Global IFS
INTEGRATED FLOORING SOLUTIONS

NSF
Certified Environmental Product Declaration
www.nsf.org

TecCrete
Raised Access Floor

Global Integrated Flooring Solutions (Global IFS) is an industry leader in providing products for fully integrated raised floors, modular power, underfloor air distribution, and accessible high-end finishes. TecCrete, the original concrete surface panel, has been available on the market for over 35 years. The unique concrete-and-steel composite structure makes TecCrete remarkably quiet and solid underfoot—ideal for any application, including office spaces, computer rooms, mass timber, renovations, casinos, residential buildings, institutions, learning environments, retail, government, medical facilities, industrial areas, restaurants, hospitality spaces, and temporary structures. The Global IFS weldless floor system withstands heavy rolling and impact loads that occur during construction, move-in, and reconfiguration.

The TecCrete flooring system models selected for this Environmental Product Declaration are the TecCrete 1250, TecCrete 1500, TecCrete 1500SL, TecCrete 2000, and TecCrete 2500 floor systems. These floor systems consist of a steel and concrete composite floor panel (comprising steel, portland cement, gypsum, and aggregate) and a steel understructure. TecCrete panels have an assumed service life of 75 years. The TecCrete product systems analyzed herein are manufactured in Kentwood, Michigan, and are primarily produced for the North American Market by Global IFS. The manufacturing of TecCrete is compliant with ISO 9001 and ISO 14001.

Additional information about TecCrete flooring systems is available at the product website. For further information, please see here: https://www.globalifs.com/raf-teccrete

1.0 General Information

EPD commissioner	**Global Integrated Flooring Solutions (IFS)**
EPD program and program operator name, address, logo, and website	NSF Certification, LLC 789N Dixboro Road Ann Arbor, MI 48105, USA www.nsf.org
General program instructions and version number	NSF Program Operator Rules, November 1, 2022
Manufacturer name and address	Global Integrated Flooring Solutions (IFS) 3700 32nd Street SE Kentwood, MI 49512, USA
Declaration number	EPD11186
Declared product & functional unit	One square meter of installed flooring with a building service life of 75 years (packaging included)
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
Description of product's intended application and use (as identified when determining product RSL)	Flooring
Product RSL description (if appl.)	75 years
Market Applicability	North America
Date of Issue	December 22, 2025
Period of Validity	5 years (12/22/2025-12/22/2030)
EPD Type	Product-specific (manufacturer-specific)
EPD Scope	Cradle to Grave
Year(s)of reported manufacturer primary data	2024
LCA Software and Version Number	SimaPro Analyst 10.2.0.2
LCI Database(s) and Version Number	Ecoinvent 3.11 [1] Industry Data 2.0 [2]
LCIA Methodology and Version Number	TRACI 2.2 V1.00 / US 2008 [3] CML-IA baseline V3.11 / EU25 [4] Cumulative Energy Demand (LHV) V1.01 / Cumulative energy demand [1] Environmental Footprint 3.1 (adapted) V1.03 / EF 3.1 normalization and weighting set [5] IPCC 2021 GWP100 (incl. CO2 uptake) V1.03 [6]

This declaration was independently verified in accordance with ISO 14025: 2006. ISO 21930: 2017 "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services" serves as the core PCR. **☐INTERNAL ☒EXTERNAL**	**Jack Geibig, Ecoform** 
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	NSF Certification, LLC 789 N Dixboro Road Ann Arbor, MI 48105, USA www.nsf.org
This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:	**Jack Geibig, Ecoform** 
Limitations **Environmental declarations from different programs (ISO 14025) may not be comparable.** **Comparison of the environmental performance 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.**	

2.0 EPD Content

2.1 Description of Company/Organization

Global Integrated Flooring Solutions (Global IFS) is an industry leader in providing products for fully integrated raised floors, modular power, underfloor air distribution, and accessible high-end finishes. TecCrete, the original concrete surface panel, has been available on the market for over 35 years. The unique concrete-and-steel composite structure makes TecCrete remarkably quiet and solid underfoot—ideal for any application, including office spaces, computer rooms, mass timber, renovations, casinos, residential buildings, institutions, learning environments, retail, government, medical facilities, industrial areas, restaurants, hospitality spaces, and temporary structures. The Global IFS weldless floor system withstands heavy rolling and impact loads that occur during construction, move-in, and reconfiguration.

2.2 Product Description

TecCrete access floor panels consist of a pan made of steel in which the concrete mixture is filled. The panels are manufactured to exact tolerances and deliver the ultimate in design, performance, service, and usability. There are five flooring system products, made by combining two panels and a variety of understructure options to meet specific performance requirements.

TecCrete 1500 System Components

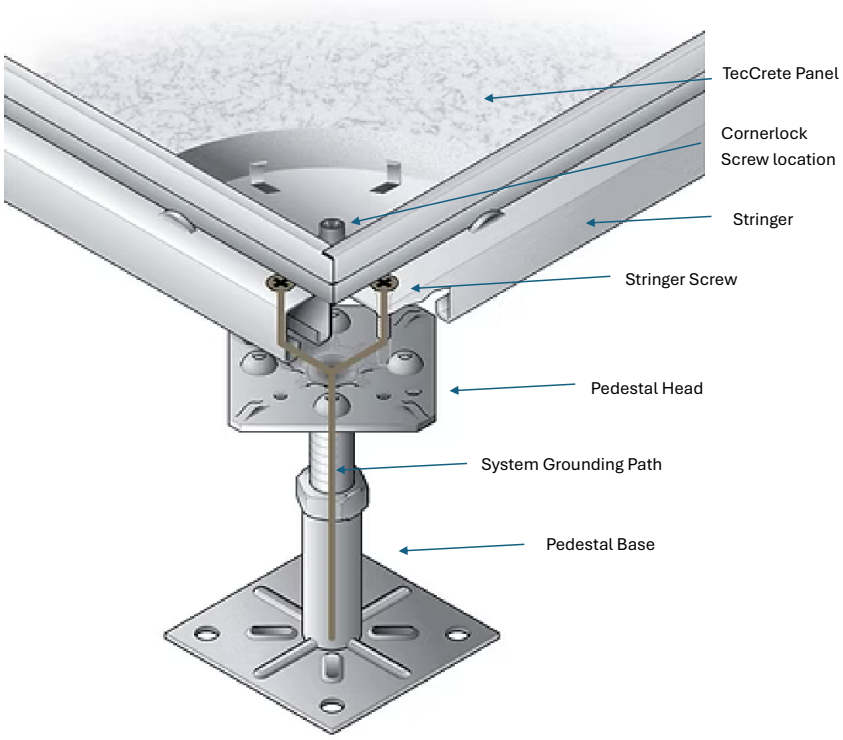

FIGURE 1. ILLUSTRATIVE DIAGRAM OF TECCRETE FLOORING SYSTEM PHYSICAL CHARACTERISTICS

In this study, the 5 panel systems include TecCrete 1250, TecCrete 1500, TecCrete 1500 SL, TecCrete 2000, and TecCrete 2500. The various TecCrete panel systems are available to meet different application and performance requirements (e.g., weight-bearing loads). The panel comes in 2 thicknesses (1 1/8 inch and 1 1/2 inch). The understructure supports included in this study include Pedestal head and base, Stringer, HD Stringer, and Cornerlock screws. The panel and understructure combinations used to represent each access flooring system product in this study are based on 2024 sales data that were provided by Global IFS and are shown in Table 1 below. Sales are presented in terms of both the percent of total units sold (where one unit is a 4 ft^2 TecCrete Raised Access flooring unit with applicable understructure and pedestal assembly) and the total mass of product sold. This mass is useful for allocating facility-specific impacts in this LCA report. The physical characteristics of each product, including thickness, mass, area, and load are detailed in Table 4.

