ENVIRONMENTAL PRODUCT DECLARATION

TRUSPEC® Product

TruSpec® Product Cross Section

Huber Engineered Woods LLC continually strives to create innovative products that suit their customers' needs. Each one delivers outstanding performance and easy installation in single family, multifamily and light commercial projects. TruSpec® product is a precision engineered wood product designed specifically for the millwork industry. Each product is manufactured by thermally fusing cross-oriented wood strands with a water-resistant adhesive offering a strong, flat, stable product. TruSpec product is made in facilities certified to meet Sustainable Forestry Initiative® (SFI) standards for wood fiber sourcing practices and is available in a wide range of custom sizes and thicknesses to meet your customer's demands.

EPD PROGRAM AND PROGRAM OPERATOR NAME, ADDRESS, LOGO, AND WEBSITE	UL Solutions 333 Pfingsten Road, Northbrook, IL 60611	https://www.ul.com https://spot.ul.com
GENERAL PROGRAM INSTRUCTIONS AND VERSION NUMBER	General Program Instructions v2.7 March 2022	
MANUFACTURER NAME AND ADDRESS	Huber Engineered Woods, 10925 David Taylor Drive, Suite 300, Charlotte, NC 28262	
DECLARATION NUMBER	4791181568.102.1	
DECLARED PRODUCT & FUNCTIONAL UNIT	1 cubic meter (m^3)	
REFERENCE PCR AND VERSION NUMBER	ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services Product Category Rules for Building Related Products and Services, Part A: Life Cycle Assessment Calculation Rules and Report Requirements, UL, Fourth Edition, March 28, 2022 Product Category Rules Guidance for Building-Related Products and Services, Part B: Structural and Architectural Wood Products EPD Requirements, UL, v1.1, May 29, 2020	
DESCRIPTION OF PRODUCT APPLICATION/USE	Oriented Strand Board Millwork	
PRODUCT RSL DESCRIPTION	75 years	
MARKETS OF APPLICABILITY	Millwork Industry	
DATE OF ISSUE	March 27, 2025	
PERIOD OF VALIDITY	5 Years	
EPD TYPE	Product-Specific	
RANGE OF DATASET VARIABILITY	N/A	
EPD SCOPE	Cradle-to-grave	
YEAR(S) OF REPORTED PRIMARY DATA	January 2023 to December 2023	
LCA SOFTWARE & VERSION NUMBER	SimaPro v9.6.0.1	
LCI DATABASE(S) & VERSION NUMBER	ecoinvent v3.8	
LCIA METHODOLOGY & VERSION NUMBER	TRACI 2.1, CML 4.7	

The PCR review was conducted by:	UL Solutions PCR Review Panel epd@ul..com
This declaration was independently verified in accordance with ISO 14025:2006. The UL Environment "Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report," v4.0 (March 2022), in conformance with ISO 21930:2017, serves as the core PCR, with additional considerations from the USGBC/UL Environment Part A Enhancement (2017). ☐ INTERNAL ☒ EXTERNAL	 Cooper McCollum, UL Solutions
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	Sustainable Solutions Corporation

LIMITATIONS

Environmental declarations from different programs (ISO 14025) may not be comparable. 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. Comparison of the environmental performance using EPD information shall consider all relevant information modules over the full life cycle of the products within the building. This PCR allows EPD comparability only when the same functional requirements between products are ensured and the requirements of ISO 21930:2017 §5.5 are met. It should be noted that different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

Summary of Declaration and Global Warming Potential Results

This Environmental Product Declaration covers the TruSpec® product produced by Huber Engineered Woods. The following product family and manufacturing facility are included within this declaration.

