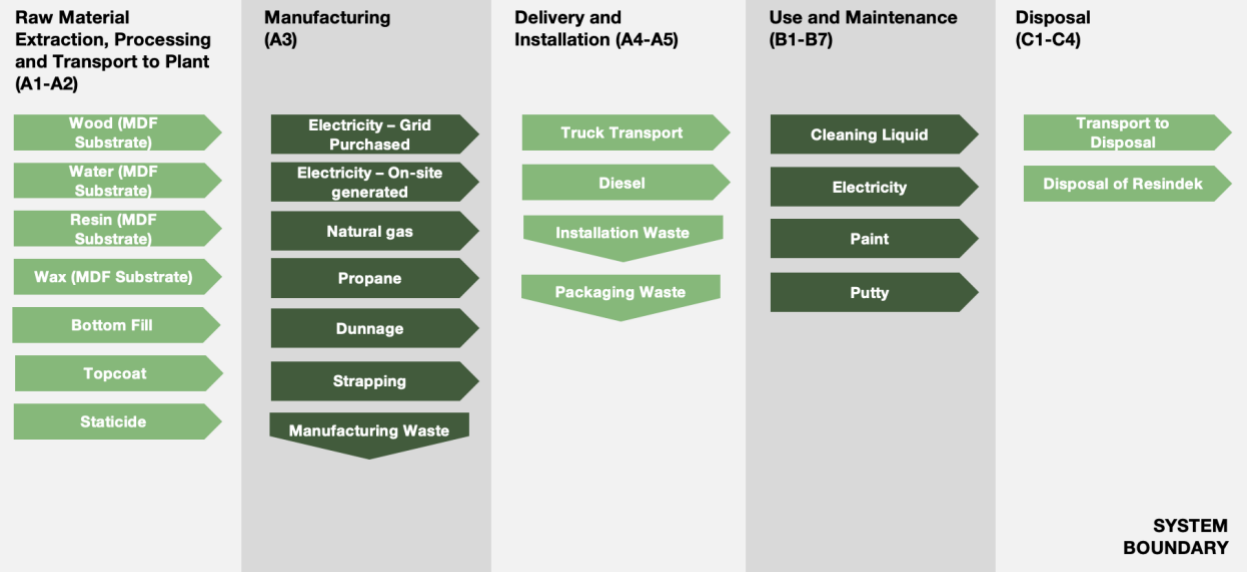


Figure 2: Process Flow Diagram

Manufacturing

ResinDek® Xspan® is manufactured at a facility in Louisville, KY. The manufacturing process uses propane, natural gas, and electricity. Energy resources used in the manufacturing process are accounted for in the model. The electricity is sourced from the power grid, and no onsite electricity generation is used. Electricity production datasets from eGRID are used to assess the generation, distribution, and transmission of electricity. Secondary datasets for other fuels, packaging, and waste were utilized from the ecoinvent database. Manufacturing inputs and outputs per functional unit were calculated by using annual figures and dividing them by annual production. The products are packaged in polypropylene strapping and wood dunnage.

Table 2: Product Composition

Material	Value
High density fiberboard [%]	99.1%
Epoxy Top Coat [%]	0.9%
Total	**100%**

Mandatory Environmental Information

No substances required to be reported as hazardous per the EPA's Resource Conservation and Recovery Act (US EPA, 2023) were identified during the LCA associated with the production of this product.

Transportation

It is assumed that all raw materials are delivered to the supplier manufacturing facility in Louisville, KY, via truck. Distances were calculated using the supplier location and the location of manufacturing.

The product is distributed to customers in North America via truck from the manufacturing facility in Louisville, KY. Distribution distance to customers is based on the PCR Part B: Flooring EPD Requirements UL 10010-7.

Product Installation

The product should be installed according to the manufacturer's instructions.

Installation of the product is considered to be manual and thus no equipment or energy is required to install the product, per the Part B PCR. Ancillary installation materials are included. A 5% installation waste rate has been assumed as a conservative estimate. Packaging and installation waste disposal have been modeled as per guidelines in section 2.8.5 of Part A: Life Cycle Assessment Calculation Rules and Report Requirements from UL Environment.