TABLE 1. TECCRETE PANEL AND UNDERSTRUCTURE SALES PERCENTAGE

Product	Thickness (in)	Under Structure	Sales (% by # units)	Sales (% of by mass)
TecCrete 1250	1 1/8	Cornerlock	70%	65%
TecCrete 1500	1 1/8	Stringer	8%	7%
TecCrete 1500SL	1 1/2	Cornerlock	4%	5%
TecCrete 2000	1 1/2	Stringer	5%	6%
TecCrete 2500	1 1/2	HD Stringer	13%	17%

Table 2 and Table 3 present additional information about TecCrete system performance in terms of flammability and combustibility. The information reported in Table 2 and Table 3 applies to all TecCrete product systems included in this analysis.

TABLE 2. ADDITIONAL SYSTEM PERFORMANCE FOR TECCRETE – FLAMMABILITY

Method	Bare Panel Top Surface Concrete	Bare Panel Bottom Surface Film
ASTM E841	Class A	Class A
CAN/ULC S1022	Flame Spread 25 Smoke Developed 50	Flame Spread 25 Smoke Developed 50

TABLE 3. ADDITIONAL SYSTEM PERFORMANCE FOR TECCRETE - COMBUSTIBILITY

Test Parameter	ASTM E136		CAN/ULC S114	
	Acceptance Level	Result	Acceptance Level	Result
Temperature Rise	<30ºC	Pass	<36ºC	Pass
Flaming after 30 s	None	Pass	None	Pass
Weight Loss	<50%	Pass	<20%	Pass

2.3 Application

TecCrete access floor systems can be used for a wide array of applications, including office, data centers, casinos, residential buildings, institutions, learning environments, retail, industrial, government, medical, restaurant, hospitality, and temporary spaces. TecCrete floor systems are appropriate for both renovations and new construction projects, and can be placed on top of any floor deck (e.g., reinforced concrete or mass timber). TecCrete floor systems are designed to last for the life of the building, which is assumed to be 75 years after the initial installation. TecCrete access floor systems can be used with a variety of finishes, including high-pressure laminate, vinyl, carpet, rubber, wood, cork, LVT, and terrazzo. TecCrete access floor systems can also be installed without a separate flooring finish. Optional finishes and the materials required for their installation are not included in this EPD.

2.4 Declaration of Methodological Framework

The goal of this LCA is to quantify the environmental performance of five Global IFS TecCrete raised access flooring systems—TecCrete 1250, 1500, 1500SL, 2000, and 2500—each assessed individually. The scope and methods of this study are intended to conform with ISO 14040, ISO 14044, and ISO 21930, which serves as the reference PCR [1–4]. UL PCR Part A for Building-Related Products and Services and UL PCR Part B for Flooring are used to inform aspects of the analysis that are related to the common flooring that the Part B PCR was intended to support [5,6]. The analysis and results for each product are included in this report and reported as part of a single EPD. This study is not intended to support comparative assertions disclosed to the public.

This EPD is considered a cradle-to-grave study of environmental impacts. The LCA stages included in this EPD are presented in Table 21. The Allocation and Cut-off rules applied to this study are discussed in detail in Section 3.6. The LCA Study followed an attributional approach, and no known flows are deliberately excluded from this EPD aside from the use of electric band saws in the use phase, which is discussed in Section 3.6.

The Estimated Service Life of the building was informed by UL Product Category Rules for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements, UL Environment, V4.0, 2022 [7]. The Estimated Service Life (ESL) of the building is assumed to be 75 years. The Reference Service Life (RSL) of the TecCrete access floor system is 75 years, as TecCrete floor systems are built to last the life of a building.

2.5 Technical Data

The following technical data defines the function and performance of the TecCrete flooring system. The tables are adapted from Tables 1-5 in Section 2.5 of the UL PCR Part B: Flooring, which was used to inform some assumptions and technical data reported in this EPD [8], even though ISO 21930 was used as the reference PCR.

TABLE 4. TECHNICAL DATA FOR TECCRETE FLOORING SYSTEM

Name	Value	
Core Type	Concrete	
Thickness (inch) (panel thickness without pedestal)	1.125 (TecCrete 1250, 1500) 1.5 (all other models)	
Load (lbs)*	1.125 Inch	1250, 1500
	1.5 Inch	1500**, 2000, and 2500
Product weight (lb/ft^2)	TC 1250	11.90
	TC 1500	12.36
	TC 1500SL	15.65
	TC 2000	15.92
	TC 2500	16.06
Panel Size (Inch)	24 X 24	
Pedestal height (inch)	3 (TecCrete 1250) 15 (all other models)	

**Load is designated by the TecCrete model number. For instance, TecCrete 1250 has a concentrated static load rating of 1250 lbs. Further information is given in*
Table 5 below.
***The 1.5 inch panel with a load rating of 1500 lbs is referred to as the 1500SL model.*

TABLE 5. TECCRETE SYSTEM PERFORMANCE CRITERIA FOR DIFFERENT LOAD SYSTEMS

Product	Concentrated[1]	Static Load Rating		Dynamic Load Rating	
		Allowable[2] Uniform Load	Utlimate[3] Concentrated	Rolling 10 Pass[4]	Rolling 10,000[5] Pass
TC 2500	2500lbs	900 psf	3100lbf	2000lbs	2000lbs
TC 2000	2000lbs	800 psf	2800lbf	1750lbs	2000lbs
TC1500 SL	1500lbs	700 psf	2500lbf	1500lbs	1250lbs
TC1500	1500lbs	700 psf	2500lbf	1500bs	1250lbs
TC1250	1250lbs	600 psf	1800lbf	1300lbs	900lbs

1 The panel deflection shall not exceed 0.1" at the rated load and the permanent set shall not exceed 0.01"
2 Allowable loads based on the ultimate test strength divided by a safety factor exceeds 5, in accordance with AC300
3 The maximum load reached before failure with lin 2 indenter at the mid span per CISCA
4 Test using wheel A per CISCA
5 Test using wheel B per CISCA

2.6 Market Placement / Application Rules

The products declared in this document comply with the "Recommended Test Procedures for Access Flooring" as established by the Ceiling and Interior Systems Construction Association (CISCA). Specifications based on these test procedures are available for each TecCrete system at https://www.globalifs.com/specifications. TecCrete is

approved as a raised floor surface under the 2015, 2018, and 2021 International Building Code, and more information on this approval can be found at https://icc-es.org/wp-content/uploads/report-directory/ESR-5124.pdf. TecCrete product systems were also tested for emissions of VOCs using testing to CDPH/EHLB/Standard Method V1.2-2017. They were determined to be compliant, exceeding the VOC and formaldehyde thresholds for use in schools and private office buildings. The manufacture of TecCrete is compliant with ISO 9001 and ISO 14001.

2.7 Material Composition

The TecCrete product system contains no regulated substances. The following tables show the material composition for TecCrete systems. The expanded shale aggregate used in all TecCrete systems is created from 100% pre-consumer recycled fines, as documented by Global IFS's supplier. The material feedstock for creating the expanded shale aggregate is treated as a recycled product in the calculations; however, the energy burdens associated with creating the aggregate from this recycled material are still included as part of the impact of TecCrete products.

Some of the water in each TecCrete product is evaporated during the concrete curing process, so the total weight per functional unit shown in Table 6 is higher than the total panel weight for the final (shipped) product.