Product Family Covered:

- TruSpec® Product

Manufacturing Facility Covered:

- Broken Bow, Oklahoma

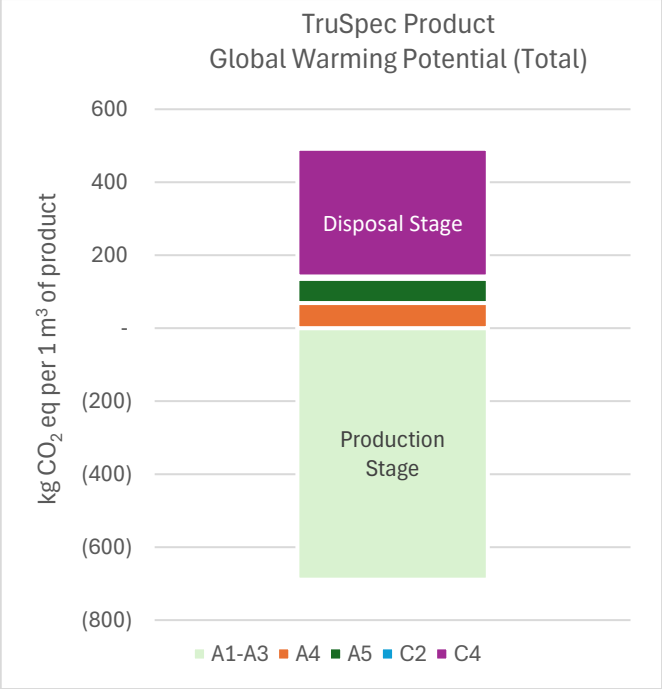
Global Warming Potential Cradle-to-Grave Impact Assessment Results:

The following table details the A1-C4 Global Warming Potential (GWP), also known as the carbon footprint, results as found in Table 12.

Table 1 – Global Warming Potential (TRACI) per 1 m^3 of TruSpec® Product

TruSpec Product		
Cradle-to-Grave GWP (A1-C4) ($kg\ CO_2\ eq/m^3$)		
GWP Fossil	GWP Biogenic	GWP Total
630.5	-827.9	-198.3

Note: GWP Total may not sum from fossil and biogenic due to rounding



Take-Aways

- Trees naturally absorb carbon dioxide, thereby creating a “negative” biogenic* global warming potential in wood products.
- Depending on the disposal method, per the US EPA, wood products do not fully decompose to release that biogenic carbon when landfilled, therefore the overall carbon will be sequestered in the product.
- Most of the fossil** based global warming potential occurs in the production stage.

**Biogenic means produced by living organisms*
***Fossil means produced by fossil fuels like coal, natural gas, and other oils*

Product Definition and Information

Product Description

Huber Engineered Woods' TruSpec® product is a family of engineered wood products made especially for the millwork industry. Each product is manufactured by fusing a network of wood strands together with a water-resistant adhesive. The result is a strong, solid and stable part that is moisture resistant, easy to machine and 100% usable. TruSpec products are available in a variety of custom sizes and thicknesses t to meet customer's product design and manufacturing needs. TruSpec products have exhibited excellent strength, screw holding capability, and product stability.

Product Styles

This EPD covers the complete TruSpec® product line which is produced in 17 different thicknesses ranging from 0.625" to 2.19". The results presented in the following tables reflect one cubic meter of product. The environmental impacts can be multiplied by the scaling factors in Table 3 to obtain the total environmental impacts per square meter for each product.

Table 2: TruSpec® Products Functional Unit

	TruSpec
Functional Unit	1 m^3
Mass per Functional Unit (kg)	640.7
Thickness to Achieve Functional Unit	0.0286 m (1-1/8 in)
Density (kg/m^3)	640.7
Moisture Content	3.5%
Number of Square Meters to Achieve Functional Unit at Smallest Thickness	35.0

Table 3: TruSpec® Products Scaling Factors

Thickness (in/m²)	Scaling Factors to Obtain 1 Square Meter of Desired Thickness (in/m²) from Functional Unit	Number of Square Meters for 1m³ at Specified Thickness
0.625"	0.01588	62.99
0.75"	0.01905	52.49
0.875"	0.02223	44.99
1.125"	0.02858	35.00
1.25"	0.03175	31.50
1.312"	0.03332	30.01
1.375"	0.03493	28.63
1.5"	0.03810	26.25
1.55"	0.03937	25.40
1.575"	0.04001	25.00
1.59"	0.04039	24.76
1.625"	0.04128	24.23
1.65"	0.04191	23.86
1.688"	0.04288	23.32
1.75"	0.04445	22.50
2"	0.05080	19.69
2.19"	0.05563	17.98

Functional Unit

The functional unit utilized for this study is one cubic meter (1 m^3) with a service life of 75 years, including end-of-life disposition.