Use

For safety and aesthetic reasons, ResinDek® Xspan® can undergo floor scrubbing once per month. One floor scrubber can clean 4,645 m^2 of flooring with 15 gallons of cleaning solution that is 1 part detergent to 3 parts water. Energy consumption of the floor scrubber is estimated assuming scrubbers have a power rating of 730 Watts and take 16 minutes to clean every 1,000 ft^2 of flooring. Note that this estimation assumes the entire floor is cleaned as a conservative estimate, though the entire floor may not be accessible due to obstruction by storage shelves or other items in the building. These cleaning assumptions are also applied to the traditional flooring assembly with concrete since floors must be cleaned for the safety of workers.

Reference Service Life and Estimated Building Service Life

Per independently verified testing conducted by Seizmic Inc. and contracted by ResinDek®, the reference service life of ResinDek® Xspan® is assumed to be 60 years given that the product is installed and utilized in accordance with manufacturer guidelines. Therefore, after initial installation in a building with an estimated service life (ESL) of 75 years, 0.3 replacements are required.

Reuse, Recycling and Energy Recovery

Reuse, recycling, and energy recovery are not applicable for this product currently.

Disposal

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

Life Cycle Assessment Background Information

Declaration of Methodological Framework

The LCA follows an attributional approach.

Functional Unit

The functional unit of the flooring product is one (1) m^2 of installed flooring. The mass per product and per functional unit for the products are presented in the table below.

Table 3: Functional Unit Details

Product	Product Weight	Unit
Mass of installed product	25.2	kg
Mass per single installation including product wastage [kg]	26.5	kg
Mass per functional unit	34.4	kg

System Boundary

This EPD is a Cradle-to-Grave study.

Table 4: System Boundary and Modules

Module Name	Description	Analysis Period	Summary of Included Elements
A1	Product Stage: Raw Material Supply	2022	Raw Material sourcing and processing as defined by secondary data.
A2	Product Stage: Transport	2022	Shipping from supplier to manufacturing site. Fuel use requirements estimated based on product weights and estimated distance.
A3	Product Stage: Manufacturing	2022	Energy inputs required for manufacturing products from raw materials. Packaging materials and manufacturing waste are included as well.
A4	Construction Process Stage: Transport	2022	Shipping from manufacturing site to project site. Fuel use requirements estimated based on product weights and mapped distance.
A5	Construction Process Stage: Installation	2022	Installation materials, installation waste and packaging material waste.
B1	Use Stage: Use	2022	Use of the product.
B2	Use Stage: Maintenance	2022	Cleaning energy, water, and materials, including refinishing the product.
B3	Use Stage: Repair	2022	Product typically not repaired during use.
B4	Use Stage: Replacement	2022	Total materials and energy required to manufacture a replacement.
B5	Use Stage: Refurbishment	2022	Product typically not refurbished during use.
B6	Operational Energy Use	2022	Product typically does not required operational energy.
B7	Operational Water Use	2022	Product typically does not required operational water.
C1	EOL: Deconstruction	2022	No inputs required for deconstruction.
C2	EOL: Transport	2022	Shipping from project site to waste disposal.

Module Name	Description	Analysis Period	Summary of Included Elements
C3	EOL: Waste Processing	2022	Waste processing if incineration as chosen disposal pathway per Part A of the PCR.
C4	EOL: Disposal	2022	Disposal modeled by region as per Part A of the PCR.
D	Benefits beyond system	MND	Credits from energy or material capture.

Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The majority of the estimations are within the primary data. The primary data was collected as annual totals for electricity usage and production volume. For the LCA, the utility usage information was divided by the production to find a utility consumption per unit mass. Another assumption is that the installation tools are used enough times that the per square meter impacts are negligible.