TABLE 6. TECCRETE PANEL WEIGHT BY MATERIAL PER FUNCTIONAL UNIT

Material Type	TC 1250 Weight		TC 1500 Weight		TC 1500SL Weight		TC 2000 Weight		TC 2500 Weight	
	kg/m2	%	kg/m2	%	kg/m2	%	kg/m2	%	kg/m2	%
Steel	9.14	14.5%	11.40	17.5%	10.10	12.4%	11.42	13.6%	12.09	14.3%
Concrete*	53.71	85.4%	53.71	82.5%	72.68	87.5%	72.68	86.4%	72.68	85.7%
Other**	0.01	0.0%	0.01	0.0%	0.01	0.0%	0.01	0.0%	0.01	0.0%

**The concrete category includes a proprietary mixture of gypsum, portland cement, aggregate, and water.*
***Other products include polyethylene film, polypropylene, and enamel paint.*

The quantity of recycled content in the constituent ingredients of TecCrete systems is summarized in Table 7 below. The treatment of recycled content upstream is discussed further in Section 2.5.2. The mass-weighted recycled content for each TecCrete system is summarized in Table 8.

TABLE 7. QUANTITY OF RECYCLED CONTENT PER RAW MATERIAL REPORTED BY GLOBAL IFS FOR ALL TECCRETE SYSTEMS.

Raw material	Post-Consumer Recycled (%)	Pre-consumer Recycled (%)	Total Percent Recycled (%)	Recyclable* (%)
Steel	60%	18%	78%	100%
Gypsum	0%	0%	0%	0%
Cement	0%	9%	9%	0%
Aggregate	0%	100%	100%	0%
Water	0%	0%	0%	0%
Other**	0%	0%	0%	0%

**Recyclable percentage was provided by the client and is not the same as the recycling rate shown in Table 13.*
***Other contains plastic products that comprise less than 1% of the total mass.*

TABLE 8. WEIGHTED AVERAGE PERCENT OF RECYCLED CONTENT ON A MASS-WEIGHTED BASIS FOR EACH TECCRETE SYSTEM.

Raw material	Post-Consumer Recycled (%)	Pre-consumer Recycled (%)	Recyclable* (%)
TecCrete 1250	9.4%	54.3%	15.7%
TecCrete 1500	11.3%	52.9%	18.9%
TecCrete 1500SL	7.9%	56.1%	13.2%
TecCrete 2000	8.8%	55.5%	14.7%
TecCrete 2500	9.2%	55.2%	15.4%

**Recyclable percentage is a metric devised by the client and is not the same as the recycling rate shown in Table 13.*

TecCrete systems require several ancillary materials in their production and installation. Those ancillary materials are shown in Table 9 with their allocation to each product in terms of mass per functional unit.

TABLE 9. TECCRETE PANEL ANCILLARY MATERIAL WEIGHT PER FUNCTIONAL UNIT INSTALLED

Material Type	TC 1250 Weight (kg/m^2)	TC 1500 Weight (kg/m^2)	TC 1500SL Weight (kg/m^2)	TC 2000 Weight (kg/m^2)	TC 2500 Weight (kg/m^2)
Crete Release	3.92E-03	4.08E-03	5.16E-03	5.25E-03	5.30E-03
Weld Wire	2.09E-03	2.18E-03	2.76E-03	2.80E-03	2.83E-03
Lubricant for STS Line	9.48E-04	9.85E-04	1.25E-03	1.27E-03	1.28E-03
Solvent Cleaner	9.98E-04	1.04E-03	1.31E-03	1.34E-03	1.35E-03
Adhesive	1.00E-02	1.04E-02	1.32E-02	1.34E-02	1.35E-02

2.8 Manufacturing

The manufacture of TecCrete Access floor is performed at the Global IFS facility in Kentwood, MI. First, Galvanized steel comes in large coils, which are fed into a press. The steel is cut and punched, the pans are formed, and the tabs are then pressed into the pan. The bottom of the pan is covered in a thin piece of clear plastic. Then, the corner inserts are attached to the bottom of the pan. The complete pan is then carried over to the concrete line on an overhead conveyor. The pan is placed onto a caul, which carries it through the filling line. The pan moves under the mixing station to be filled with concrete, which is delivered from above. The pan is then moved to a vibration table, where the concrete is vibrated to ensure even coverage to the edge of the pan. Next, the assembly is carried down the production line, where it rests until it reaches a green hardness. After achieving this green hardness, it is sent to the grinder, where it passes under three sets of grinding heads to level the top surface of the panel. Next, it moves to a cleaning station where the edges of the panels are cleaned. The panel is then moved to an oven, where it remains for 48 hours to remove excess moisture from the concrete. The complete panel then moves to the packing station, where it is skidded and banded for shipment. The manufacture includes the generation of scrap material due to the inherent waste generated in the manufacturing process as well as products that do not meet Global IFS quality standards.

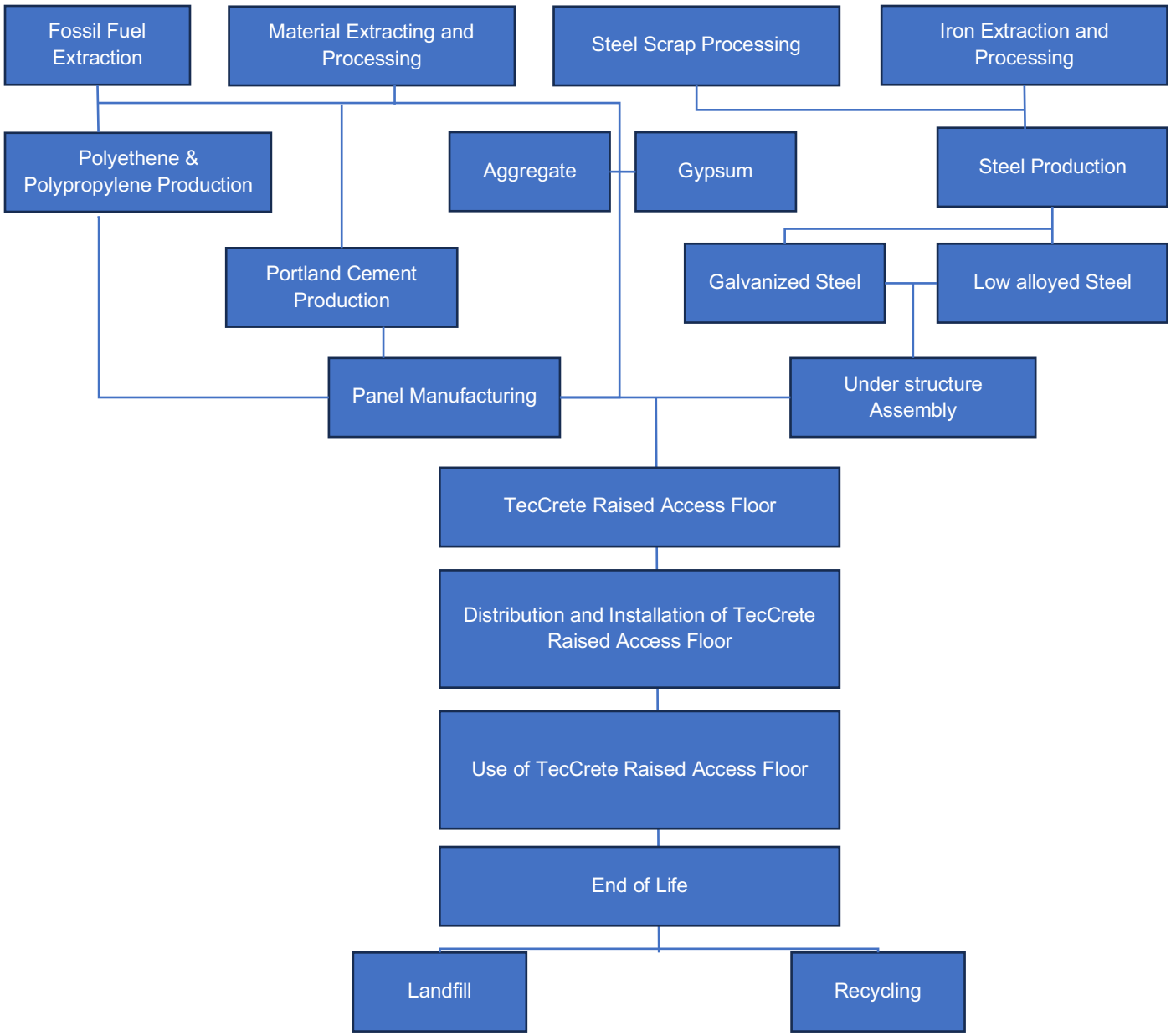

FIGURE 2. PRODUCT DIAGRAM FOR TECCRETE FLOORING

2.9 Packaging

The following tables show the composition of TecCrete system packaging, separated by the packaging for the floor panel and the pedestal assembly, as well as the recycling, landfill, and incineration rates for all packaging. The packaging mass per functional unit is identical for all TecCrete systems. TecCrete packaging contains no regulated substances. No reusable packaging is used for the TecCrete system.