Range of Application

Huber's TruSpec® product is designed to meet a wide range of product application needs. Whether producing doors, frames, windows, skylights, furniture, cabinets, or other millwork products, the TruSpec brand can provide a product that is right for customer's specific needs.

Life Cycle Stages

EPD Scope

The life cycle analysis performed for this EPD is characterized as a “cradle-to-grave” study, examining the TruSpec® product from raw material extraction through final disposal including the use phase. Table 4 presents the TruSpec product’s system boundary, and any stages not reported have an impact value of zero.

Table 4: TruSpec® Product System Boundary

Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits and Loads Beyond the System Boundaries
Raw material supply	Transport	Manufacturing	Transport from gate to the site	Construction/ installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction /demolition	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

System Boundary Stages Corresponding to the PCR
(X = Included; MND = Module Not Declared)

Time Boundary

Data for this LCA was collected from January 2023 through December 2023.

Cut-off Criteria

Processes with a cumulative mass or energy of the system flows/model less than 1% may be excluded, provided its environmental relevance is minor. Processes that meet that criteria but contribute at least 2% to the selected impact categories shall be included in the system boundary. In no case shall less than 95% of mass or environmental impact be included in the system boundary.

All hazardous or toxic substances shall be included in the system boundary. This LCA is in compliance with the cut-off criteria since no known processes were neglected or excluded from this analysis.

Data Sources

Primary data were collected directly from the facilities and includes the average values, locations, formulations, chemical compositions, etc. of the products in scope. SimaPro v9.6.0.1 software was utilized for modeling the complete cradle-to-grave inventory. The ecoinvent v3.8 life cycle inventory database was the primary sources of secondary data utilized for this study. Supplemental secondary data was used from the US LCI database.

System Boundaries

This project considers the life cycle activities from resource extraction through product use for a 75 year life cycle inclusive of maintenance and end of life effects.

Allocation

Allocation of multi-output processes was performed following the requirements and guidance of ISO 14044:2006, clause 4.3.4, and was based on mass. Any co-products were less than 10% of the economic value of the main products and were not included in the allocation.

Treatment of Biogenic Carbon

Biogenic carbon was considered in accordance with ISO 21930 7.2.7 and 7.2.12. Separate carbon uptake and emissions from bio-derived sources are reported separately in the “Resource Use – Greenhouse Gas Emissions and Removals” table for both product and packaging biogenic carbon.

Data Quality

For consistency in the model, specific, primary data from the manufacturing process was provided by the relevant facilities. Upstream and downstream raw materials and other data were modeled using secondary data obtained from relevant databases as documented in the LCA Report. These databases are from nationally accepted and publicly available databases, ensuring reproducibility. This study is representative only of Huber’s TruSpec® engineered wood product.

Estimates and Key Assumptions

For installation, packaging waste was modeled as 17.1% recycled, in accordance with the US EPA wood-specific municipal solid waste data for 2018. The cut-off methodology (known as the recycled content method in the GHG Protocol for Products) was used for any materials that were sent to recycling such as scrap and the end of life disposition. Of the remaining 82.9% that is not recycled, the model assumes that 80% is sent to the landfill and 20% is sent to incineration. Any required energy of this product to be installed into a building was considered below the cut-off criteria and excluded.

Material Composition

Product Material Composition

Wood strands represent the largest TruSpec® product formulation component. Resins used to bind the TruSpec product wood strands are the second largest formulation component. Note that no substances required to be reported as hazardous are included in the fully cured final product. The TruSpec product formulation components are displayed below.