Cut-Off Criteria

Input and output flows of mass and energy greater than 1% (based on total mass final product and total energy usage of the product system) or greater than 1% of environmental impacts were included within the scope of analysis. Flows less than 1% were included if sufficient data were available to warrant inclusion and/or the flow was thought to have significant environmental impact. Cumulative excluded flows and environmental impacts are less than 5% per module based on total mass, energy usage, and impacts of the product system. Where data gaps were identified, they are filled by conservative assumptions with average, generic, or proxy data and assumptions are documented. No known flows relevant to the product system are deliberately excluded from this EPD.

Data Sources

Primary data were collected by facility personnel and from utility bills and were used for all manufacturing processes. Whenever available, supplier data were used for raw materials used in the production process. When primary data did not exist, secondary data for raw material production was utilized from Ecoinvent 3.9.1.

Data Quality

The geographical scope of the manufacturing portion of the life cycle is the United States. All primary data were collected from the manufacturer. The geographic coverage of primary data is considered good. The primary data provided by the manufacturer represent all information for calendar year 2022. Time coverage of this data is considered good. Primary data provided by the manufacturer is specific to the technology used in manufacturing their product. It is site-specific and considered of good quality. Data necessary to model cradle-to-gate unit processes was sourced from Ecoinvent 3.9.1 datasets. Improved life cycle data from suppliers would improve technological coverage.

Period Under Review

The period under review is calendar year 2022.

Allocation

General principles of allocation were based on ISO 14040/44. To derive a per-unit value for manufacturing electricity, allocation based on total production by mass was adopted. As a default,

secondary datasets use a physical basis for allocation. Co-product allocation at the facility was done on a mass basis.

Of relevance to the defined system boundary is the method in which recycled materials were handled. Throughout the study recycled materials were accounted for via the cut-off method. Under this method, impacts and benefits associated with the previous life of a raw material from recycled stock are excluded from the system boundary. Additionally, impacts and benefits associated with secondary functions of materials at end of life are also excluded (i.e., production into a third life or energy generation from the incineration plant). The study does include the impacts associated with reprocessing and preparation of recycled materials that are part of the bill of materials of the products under study.

Comparability and Benchmarking

The user of the EPD should take care when comparing EPDs from different companies. Assumptions, data sources, and assessment tools may all impact the uncertainty of the final results and make comparisons misleading. Without understanding the specific variability, the user is therefore, not encouraged to compare EPDs. Even for similar products, differences in use and end-of-life stage assumptions, and data quality may produce incomparable results. Comparison of the environmental performance of Flooring Products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR. Full conformance with the PCR for Products allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible. Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Comparison of the environmental performance of construction works and construction products using EPD information shall be based on the product's use and impacts at the construction works level. In general, EPDs may not be used for comparability purposes when not considered in a construction works context. Given this PCR ensures products meet the same functional requirements, comparability is permissible provided the information given for such comparison is transparent and the limitations of comparability explained.

Table 5: Life Cycle Stages Included in the Study

Production			Construction		Use							End of Life				Benefits & Loads Beyond System Boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw Material Supply	Transport	Manufacturing	Transport to Site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction	Transport	Waste Processing	Disposal	Reuse, Recovery, Recycling Potential
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	MND

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

Life Cycle Assessment Scenarios

All data reported in the tables below apply to ResinDek® Xspan® unless otherwise stated.

Table 6: Transportation to Building Site (A4) per functional unit

Name	Value
Vehicle Type	Heavy Heavy-duty Diesel Truck / 53,333 lb payload - 8b
Fuel Efficiency for Full Vehicle [L/100km]	42
Distance [km]	800
Capacity Utilization [%]	67%
Weight of Products Transported [kg]	26.5
Gross Density of Products Transported [kg/m^3]	881
Capacity utilization volume factor	=1

Table 7: Reference Service Life

Name	Value
RSL [years]	60
ESL [years]	75
Declared product properties (at the gate) and finishes, etc.	See Table 1 for technical details
An assumed quality of work, when installed in accordance with the manufacturer's instructions	Per industry standards
Maintenance	See Use section above for maintenance instructions

Table 8: Installation at building site (A5) per functional unit

	Value
Screws [kg]	0.0482
Product wastage [%]	5.00%
Waste materials at the construction site before waste processing, generated by product installation [kg]	1.85
Packaging Waste to Landfill [kg]	0.0557
Packaging Waste to Incineration [kg]	0.0139
Packaging Waste to Recycling [kg]	0.0635
Product Waste to Landfill [kg]	1.72
Transport waste, Truck [t-km]	0.0593
No freshwater, electricity, or fuels are used in installation.	