TABLE 10. PACKAGING FOR ALL TECCRETE FLOOR SYSTEM PANELS IN UNITS OF KG PACKAGING MASS PER FUNCTIONAL UNIT

Material Type	Weight (kg/m^2)
Paper	2.69E-03
Polyester	3.52E-02
Wood	1.37E+01
Total	1.37E+01

TABLE 11. PACKAGING FOR ALL TECCRETE FLOOR SYSTEM PEDESTALS IN UNITS OF KG PACKAGING MASS PER FUNCTIONAL UNIT

Material Type	Weight (kg/m^2)
Paper	5.38E-03
Corrugated board	5.38E+00
Polyester	3.52E-02
Total	5.42E+00

TABLE 12. APPLICABLE PACKAGING RECYCLING, LANDFILL, AND INCINERATION RATES

Waste: Stage/ Source	Type of Waste	Recycling Rate	Landfill Rate	Incineration Rate
Packaging Disposal	Plastics	9%	68%	17%
	Pulp (cardboard, paper)	68%	20%	5%

2.10 Product Installation

The installation of TecCrete requires the use of hand tools for installation, band saws with a carbide-tipped blade for any cutting of TecCrete products on site, and adhesives. The adhesives are accounted for in the ancillary materials shown in Table 7. The energy and material consumption of the band saws (which consume blades after 90-120 cuts) were below the Cut-off criteria, representing less than 1% of mass and energy consumption and less than 1% (all less than 0.1%) for the key environmental impacts measured (GWP, POCP, AP, EP, ODP), and were thus excluded from this analysis.

The product installation also includes the disposal of all packaging noted in Table 10, Table 11, and Table 12. Disposal includes transportation to the disposal site (assumed to be 161 km per Table 7 in the PCR Part B: Flooring [8]) and waste processing emissions based on the recycling, landfill, and incineration rates noted in Table 12. In Table 10 of the UL PCR Part A [7], which was used to inform this EPD, the rates for packaging disposal did not add up to 100%, so any missing disposal quantities were added to the landfill rate.

2.11 Use Conditions

The use-phase includes in-use carbonation of the concrete in the TecCrete floor panel for 75 years. There is no use-phase maintenance or cleaning included in this LCA due to the fact that most TecCrete system installations include a secondary flooring surface on top of the TecCrete panels, so the concealed TecCrete panels are not cleaned or maintained in that case.

2.12 Reference Service Life and Building Service Life

The Estimated Service Life (ESL) of the building is assumed to be 75 years. The Reference Service Life (RSL) of the TecCrete access floor system is 75 years, as TecCrete floor systems are built to last the life of a building.

2.13 Re-Use Phase

TecCrete access floor systems are not typically reused at end-of-life, which is reflected in the LCA described herein; however, the system can be uninstalled from its original location and reused in other buildings.

2.14 Disposal

The UL PCR Part A provides disposal assumptions for both the packaging and the product [7], which are summarized in Table 13 below as they pertain to this study. Disposal includes transportation to the disposal site (assumed to be 161 km per Table 7 in the PCR Part B: Flooring [8]) and waste processing emissions based on the recycling, landfill, and incineration rates noted in Table 13. Disposal also includes carbonation from the end of the product's service life (75 years) to the limit of 100 years noted in ISO 21930 [9]. Carbonation calculations are performed based on EN 16757 [10].

TABLE 13. APPLICABLE PRODUCT RECYCLING, LANDFILL AND INCINERATION RATES

Waste: Stage/ Source	Type of Waste	Recycling Rate	Landfill Rate	Incineration Rate
Product Disposal	Nonstructural Steel	74%	26%	0%
	All other materials	0%	100%	0%

3.0 Methodology Summary

The potential environmental impacts of the TecCrete floor System (including packaging) throughout its entire life cycle were assessed in accordance with international standards for life cycle assessment (ISO 14040 / 14044 (2006) [11,12] and ISO 21930 (2017) [9,13]). This business-to-business Type III declaration conforms to ISO 14025 (2006) [11] and includes the analysis of five TecCrete flooring system products.

3.1 Functional unit

The functional unit is defined as (1) m^2 of floor covering, as informed by the UL PCR Part B: Flooring [8] for 75 years (RSL). The mass of each declared TecCrete product system in its finished format is presented in Table 14. Key technical criteria that define functional performance for each flooring system are outlined in Table 1-Table 5

TABLE 14. FUNCTIONAL UNIT INFORMATION FOR TECCRETE PANELS

TecCrete Access Flooring System	Weight
TecCrete 1250, 1 1/8th inch with Cornerlock	58.08 kg/m^2
TecCrete 1500, 1 1/8th inch with Stringer	60.34 kg/m^2
TecCrete 1500SL, 1 1/2 inch with Cornerlock	76.43 kg/m^2
TecCrete 2000, 1 1/2 inch with Stringer	77.74 kg/m^2
TecCrete 2500, 1 1/2 inch with HD Stringer	78.42 kg/m^2

3.2 System boundary

The LCA system boundary for TecCrete includes cradle-to-grave life cycle stages. This boundary considers product stage (raw material extraction and processing, transport to the manufacturer, and manufacturing), construction (transport for use and installation), use (carbonation), and end-of-life (demolition, transport, waste processing, and disposal). The benefits and loads beyond the system boundary for reuse, recovery, and recycling potential (module D) are not included in this study. The cradle-to-grave system boundary includes all unit processes contributing measurably to the category indicator results. As per the sensitivity analysis performed the system boundary does not need any refining and all the stages included in the initial system boundary stays the same.

Capital goods and infrastructure flows for flooring do not significantly impact the results and conclusions of the LCA or provide additional environmental information; therefore, these flows are excluded from the unit processes used to model the LCIA per guidance in the UL PCR Part B: Flooring [8].

A description of each life cycle stage is provided in Table 21.

3.3 Product for Use Phase (Modules B1-B7)

No use-phase cleaning or maintenance is accounted for in this analysis, as the manufacturer reports that the majority of installations include a secondary flooring system on top of TecCrete (e.g., carpet). For such installations, the manufacturer does not recommend regular cleaning or maintenance.

Carbonation of the concrete floor tiles in the TecCrete systems is included in module B1 for the 75-year service life of the building. Carbonation calculations are based on EN 16757 [10], as there is not clear guidance in ISO 21930 or the documents referenced therein.

3.4 Units

SI units are required for all LCA results in UL PCR Part B: Flooring [8], which informed this EPD, so results are reported in SI units (e.g., impact per m^2).

3.5 Estimates and Assumptions

The inputs for manufacturing, packaging, and transporting TecCrete products was provided by Global IFS, and those inputs were applied to unit processes from the ecoinvent database, which is one of the most comprehensive and reliable resources for LCA data available globally [1]. While raw material and sub-component data sets within the ecoinvent 3.11 database typically include raw material extraction, transport, infrastructure, emissions, waste and energy use, they do not include any packaging and/or palletizing that is applied to sub-components in their transport to the finished product manufacturer. Third-party verified ISO 14040/44 secondary

LCI data sets (e.g., ecoinvent) contribute more than 67% of total impact (either at the unit process level or in aggregate) to any of the required impact categories identified by the applicable PCR.