Table 5: TruSpec® Product Recipe

Product Recipe	TruSpec
Wood	90-95%
Resin System (Resin, Wax, Other)	3-10%

Packaging Material Composition

TruSpec® panels are stacked on top of each other onto three wood strips to enable loading and unloading via fork truck. The stacks are protected with vertical cardboard side covers and banded together with the wood strips with plastic banding.

Table 6: TruSpec® Packaging Materials (per cubic meter)

Packaging Material	Mass
Wood	2.96 lbs (1.34 kg)
Cardboard	1.23 lbs (0.56 kg)
Plastic	0.19 lbs (0.09 kg)

Technical Requirements

The standards that can be applied for TruSpec® products are as follows:

- Standard for Fire Tests of Door Assemblies (UL 10B)
- Standard for Positive Pressure Fire Test of Door Assemblies (UL 10C)

Properties of Declared Product As Delivered

The product is delivered in the following status as detailed in Table 7:

Table 7: TruSpec® Product Delivery Details

	TruSpec
Length	8 ft (2.4 m)
Width	4 ft (1.2 m)
Height	2.7 ft – 3 ft (0.82 – 0.91 m)
Total Weight	3,450 – 3,750 lbs (1,565 kg – 1,700 kg)
Panels Per Unit	15 panels (2.19” thickness) to 55 panels (5/8” thickness)

Production of TruSpec® OSB Products

Production Process

For the production of these OSB products, incoming logs are delivered by truck to the sites. The bark is removed and the logs are then sized into strands. The strands are dried, screened, blended, formed, pressed and finally cut to size and packaged for shipment to customers.

TruSpec® products are produced at Huber's Broken Bow, Oklahoma facility. Detailed operational and production data were collected in collaboration with process experts. Figure 1 presents the production system flow diagram.