Table 9: Maintenance (B2) per functional unit

Name	Value	Unit
Maintenance cycle [Cycles/ RSL]	720	Cycles/ RSL

Name	Value	Unit
Maintenance cycle [Cycles/ ESL]	900	Cycles/ ESL
Cleaning liquid per cycle [kg]	8.80	kg/ ESL
Electricity per cycle [kWh]	11.0	kWh/ ESL
Power output of equipment	1.89	kW
No waste or direct emissions occur during regular maintenance. Water usage is included in cleaning liquid.		

Table 10: Replacement (B4) per functional unit

Name	Value
Reference Service Life [Years]	60
Estimated Service Life [Years]	75
Replacement cycle [(ESL/RSL) - 1]	0.300
Waste generated [kg]	27.1
Transport, Waste, Truck [t-km], landfilled	0.871
No freshwater, electricity, or ancillary materials are used for replacement process.	

Table 11: End-of-Life Scenario Details (C1-C4)

Name	Value
Collected as mixed construction waste [kg]	25.2
Waste to Landfill [kg]	25.2
Distance to Landfill [km]	32.2

Life Cycle Assessment Results

All results are given per functional unit, which is 1 m^2 of installed flooring over an estimated building life of 75 years. Environmental Impacts were calculated using the SimaPro V9 software platform. Impact results have been calculated using IPCC AR5, TRACI 2.1, and CML 2001-Jan 2016 characterization factors. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. The Impact Category Key tables give definitions of relevant acronyms.

The LCIA impact categories referenced below 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.

Third-party verified ISO 14040/44 secondary LCI datasets contribute more than 67% of total impact to at least one of the impact categories required by the PCR.

Table 12: Impact Category Key – LCIA Indicators

Abbreviation	Parameter	Unit
IPCC AR5		
GWP	Global warming potential (100 years, includes biogenic CO2)	kg CO_2 eq
TRACI 2.1		
AP	Acidification potential of soil and water	kg SO_2 eq
EP	Eutrophication potential	kg N eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
SFP	Smog formation potential	kg O_3 eq
CML 2001-Jan 2016		
ADPF	Abiotic depletion potential for fossil resources	MJ, net calorific value

Table 13: Impact Category Key – Biogenic Carbon Indicators

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

Table 14: Impact Category Key – Resource Use, Waste, and Output Flow Indicators

Abbreviation	Parameter	Unit
Resource Use Parameters		

Abbreviation	Parameter	Unit
RPRE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPRM	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPRM	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
SM	Use of secondary materials	kg
RSF	Use of renewable secondary fuels	MJ, net calorific value
NRSF	Use of non-renewable secondary fuels	MJ, net calorific value
RE	Recovered energy	MJ, net calorific value
FW	Net use of fresh water	m^3
Waste Parameters and Output Flows		
HWD	Disposed-of-hazardous waste	kg
NHWD	Disposed-of non-hazardous waste	kg
HLRW	High-level radioactive waste, conditioned, to final repository	kg
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
CRU	Components for reuse	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg
EE	Exported energy	MJ