Additionally, the following key assumptions were made:

- All input information is assumed to be as accurate as possible at the time of the study (2025).
- Inventory data for packaging and ancillary materials were modelled with unit process data taken from ecoinvent.
- Because most TecCrete flooring systems are installed with carpet or another flooring medium on top of them, a typical installation does not involve any cleaning or maintenance of TecCrete products.
- The final product destinations and modes of transport for all products distributed from the Kentwood, MI manufacturing facility were provided by Global IFS, so average transport emissions per product were calculated based on transportation destinations, modes of transport, locational sales data for the year 2024, and impact factors derived from the appropriate transportation modes in Ecoinvent.

3.6 Cut-off rules

Cut-off criteria from ISO 21930 were used. Any mass, energy flow, or environmental impact within the product boundary, which consists of less than 1%, may be omitted. Cumulative omitted mass, energy flows, or environmental impact shall not exceed 5%. Cut-off rules shall not be applied to hide data.

In this study, the energy and material consumption of the band saws (which consume blades after 90-120 cuts) were below the Cut-off criteria, representing less than 1% of mass, energy consumption, and environmental impacts (GWP, AP, POCP, EP, and ODP), and were thus excluded from this analysis. No other substances or energy were excluded, and so the cut-off criteria were met.

Further, all substances with hazardous or toxic properties that can be of concern for human health and/or the environment must be identified and included even if it is less than 1% of the total mass. No substances required to be reported as hazardous are associated with the production of this product.

3.7 Data sources

TABLE 15. LCI DATASETS AND ASSOCIATED DATABASES USED TO MODEL THE TECCRETE FLOORING SYSTEM

Flow	Dataset	Data Source	Geography	Publication Date
Panel Materials				
Portland Cement*	Blended Type IL Cement – supplier EPD Cement, limestone 6-10% {RoW}| market for cement, limestone 6-10% | APOS, U [+]	EPD ecoinvent	US ROW	2021 2024
Gypsum**	Primary ingredient quantity data provided by manufacturer, matched with generic material flows from ecoinvent	ecoinvent	Global, US	2024
Aggregate***	Expanded clay {GLO}| market for expanded clay | Cut-off, U	ecoinvent	Global	2024
Steel	Steel, low-alloyed {GLO}| market for steel, low-alloyed | Cut-off, U: CUSTOM [-]	ecoinvent	Global	2024
Galvanized Steel	Steel, low-alloyed {GLO}| market for steel, low-alloyed | Cut-off, U: CUSTOM WITH GALVANIZATION [#]	ecoinvent	Global	2024
Polyethylene film	Polyethylene, linear low density, granulate {GLO}| market for polyethylene, linear low density, granulate | Cut-off, U	ecoinvent	Global	2024
Polypropylene	Polypropylene, granulate {GLO}| market for polypropylene, granulate | Cut-off, U	ecoinvent	Global	2024
Enamel paint	Alkyd paint, white, without water, in 60% solution state {RoW}| market for alkyd paint, white, without water, in 60% solution state | Cut-off, U	ecoinvent	Global	2024
Understructure Materials				
Steel	Steel, low-alloyed {GLO}| market for steel, low-alloyed | Cut-off, U: CUSTOM [-]	ecoinvent	Global	2024
Hot-rolled Seel	Steel pickled hot rolled coil/GLO	Industry Data 2.0	Global	2024
Panel Packaging				
Polyester	Polyethylene terephthalate, granulate, bottle grade {GLO}| market for polyethylene terephthalate, granulate, bottle grade | Cut-off, U	ecoinvent	Global	2024
Wood	EUR-flat pallet {RoW}| market for EUR-flat pallet | Cut-off, U	ecoinvent	RoW	2024
Paper	Paper, woodcontaining, lightweight coated {RoW}| market for paper, woodcontaining, lightweight coated | Cut-off, U	ecoinvent	RoW	2024
Under structure Packaging				
Polyester	Polyethylene terephthalate, granulate, bottle grade {GLO}| market for polyethylene terephthalate, granulate, bottle grade | Cut-off, U	ecoinvent	Global	2024
Corrugated box	Corrugated board box {US}| market for corrugated board box | Cut-off, U	ecoinvent	US	2024
Paper	Paper, woodcontaining, lightweight coated {RoW}| market for paper, woodcontaining, lightweight coated | Cut-off, U	ecoinvent	RoW	2024
	Kraft paper {RoW}| market for kraft paper | Cut-off, U	ecoinvent	RoW	2024
Resource				
Electricity	Electricity, medium voltage {US-RFC}| market for electricity, medium voltage | Cut-off, U	ecoinvent	US (RFC)	2024
Natural Gas	50% Natural gas, high pressure {US}| market for natural gas, high pressure | Cut-off, U AND 50% Natural gas, low pressure {US}| market for natural gas, low pressure | Cut-off, U	ecoinvent	US	2024
Water	Tap water {GLO}| market group for | Cut-off, U	ecoinvent	Global	2024

Transportation				
Road	Transport, freight, lorry, 16-32 metric ton, diesel, EURO 5 {RoW}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 5 | Cut-off, U	ecoinvent	RoW	2024
Rail	Transport, freight, train, fleet average {US}| market for transport, freight, train, fleet average | Cut-off, U	ecoinvent	US	2024
Sea	Transport, freight, sea, container ship, heavy fuel oil {GLO}| market for transport, freight, sea, container ship, heavy fuel oil | Cut-off, U	ecoinvent	Global	2024
Ancillary Materials				
Crete Release	5% Fatty acid {GLO}| market for fatty acid | Cut-off, U 95% Paraffin, at plant/US- US-EI U	ecoinvent Datasmart	Global US	2024 2018
Weld Wire	Steel, low-alloyed {GLO}| market for steel, low-alloyed | Cut-off, U: CUSTOM -	ecoinvent	RoW	2024
Lubricant for STS Line	White spirit {GLO}| market for white spirit | Cut-off, U	ecoinvent	Global	2024
Solvent Cleaner	White spirit {GLO}| market for white spirit | Cut-off, U	ecoinvent	Global	2024
Adhesive	Polyurethane adhesive {GLO}| market for polyurethane adhesive | Cut-off, U	ecoinvent	Global	2024

** The dataset for Portland cement is a combination of data from the Type III EPD for Type IL Portland Cement specific to the client's cement supply and the Ecoinvent data for Type IL Portland cement. The Ecoinvent data was only used to fill gaps for data that was not reported in the Type III EPD.*

**** The generic dataset for this type of aggregate was modified to account for the recycled content by removing the impacts due to raw material extraction, and further, no credits for "avoided burden" were given.*

+ APOS, U was used for limestone cement, as no Cut-off, U value was available in Ecoinvent for this material.

- Steel data were modified to account for a 78% recycled content to match the recycled content of all steel used in TecCrete

 # All galvanized steel included an added process for zinc coating using ecoinvent data

3.8 Data quality

TABLE 16. DATA QUALITY ASSESSMENT - TECCRETE FLOORING SYSTEM

Requirement	Assessment
Time Related Coverage: age of data and the minimum length of time over which data should be collected	The material and energy inputs provided by Global IFS are from the manufacturer based on measured primary data in 2024 for their products. Secondary data for the Life Cycle Inventory (LCI) was obtained primarily from ecoinvent 3.11 dataset, and the most up-to-date data available at the time of the study was used. Many of the parameters included in the study reference data that is current through 2024 or 2025. Thus, it is considered high quality data.
Geographical Coverage: geographical area from which data for unit processes should be collected to satisfy the goal of the study	The ecoinvent 3.11 database typically bases its research and measurement on specific producers, usually in Europe, and adjust for global energy and transport considerations. Ecoinvent data for this project was largely based on the global (GLO) and rest-of-world (RoW) geographies, which are meant to represent large global regions including the USA. Thus, the material market data is considered medium quality. The electricity grid selected for the production phase was specific to the RFC grid region in the USA, where the manufacturer is located. This comprises two EGRID regions, the RFCM region (which includes the manufacturer location) and the RFCW location. The electricity-specific data is considered high quality.