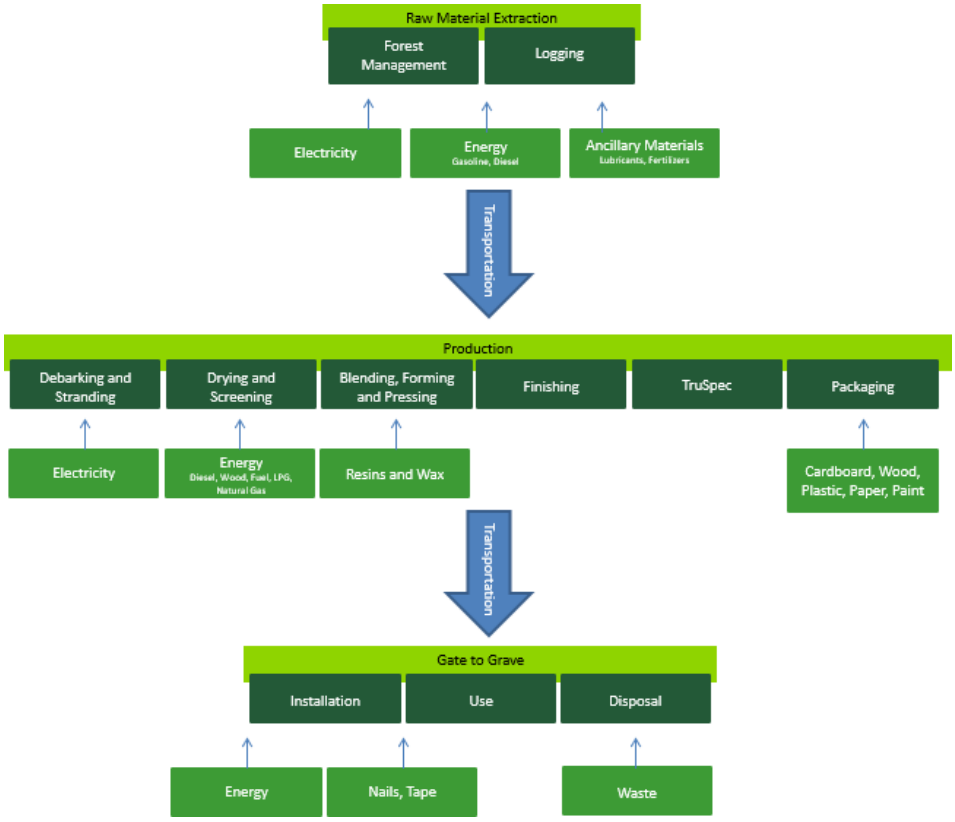


Figure 1 – TruSpec® Product Production System Flow Diagram

Construction

Transportation and Delivery

Final products were modeled as being shipped by truck and rail. Records of customer sales were used to generate the average distances.

Table 8: Transport to Distributor/Secondary Processor (A4)

Name	Quantity	Unit
Fuel Type	Diesel	-
Liters of fuel	38	l/100km
Vehicle type	10% by rail 90% by truck	-
Average Transport Distance	1,159	km
Capacity Utilization	90	% by mass
Weight of products transported	640.7	kg
Volume of products transported	1	m^3
Capacity utilization volume factor	1	-

Installation

Huber products are designed for durability and installation ease. These products are used in manufacturing processes of various building materials, such as windows, doors, frames, skylights, and other millwork applications. It is worth noting that although this product is versatile, most TruSpec® products are used in architectural door frames. Installation materials can include glue, nails, or staples depending upon application. Adhesive glue, which is the main ancillary installation material, is included in this study. Nails and staples used during installation are minimal and are cut-off from this study. Additionally, electricity may be consumed during installation as air compressors may be used for nail guns for installation and a circular saw may be used for cutting panels to size. As electricity consumption during installation is minimal, it is cut-off from this study. No other inventory items were identified for installation.

Table 9: Installation into the Building (A5)

Name	Quantity	Unit
Ancillary materials	Glue: 8.90	kg
Net freshwater consumption specified by water source and fate	N/A	m^3
Other resources type	N/A	kg
Electricity consumption	<0.01	kWh
Other energy carriers	N/A	MJ
Product loss per functional unit	32.0	kg
Waste materials at the construction site	34.0	kg
Output materials (landfill)	26.6	kg
Output materials (recycling)	5.5	kg
Mass of packaging waste specified by type	1.3 (wood) 0.6 (cardboard) 0.0 (paper) 0.1 (plastic)	kg
Biogenic carbon contained in packaging	2.5	kg CO_2
Direct emissions to ambient air, soil and water	N/A	kg
VOC emissions	unk	µg/m^3

Waste

During installation, saw dust, wood scrap, and packaging waste are generated. A 5% product scrap rate was assumed based on product installation expertise. Waste materials from the installation process are based on the 2018 US EPA solid waste and waste diversion statistics and assume a 17.1% recycling rate with the remaining 82.9% being disposed as the average US municipal solid waste disposition, which is 80% landfill and 20% incineration.

Use Stage

Product Service Life

Once properly installed in a finished code-complying building, this study assumes that these products can last the duration of an average building, that is, at least 75 years.

Table 10: Reference Service Life

Name	Quantity	Unit
Reference Service Life (RSL)	75	years
Declared Product Properties	Please visit huberwood.com for more information.	-
Design Application Parameters		
Quality of Work		
Outdoor Environment	N/A	-
Indoor Environment	Please visit huberwood.com for more information.	-
Use conditions		-
Estimated Building Life	75	years
Number of Replacements	0	number
Maintenance	N/A	N/A

Use Stage Assumptions

During the use stage, the product is integrated into the final millwork which is incorporated into the permanent structure of the building. TruSpec® products use no energy or water during the use stage. TruSpec products require no maintenance, repair, replacement, or refurbishment during their service life.