ResinDek® Xspan® – Results

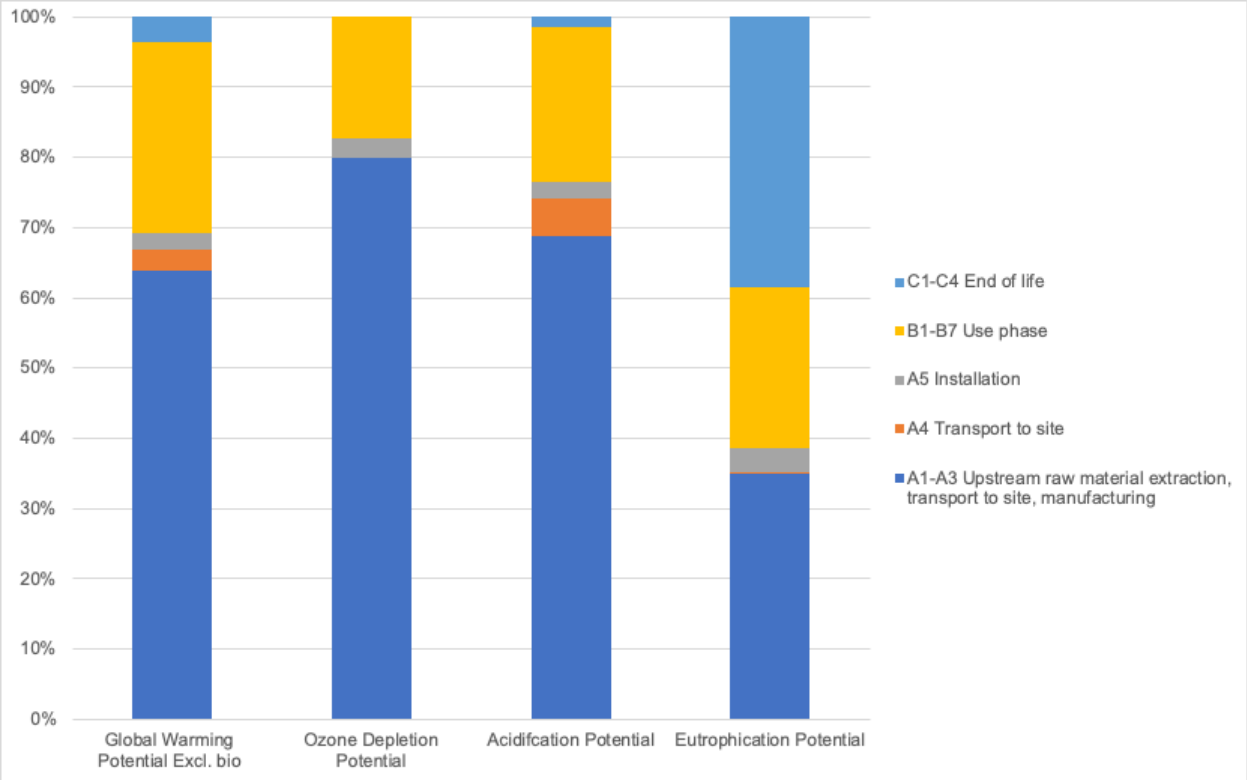
Table 15: LCIA and LCI results for 1 m^2 of of installed ResinDek® Xspan®.