Technology Coverage: specific technology or technology mix	Global IFS provided the primary material and energy input data, based on their sales data and composition of TecCrete and its transport packaging. TecCrete production and materials have not changed substantially since the release of the product, so this analysis is expected to remain applicable to this technology long into the future. Thus, it is considered good quality.
Precision: measure of the variability of the data values for each data expressed	Global IFS provided the primary material and energy input data, based on sales data and composition and density. Given the simplicity of this data, it is anticipated that there are few opportunities for variability in data. Thus, the data is considered high quality.
Completeness: percentage of flow that is measured or estimated	Global IFS provided the primary material and energy input data, based on sales data and composition. All materials reported in the data were included in the raw materials phase of the LCA. Energy data was provided by the manufacturer and was measured in the most recent year of production for the product prior to the creation of this EPD; thus, this is considered 100% measured. Background or secondary data provided by the Ecoinvent database, are globally regarded as high-quality and researched data. At the time of the study, version 3.11 is the most up-to-date dataset available in Ecoinvent All known materials, energy, transport, and waste were included in the LCA. Thus, it is considered high quality.
Representativeness: qualitative assessment of the degree to which the data set reflects the true population of interest	Global IFS provided the primary material and energy input data, based on sales data, material composition and measured energy consumption. Given Global IFS expertise and in-depth knowledge of its products, it is anticipated that primary data is representative of actual data. The representativeness is considered high quality.
Consistency: qualitative assessment of whether the study methodology is applied uniformly to the various components of the analysis	The same data sources, databases, assumptions, allocation, and methodology were applied consistently to all the stages of the study and for each TecCrete product. The consistency is considered high quality.
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	Provided the practitioner has access to the same data sources described in the report, the results would be reproducible. It is considered high quality.
Data Sources: Description of data sources	Global IFS provided the primary material and energy input data, based on sales data, material composition, and measured energy consumption. Thus, the data is considered high quality. Secondary data was derived from open sources, such as Ecoinvent 3.11, publicly available Type III EPDs, research, and literature review. The secondary data is also considered high quality.

Uncertainty: Description of known sources of potential uncertainty	Uncertainty is introduced at multiple points in an LCA study, including through the assumed allocation methods, unknown material sources, unknown upstream processing data, and uncertain characterization factors. Uncertainty was not quantified as part of this study, though it was addressed in a sensitivity analysis. Secondary data sets are comprised of mostly industry-average, peer-reviewed data. The cement EPD utilized was independently critically reviewed. Ecoinvent utilizes the pedigree matrix to assess the uncertainty of data sets. Key assumptions are stated in the report. Uncertainty of results in this study is considered reasonably acceptable.

3.9 Period under review

The period of review is calendar year 2024 (January 2024 – December 2024).

3.10 Allocation

Resource use (electricity, natural gas, and water), wastewater processing, and the use of ancillary materials as part of the installation of TecCrete products were all allocated by mass (physical allocation). Because subdivided manufacturing utility consumption and ancillary material data for the individual products were not available, co-product allocation was used. This allocation was performed by combining the 2024 sales data provided by Global IFS, in units of square footage sold per product system, and the area density (kg mass per m^2 floor area) of each TecCrete product. The resource use, wastewater processing, and ancillary material data was also from calendar year 2024.

The general principles of allocation are provided by ISO 21930. For materials that cross the system boundary, this study follows the cut-off approach. Any recovery processes for secondary (i.e., recycled) materials carry no burden as they enter the system, and likewise, there is no allocation of impacts away from the studied system to any wastes that might be reused, recycled, or recovered for use in a subsequent product system.

3.11 Comparability and benchmarking

The PCR used to generate this EPD 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 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 being modeled.

4.0 LCA: Scenarios and additional technical information

This EPD uses ISO 21930 as the reference PCR, and it also includes technical information that is listed in the UL PCR Part B: Flooring [8], as this technical information is relevant to all flooring and flooring-adjacent products, so it is used as a basis for some of the analysis that underlies the impact calculations in this EPD.

4.1 Transport to the building site

TABLE 17. TRANSPORT TO THE BUILDING SITE (A4)

Name	Value		Unit
Fuel Type	Truck: Diesel		-
	Rail: Diesel		
	Ship (Sea): Heavy fuel oil		
Vehicle type	Truck, Freight transport 16-32 MT		-
	Rail, freight transport 1000 GT		
	Ship, transoceanic freight ship 43,000 DWT		
Transport distance*	Road	1,344	km
	Rail	206	
	Sea	26	
Capacity Utilization	100		%
Weight of product transported	TecCrete 1250	58.08	kg/m^2
	TecCrete 1500	60.34	
	TecCrete 1500SL	76.43	
	TecCrete 2000	77.74	
	TecCrete 2500	78.42	
Volume of products transported	TecCrete 1250	0.182	m^3/m^2
	TecCrete 1500	0.182	
	TecCrete 1500SL	0.182	
	TecCrete 2000	0.182	
	TecCrete 2500	0.182	
Capacity Utilization Volume Factor	1		-

**Weighted average based on sales volume of in each location*

4.2 Installation Into the Building (A5)

TABLE 18. INSTALLATION INTO THE BUILDING

Name	Value		Unit
Ancillary Material	TC 1250	1.80E-02	kg/m2
	TC 1500	1.87E-02	
	TC 1500SL	2.37E-02	
	TC 2000	2.41E-02	
	TC 2500	2.43E-02	
Net freshwater consumption specified by water source and fate (e.g., X m3 river water evaporated, X m3 city water disposed to sewer)	All products	0	m3/m2
Other resources	All products	0	kg/m2
Electricity consumption	All products	0.089	kWh/m2
Other energy carriers	All products	0	MJ/m2
Product loss per functional unit	TC 1250	1.64	kg/m2
	TC 1500	1.64	
	TC 1500SL	2.17	
	TC 2000	2.17	
	TC 2500	2.17	
Waste materials at the construction site before waste processing generated by product installation	TC 1250	1.64	kg/m2
	TC 1500	1.64	
	TC 1500SL	2.17	
	TC 2000	2.17	
	TC 2500	2.17	
Output materials resulting from on-site waste processing (specified by route; e.g. for recycling, energy recovery and/or disposal)	All Products	0	kg/m2
Mass of packaging Waste (All Products)	Paper	8.07E-03	kg/m2
	Corrugated Board	5.38E+00	
	Wood	7.04E-02	
	Plastic	1.37E+01	
Biogenic carbon contained in packaging	TC 1250	1.44	kg CO2/m2
	TC 1500	1.44	
	TC 1500SL	1.8	
	TC 2000	1.8	
	TC 2500	1.8	
Direct emissions to ambient air, soil, and water	All Products	0	kg/m2
VOC emissions	The materials are inherently non-emitting and were shown to exceed the performance requirements in CDPH/EHLB/Standard Method V1.2-2017		

Disposal of waste material includes transportation to the disposal site (assumed to be 161 km per Table 7 in the UL PCR Part B: Flooring [8]) and waste processing emissions based on the recycling, landfill, and incineration rates noted in Table 13.

4.3 Reference service life

TABLE 19. REFERENCE SERVICE LIFE

Name	Value	Unit
RSL	75	Years
Declared product properties (at the gate)	Refer to Table 4	-
Design application	Installation per recommendation by manufacturer	-
Indoor environment (if relevant for indoor applications)	Normal building operating conditions	-
Use conditions	Normal building operating conditions	-
Maintenance	None	

4.4 Maintenance, Repair, Replacement, and Refurbishment (B2-B5)

The predominant installation method involves a second floor covering on top of the TecCrete floor system, so TecCrete does not require ongoing cleaning or maintenance. Neither the panel nor the under structure are expected to be replaced or refurbished during normal use over the 75-year ESL.