End of Life

Disposal

The end-of-life scenario was modeled based on the 2018 US EPA solid waste and waste diversion statistics. The study assumes a 17.1% recycling rate with the remaining 82.9% being disposed as the average US municipal solid waste disposition. The average US disposition includes 80% landfill and 20% incineration. The cut-off methodology (also known as the recycled content method in the GHG Protocol for Products) was used for any materials that were sent to recycling such as scrap and the end of life disposition.

Table 11: End of Life (C1-C4)

Name		TruSpec® Product	Unit
Assumptions for scenario development		Products are manually removed and disposed with construction and demolition (C&D) waste, and may be sorted and recycled, landfilled or incinerated.	
Collection process	Collected separately	N/A	kg
	Collected with mixed construction waste	641	kg
Recovery and Disposal	Reuse	0	kg
	Recycling	110	kg
	Landfill	425	kg
	Incineration	106	kg
	Incineration (with energy recovery)	0	kg
	Energy conversion	N/A	
Removals of biogenic carbon (excluding packaging)		293	kg CO_2

Potential Environmental Impacts

Cradle-to-Grave Potential Environmental Impacts

The tables below present the five selected categories of potential environmental impacts generated for each cradle-to-grave life cycle stage for 1 cubic meter TruSpec® product. These results were calculated using the TRACI 2.1 and CML 4.7 methodologies. Refer to the scaling factors in Table 3 above to convert these results to the appropriate product thicknesses.

Table 12: Life Cycle Impact Assessment of 1 m^3 TruSpec® Product

TRACI 2.1 Impact Assessment							
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**C2**	**C4**
GWP_F	Global warming potential - Fossil	kg CO_2-Eq.	4.41E+02	6.88E+01	5.80E+01	5.94E+00	5.68E+01
GWP_B	Global warming potential - Biogenic	kg CO_2-Eq.	-1.13E+03	0.00E+00	9.01E+00	0.00E+00	2.93E+02
GWP_T	Global warming potential - Total	kg CO_2-Eq.	-6.89E+02	6.88E+01	6.70E+01	5.94E+00	3.49E+02
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	8.02E-06	2.63E-09	8.18E-07	2.27E-10	1.81E-07
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	2.66E+00	4.11E-01	2.72E-01	3.55E-02	6.96E-02
EP	Eutrophication potential	kg N-Eq.	9.92E-01	2.29E-02	1.40E+00	1.98E-03	1.32E+01
SP	Smog formation potential	kg O_3-Eq.	3.21E+01	1.13E+01	3.46E+00	9.71E-01	2.04E+00
FFD	Fossil fuel depletion	MJ-surplus	2.60E+02	1.32E+02	2.04E+01	1.14E+01	1.24E-01
CML 4.7 Impact Assessment							
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**C2**	**C4**
GWP_F	Global warming potential - Fossil	kg CO_2-Eq.	4.42E+02	6.90E+01	5.89E+01	5.96E+00	6.13E+01
GWP_B	Global warming potential - Biogenic	kg CO_2-Eq.	-1.13E+03	0.00E+00	9.01E+00	0.00E+00	2.93E+02
GWP_T	Global warming potential - Total	kg CO_2-Eq.	-6.88E+02	6.90E+01	6.79E+01	5.96E+00	3.54E+02
ODP	Depletion potential of the stratospheric ozone layer	kg CFC-11 Eq.	6.38E-06	2.60E-09	6.24E-07	2.24E-10	1.35E-07
AP Air	Acidification potential for air emissions	kg SO_2-Eq.	2.62E+00	3.39E-01	2.53E-01	2.93E-02	5.45E-02
EP	Eutrophication potential	kg $(PO_4)^3$-Eq.	5.72E-01	6.01E-02	5.27E-01	5.19E-03	4.77E+00
POCP	Formation potential of tropospheric ozone photochemical oxidants	kg ethane-Eq.	2.21E-01	1.56E-02	1.76E-02	1.35E-03	6.97E-03
ADPE	Abiotic depletion potential for non-fossil resources	kg Sb-Eq.	4.28E-03	0.00E+00	4.28E-04	0.00E+00	1.58E-05
ADPF	Abiotic depletion potential for fossil resources	MJ	3.28E+03	8.85E+02	3.57E+02	7.64E+01	1.36E+01