Impact Category	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
Environmental Impact Indicators																	
GWP-incl. bio	kg CO_2 eq.	-1.54E+01	2.51E+00	6.33E-01	1.98E+00	-4.57E-02	0.00E+00	5.83E+00	0.00E+00	-2.32E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-02	0.00E+00	4.31E+01
GWP-excl. bio	kg CO_2 eq.	2.79E+01	2.51E+00	8.23E-01	1.98E+00	1.91E+00	0.00E+00	5.82E+00	0.00E+00	1.11E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.56E-02	0.00E+00	2.33E+00
ODP	kg CFC11e	2.34E+00	1.04E-10	1.72E-08	8.21E-11	1.17E-01	0.00E+00	4.37E-08	0.00E+00	7.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.87E-12	0.00E+00	1.59E-08
AP	kg SO2e	1.97E-01	3.04E-02	2.65E-03	2.40E-02	1.34E-02	0.00E+00	2.20E-02	0.00E+00	8.10E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.48E-04	0.00E+00	6.05E-03
EP	kg Ne	1.18E-01	1.75E-03	6.07E-03	1.38E-03	1.70E-02	0.00E+00	1.36E-02	0.00E+00	9.78E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.30E-05	0.00E+00	1.91E-01
SFP	kg O3e	2.45E+00	7.75E-01	3.26E-02	6.12E-01	2.07E-01	0.00E+00	2.65E-01	0.00E+00	1.24E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.23E-02	0.00E+00	1.80E-01
ADPf	MJ, NCV	3.93E+02	3.53E+01	1.48E+01	2.78E+01	2.51E+01	0.00E+00	1.38E+02	0.00E+00	1.51E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.67E-01	0.00E+00	9.81E+00
Resource Use Indicators																	
RPRE	MJ, NCV	1.89E+02	0.00E+00	2.17E+00	0.00E+00	1.01E+01	0.00E+00	3.26E+00	0.00E+00	6.03E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.08E-01
RPRM	MJ, NCV	7.36E+02	0.00E+00	0.00E+00	0.00E+00	3.68E+01	0.00E+00	0.00E+00	0.00E+00	2.32E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRPRE	MJ, NCV	4.42E+02	3.53E+01	1.81E+01	2.78E+01	2.78E+01	0.00E+00	1.46E+02	0.00E+00	1.67E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.67E-01	0.00E+00	1.00E+01
NRPRM	MJ, NCV	1.66E+00	0.00E+00	0.00E+00	0.00E+00	8.30E-02	0.00E+00	0.00E+00	0.00E+00	5.23E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	MJ, NCV	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.19E-01	0.00E+00	5.64E-02	0.00E+00	1.19E-02	0.00E+00	2.16E-01	0.00E+00	5.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.67E-02
Waste and Output Flow Indicators																	
HWD	kg	2.60E-02	0.00E+00	1.97E-03	0.00E+00	7.40E-03	0.00E+00	1.56E-02	0.00E+00	1.13E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.66E-03
NHWD	kg	6.26E-01	3.94E-02	8.16E-01	3.11E-02	1.58E+00	0.00E+00	4.64E-01	0.00E+00	8.56E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-03	0.00E+00	5.41E+01
HLRW	kg	1.78E-10	0.00E+00	1.74E-09	0.00E+00	1.80E-10	0.00E+00	3.70E-09	0.00E+00	6.64E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-10

Impact Category	Unit	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4
ILLRW	kg	1.07E-09	0.00E+00	1.48E-08	0.00E+00	1.51E-09	0.00E+00	2.53E-08	0.00E+00	5.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.20E-10
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MR	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Biogenic Carbon Indicators																	
BCRP	[kg CO2]	-1.36E+03	0.00E+00	0.00E+00	0.00E+00	-6.65E+01	0.00E+00	0.00E+00	0.00E+00	-3.99E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP	[kg CO2]	0.00E+00	0.00E+00	2.96E+01	0.00E+00	8.22E+01	0.00E+00	0.00E+00	0.00E+00	8.22E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.74E+02
BCRK	[kg CO2]	0.00E+00	0.00E+00	-7.32E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEK	[kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.78E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEW	[kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE	[kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCR	[kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CWNR	[kg CO2]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Life Cycle Assessment Interpretation

A dominance analysis was performed for the ResinDek® Xspan® product in the LCA to show which of the life cycle modules contributes to the majority of the impacts. Due to the relevance of these impact categories to the product type and the manufacturer's interests, this dominance analysis will be provided for global warming potential excluding biogenic carbon, ozone depletion potential, acidification potential, and eutrophication potential.



The global warming potential, ozone depletion, and acidification potential categories are dominated by A1-A3, upstream raw material extraction, transport to site, and manufacturing. Eutrophication potential impacts are driven by end-of-life more than any other impact category.

The A1-A3 impacts are dominated by the A1 – Raw material extraction impact category. HDF accounts for about 99% of the product composition for ResinDek® Xspan®. Because HDF is a high-impact wood input and accounts for the majority of the product composition it is logical it would drive the majority of the A1 impacts. The A2 transportation to site and A3 manufacturing impacts are relatively minimal when looking at cradle-to-gate impacts.

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