4.5 Operational energy use (B6) and water use (B7)

There is no operational energy or water use associated with the use of the product and the results for these modules are reported as zero.

4.6 End of Life (C1-C4)

For the TecCrete access floor systems, no emissions are generated during deconstruction, since they are manually disassembled, and results for module C1 are reported as zero. Transportation of waste material assumes a 161km distance to disposal as per the UL PCR Part B: Flooring [8]. The UL document also provides disposal assumptions as described in Section 2.14.

TABLE 20. END OF LIFE (C1-C4)

Name		Value		Unit
Assumptions for Scenario Development (description of deconstruction, collection, recovery, disposal method and transportation)				
Collection Process	Collected Separately	TecCrete 1250	6.78	kg
		TecCrete 1500	8.45	
		TecCrete 1500SL	7.49	
		TecCrete 2000	8.47	
		TecCrete 2500	8.97	
	Collected with Mixed Construction Waste	TecCrete 1250	51.30	kg
		TecCrete 1500	51.89	
		TecCrete 1500SL	68.94	
		TecCrete 2000	69.27	
		TecCrete 2500	69.45	
Recovery	Reuse	0.00		kg
	Recycling	TecCrete 1250	6.78	kg
		TecCrete 1500	8.45	
		TecCrete 1500SL	7.49	
		TecCrete 2000	8.47	
		TecCrete 2500	8.97	
	Incineration	TecCrete 1250	4.40E-06	kg
		TecCrete 1500	2.81E-05	
		TecCrete 1500SL	3.03E-05	
		TecCrete 2000	3.03E-05	
		TecCrete 2500	3.03E-05	
	Incineration with energy recovery	All Products	0.00	kg
	Energy conversion (specify efficiency rate)	All Products	Not Applicable	
Disposal (specified by type)	Landfill	TecCrete 1250	51.59	kg
		TecCrete 1500	52.18	
		TecCrete 1500SL	69.28	
		TecCrete 2000	69.62	
		TecCrete 2500	69.80	
Removals of biogenic carbon (excluding packaging)			0	kg CO_2

5.0 LCA Results

The life cycle stages included in this assessment are reported in Table 21 and conform with ISO 21930. Table 21 identifies the life cycle stages and information modules in scope and considered in this life cycle assessment. Results were considered for the LCA modules that constitute a cradle-to-grave assessment (A-C). However, LCA modules B2-B7 (maintenance, repair, replacement, refurbishment, operational energy use, and operational water use), C1 (Demolition), and C3 (Disposal) had no associated impacts. Therefore, those modules have zero contribution to the overall life cycle assessment results. Any stages that have zero contribution to the overall life cycle assessment are not specifically shown in the results tables in this document.

TABLE 21. TECCRETE FLOORING SYSTEMS SYSTEM BOUNDARY

Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits and Loads Beyond the System Boundary
Raw material supply	Transport	Manufacturing	Transport	Construction	Use	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Demolition	Transport	Water Processing	Disposal	Future reuse, recycling, or energy recovery 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	MND

X – Included in the study
MND – Module not declared

The impact categories reported in this LCA are based on ISO 21930 (the reference PCR), and include results that come predominantly from TRACI v2.2, but with additional results from CML-IA baseline V3.1 [4], Environmental Footprint 3.1 (adapted) V1.03 / EF 3.1 normalization and weighting set [5], and Cumulative Energy Demand (LHV) V1 [1]. All results are presented per functional unit, which is 1 m² of TecCrete flooring system over a building life of 75 years. Life Cycle Impact Assessment (LCIA) results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks. The TRACI 2.2 [3] LCIA method reports the following categories that are used in this report: Ozone Depletion Potential (ODP), Acidification Potential (AP), Eutrophication Potential (EP), and Smog Formation Potential (SFP). The IPCC 2021 GWP100 method is used as the basis for global warming potential (GWP), and carbon removals or emissions in the product or packaging are added to the IPCC data for reported global warming potential (GWP). CML-IA baseline V3.11 is used to report Abiotic Fossil Fuel Depletion (ADP fossil). These six 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 biogenic carbon emissions and removals for the product are not included, as the product does not contain biogenic carbon. Biogenic carbon emissions and removals were included for packaging.

Results are reported for each TecCrete product system separately based on the life cycle assessment categories as described in Table 22, resource use and waste indicators described in Table 23, and carbon dioxide removal and emission indicators in Table 24

TABLE 22. LIFE CYCLE ASSESSMENT IMPACT CATEGORIES ANALYZED

Impact Category	Acronym	Unit	Impact Assessment Method
Global warming potential	GWP	kg CO2 eq	IPCC 2021 GWP100 (incl. CO2 uptake) V1.03
Acidification potential	AP	kg SO2 eq	TRACI 2.2 V1.00 / US 2008
Smog	POCP	kg O3 eq	TRACI 2.2 V1.00 / US 2008
Marine eutrophication	EP	kg N eq	TRACI 2.2 V1.00 / US 2008
Ozone depletion	ODP	kg CFC-11 eq	TRACI 2.2 V1.00 / US 2008
Abiotic depletion (fossil fuels)	ADPfossil	MJ	CML-IA baseline V3.11 / EU25

TABLE 23. RESOURCE USE AND WASTE INDICATORS ANALYZED

Impact Category	Acronym	Unit	Source
Renewable primary energy ex. raw materials	RPRE	MJ	Calculated from cumulative Energy Demand (LHV) V1.01 / Cumulative energy demand
Renewable primary energy used as raw materials	RPRM	MJ	Not applicable
Nonrenewable primary energy ex. raw materials	NRPRE	MJ	Calculated from cumulative Energy Demand (LHV) V1.01 / Cumulative energy demand
Nonrenewable primary energy used as raw materials	NRPRM	MJ	Not applicable
Use of Secondary materials	SM	kg	Calculated from secondary data
Use of renewable secondary fuels	RSF	MJ	Not applicable
Use of nonrenewable secondary fuels	NRSF	MJ	Not applicable
Recovered energy	RE	MJ	Calculated from secondary data
Use of net freshwater	FW	m3	Environmental Footprint 3.1 (adapted) V1.03 / EF 3.1 normalization and weighting set
Hazardous waste disposed	HWD	kg	Calculated from secondary data
Nonhazardous waste disposed	NHWD	kg	Calculated from secondary data
High-level radioactive waste, conditioned to final repository	HLRW	kg	Calculated from inventory data
Intermediate and low-level radioactive waste, conditioned to final repository	ILLRW	kg	Calculated from TRACI 2.2 indicators
Components for reuse	CRU	kg	Not applicable
Materials for recycling	MFR	kg	Calculated using PCR guidance
Materials for energy recovery	MER	kg	Not applicable
Recovered energy exported from the product system	EE	MJ	Calculated from secondary data

TABLE 24. CARBON DIOXIDE REMOVALS AND EMISSIONS ANALYZED

Impact Category	Acronym	Unit	Source
Biogenic carbon removals (Product)*	BCRP	kg CO2e	Not applicable
Biogenic carbon emissions (Product)*	BCEP	kg CO2e	Not applicable
Biogenic carbon removals (Packaging)	BCRK	kg CO2e	IPCC 2021 GWP100 (incl. CO2 uptake) V1.03
Biogenic carbon emissions (Packaging)	BCEK	kg CO2e	IPCC 2021 GWP100 (incl. CO2 uptake) V1.03
Biogenic carbon emissions (Waste combustion)	BCEW	kg CO2e	Not applicable
Carbon emissions from calcination	CCE	kg CO2e	Calculated from cement EPD
Carbon removals from carbonation	CCR	kg CO2e	Calculated from EN 16757:2017 [10]
Carbon emissions from combustion of waste from renewable sources used in production	CWR	kg CO2e	Not applicable
Carbon emissions from combustion of waste from non-renewable sources used in production	CWNR	kg CO2e	Not applicable

5.1 TecCrete 1250 Results

Results were considered for the LCA modules constituting a cradle-to-grave assessment (A-C). However, LCA modules B2-B7, C1, C4 had no associated impacts.