**Modules and life cycle stages not displayed above are assumed to have an impact of 0.*

Table 13: Use of Resources of 1 m³ TruSpec® Product

Resource Use							
Parameter	**Parameter**	**Unit**	**A1-A3**	**A4**	**A5**	**C2**	**C4**
PERE	Renewable primary energy as energy carrier	MJ	5.94E+03	0.00E+00	6.41E+02	0.00E+00	1.79E+00
PERM	Renewable primary energy resources as material utilization	MJ	1.09E+04	0.00E+00	1.75E+02	0.00E+00	6.79E-01
PERT	Total use of renewable primary energy resources	MJ	1.69E+04	0.00E+00	8.16E+02	0.00E+00	2.47E+00
PENRE	Nonrenewable primary energy as energy carrier	MJ	1.81E+03	9.39E+02	3.21E+02	8.10E+01	1.69E+01
PENRM	Nonrenewable primary energy as material utilization	MJ	1.89E+03	0.00E+00	7.67E+01	0.00E+00	0.00E+00
PENRT	Total use of nonrenewable primary energy resources	MJ	3.69E+03	9.39E+02	3.98E+02	8.10E+01	1.69E+01
SM	Use of secondary material	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	Use of nonrenewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RE	Use of recovered energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	Use of net fresh water	m³	2.74E+00	0.00E+00	7.90E-01	0.00E+00	-1.51E+00

**Modules and life cycle stages not displayed above are assumed to have an impact of 0.*

Table 14: Output Flows and Waste Categories of 1 m³ TruSpec® Product

Output Flows and Waste Categories							
Parameter	**Parameter**	**Units**	**A1-A3**	**A4**	**A5**	**C2**	**C4**
HWD	Hazardous waste disposed	kg	6.26E-02	0.00E+00	4.49E-03	0.00E+00	9.37E-04
NHWD	Non-hazardous waste disposed	kg	3.07E+01	0.00E+00	5.23E+01	0.00E+00	4.28E+02
HLRW	High-level radioactive waste	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ILLRW	Intermediate- and low-level radioactive waste	kg	3.15E-03	0.00E+00	3.02E-04	0.00E+00	3.80E-05
CRU	Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	Materials for recycling	kg	1.35E+01	0.00E+00	6.12E+00	0.00E+00	0.00E+00
MER	Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	Exported electrical energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	Exported thermal energy	MJ	6.26E-02	0.00E+00	0.00E+00	0.00E+00	9.37E-04

**Modules and life cycle stages not displayed above are assumed to have an impact of 0.*

Table 15: Resource Use – Greenhouse Gas Emissions and Removals of 1 m³ of TruSpec® Product

Resource Use – Greenhouse Gas Emissions and Removals						
Parameter	**Units**	**A1-A3**	**A4**	**A5**	**C2**	**C4**
Removals associated with biogenic carbon content of the bio-based product	kg CO_2	-1.08E+03	0.00E+00	9.01E+00	0.00E+00	2.93E+02
Emissions associated with biogenic carbon content of the bio-based product	kg CO_2	5.38E+01	0.00E+00	9.01E+00	0.00E+00	2.93E+02
Removals associated with biogenic carbon content of the bio-based packaging	kg CO_2	-2.52E+00	0.00E+00	4.03E-01	0.00E+00	0.00E+00
Emissions associated with biogenic carbon content of the bio-based packaging	kg CO_2	2.52E+00	0.00E+00	4.03E-01	0.00E+00	0.00E+00
Emissions from combustion of waste from renewable sources used in production processes;	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Calcination carbon emissions	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Carbonation carbon removal	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Emissions from combustion of waste from non-renewable sources used in production processes.	kg CO_2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

**Modules and life cycle stages not displayed above are assumed to have an impact of 0.*

Interpretation

The raw materials stage is the primary driver of results for most impact categories for TruSpec® product. The exceptions are fossil fuel depletion, in which the production stage is the primary driver, and eutrophication, in which the end of life stage is the primary driver.

Please note: while this EPD does not address landscape level forest management impacts, potential impacts may be addressed through requirements put forth in regional regulatory frameworks, ASTM 7612-15 guidance, and ISO 21930 Section 7.2.11 including notes therein. These documents, combined with this EPD, may provide a more complete picture of environmental and social performance of wood products. While this EPD does not address all forest management activities that influence forest carbon, wildlife habitat, endangered species, and soil and water quality, these potential impacts may be addressed through other mechanisms such as regulatory frameworks and/or forest certification systems which, combined with this EPD, will give a more complete picture of environmental and social performance of wood products. EPDs can complement but cannot replace tools and certifications that are designed to address environmental impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, etc. National or regional life cycle averaged data for raw material extraction does not distinguish between extraction practices at specific sites and can greatly affect the resulting impacts.

Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact when averaging data. Variability was estimated in this EPD by facility weighted averages over one year of data.

Additional Environmental Information

Environment and Health During Manufacture

Huber developed and implemented a Global Environmental, Health and Safety Management System between 2005 and 2007. The system is titled Huber Sustainability Management System (HSMS). A combined regulatory compliance and management system conformance audit program was implemented in 2008. All Huber sites are audited on a recurring schedule, and action plans are created to address audit findings to ensure continual improvement, providing results equivalent to, or surpassing, ISO standards.

Environment and Health During Installation

For sanding, sawing or machining of wood products, avoid creating dust, which can be a source of fire and explosion. Avoid breathing dust. Wood dusts should be wet down to reduce the likelihood of ignition or dispersion of dust in the air. Use NIOSH/OSHA approved respirator where ventilation is not possible and exposure limits could be exceeded. Refer to the TruSpec® product SDS for further information.

Extraordinary Effects

Fire
TruSpec® product has been approved by UL and ITS Fire tests for 20 minutes as a stile, rail and core material.
Water
There are no relevant data regarding water effects for this product.
Mechanical Destruction
There are no relevant data regarding mechanical destruction effects for this product.

Environmental Activities and Certifications

The following certificates are relevant certifications for TruSpec® products:

- Sustainable Forestry Initiative (SFI 2023-2027), SFIS-4Z968-FS7
- UL Fire Door Construction Materials (GSRJ2.R20786)

SUSTAINABLE FORESTRY INITIATIVE
SFI-00045

Further Information

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For more information, please visit: www.huberwood.com/other-products/truspec

References

- AdvanTech, ZIP System, and TruSpec Life Cycle Assessment, Sustainable Solutions Corporation, November 2024
- Product Category Rules: Part A: Life Cycle Assessment Calculation Rules and Report Requirements UL Environment, March 2022, version 4.0
- Product Category Rules Guidance for Building-Related Products and Services Part B: Structural and Architectural Wood Products EPD Requirements, UL Environment, v1.1, May 29, 2020
- UL Environment General Program Instructions Version 2.7, March 2022
- ISO 14025:2011-10 Environmental labels and declarations - Type III environmental declarations
- ISO 14040:2009-11 Environmental management - Life cycle assessment – Principles and framework
- ISO 14044:2006-10 Environmental management - Life cycle assessment – Requirements and guidelines
- ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services
- UL 10B Standard for Fire Tests of Door Assemblies
- UL 10C Standard for Positive Pressure Fire Test of Door Assemblies
- Performance Standard for Wood-Based Structural Use Panels (US DOC PS2-18, CSA 0325-21)
- Sustainable Forestry Initiative 2023-2027 Standard
- EPA, Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI)
- SimaPro v9.6.0.1 Software
- Ecoinvent v3.8 Database for Life Cycle Engineering

LCA Development

This EPD and corresponding LCA were prepared by Sustainable Solutions Corporation of Royersford, Pennsylvania.