TABLE 25. TECCRETE 1250 LIFE CYCLE ASSESSMENT RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
GWP	kg CO_2 eq	6.33E+01	8.10E+00	4.29E+00	-4.81E+00	1.68E+00	-2.63E+00	**6.99E+01**
AP	kg SO_2 eq	3.09E-01	2.71E-02	1.23E-02	0.00E+00	5.15E-03	1.21E-03	**3.54E-01**
POCP	kg O_3 eq	3.92E+00	6.20E-01	1.96E-01	0.00E+00	1.13E-01	3.75E-02	**4.89E+00**
EP	kg N eq	3.90E-02	5.29E-03	1.87E-03	0.00E+00	9.68E-04	3.14E-04	**4.74E-02**
ODP	kg CFC-11 eq	1.11E-06	1.08E-07	6.41E-08	0.00E+00	2.25E-08	2.21E-09	**1.30E-06**
ADPfossil	MJ	6.90E+02	1.10E+02	3.59E+01	0.00E+00	2.29E+01	1.89E+00	**8.60E+02**
ADP	kg Sb eq	6.60E-03	2.61E-05	1.29E-04	0.00E+00	5.50E-06	5.50E-08	**6.76E-03**

TABLE 26. TECCRETE 1250 RESOURCE USE AND WASTE RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
RPRE	MJ	8.18E+01	1.55E+00	2.53E+00	0.00E+00	3.10E-01	1.60E-02	**8.62E+01**
RPRM	MJ	1.87E+01	0.00E+00	3.95E-01	0.00E+00	0.00E+00	2.39E-02	**1.91E+01**
NRPRE	MJ	8.13E+02	1.12E+02	3.96E+01	0.00E+00	2.32E+01	1.90E+00	**9.89E+02**
NRPRM	MJ	2.44E+01	0.00E+00	5.15E-01	0.00E+00	0.00E+00	0.00E+00	**2.49E+01**
SM	kg	3.76E+01	0.00E+00	1.03E+00	0.00E+00	0.00E+00	0.00E+00	**3.86E+01**
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
RE	MJ	1.33E+00	0.00E+00	3.95E-02	0.00E+00	0.00E+00	0.00E+00	**1.37E+00**
FW	m3	2.01E+01	5.24E-01	6.02E-01	0.00E+00	1.08E-01	4.50E-03	**2.13E+01**
HWD	kg	3.77E-04	0.00E+00	1.12E-05	0.00E+00	0.00E+00	0.00E+00	**3.89E-04**
NHWD	kg	2.09E-02	0.00E+00	1.67E+00	0.00E+00	0.00E+00	5.15E+01	**5.32E+01**
HLRW	kg	1.75E-03	2.31E-05	5.00E-05	0.00E+00	4.66E-06	2.15E-07	**1.83E-03**
ILLRW	kg	1.02E-02	1.20E-04	3.17E-04	0.00E+00	2.42E-05	1.14E-06	**1.07E-02**
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
MFR	kg	7.37E+00	0.00E+00	1.38E-01	0.00E+00	0.00E+00	0.00E+00	**7.51E+00**
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
EE	MJ	3.84E-01	0.00E+00	1.14E-02	0.00E+00	0.00E+00	0.00E+00	**3.96E-01**

TABLE 27. TECCRETE 1250 CARBON DIOXIDE REMOVALS AND EMISSIONS RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
BCRP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCEP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCRK	kg CO2e	1.44E+00	0.00E+00	4.31E-02	0.00E+00	0.00E+00	0.00E+00	**1.48E+00**
BCEK	kg CO2e	0.00E+00	0.00E+00	1.48E+00	0.00E+00	0.00E+00	0.00E+00	**1.48E+00**
BCEW	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
CCE	kg CO2e	3.01E+00	0.00E+00	8.92E-02	0.00E+00	0.00E+00	0.00E+00	**3.10E+00**
CCR	kg CO2e	0.00E+00	0.00E+00	0.00E+00	4.81E+00	0.00E+00	2.78E+00	**7.59E+00**

5.2 TecCrete 1500 Results

TABLE 28. TECCRETE 1500 LIFE CYCLE ASSESSMENT RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
GWP	kg CO_2 eq	6.82E+01	8.10E+00	4.31E+00	-4.81E+00	1.70E+00	-2.63E+00	**7.48E+01**
AP	kg SO_2 eq	3.22E-01	2.71E-02	1.23E-02	0.00E+00	5.21E-03	1.22E-03	**3.68E-01**
POCP	kg O_3 eq	4.11E+00	6.20E-01	1.96E-01	0.00E+00	1.14E-01	3.79E-02	**5.08E+00**
EP	kg N eq	4.00E-02	5.29E-03	1.88E-03	0.00E+00	9.79E-04	3.18E-04	**4.84E-02**
ODP	kg CFC-11 eq	1.12E-06	1.08E-07	6.42E-08	0.00E+00	2.27E-08	2.24E-09	**1.32E-06**
ADPfossil	MJ	7.10E+02	1.10E+02	3.61E+01	0.00E+00	2.32E+01	1.91E+00	**8.82E+02**
ADP	kg Sb eq	6.61E-03	2.61E-05	1.29E-04	0.00E+00	5.56E-06	5.56E-08	**6.77E-03**

TABLE 29. TECCRETE 1500 RESOURCE USE AND WASTE RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
RPRE	MJ	8.35E+01	1.55E+00	2.54E+00	0.00E+00	3.13E-01	1.62E-02	**8.80E+01**
RPRM	MJ	1.96E+01	0.00E+00	3.95E-01	0.00E+00	0.00E+00	2.39E-02	**2.01E+01**
NRPRE	MJ	8.69E+02	1.12E+02	3.99E+01	0.00E+00	2.35E+01	1.93E+00	**1.05E+03**
NRPRM	MJ	2.54E+01	0.00E+00	5.15E-01	0.00E+00	0.00E+00	0.00E+00	**2.59E+01**
SM	kg	3.93E+01	0.00E+00	1.03E+00	0.00E+00	0.00E+00	0.00E+00	**4.04E+01**
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
RE	MJ	1.33E+00	0.00E+00	3.95E-02	0.00E+00	0.00E+00	0.00E+00	**1.37E+00**
FW	m3	2.08E+01	5.24E-01	6.03E-01	0.00E+00	1.09E-01	4.55E-03	**2.21E+01**
HWD	kg	3.77E-04	0.00E+00	1.12E-05	0.00E+00	0.00E+00	0.00E+00	**3.89E-04**
NHWD	kg	2.09E-02	0.00E+00	1.67E+00	0.00E+00	0.00E+00	5.21E+01	**5.38E+01**
HLRW	kg	1.79E-03	2.31E-05	5.08E-05	0.00E+00	4.71E-06	2.17E-07	**1.87E-03**
ILLRW	kg	1.06E-02	1.20E-04	3.24E-04	0.00E+00	2.45E-05	1.15E-06	**1.10E-02**
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
MFR	kg	9.06E+00	0.00E+00	1.38E-01	0.00E+00	0.00E+00	0.00E+00	**9.20E+00**
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
EE	MJ	3.84E-01	0.00E+00	1.14E-02	0.00E+00	0.00E+00	0.00E+00	**3.96E-01**

TABLE 30. TECCRETE 1500 CARBON DIOXIDE REMOVALS AND EMISSIONS RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
BCRP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCEP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCRK	kg CO2e	1.44E+00	0.00E+00	4.31E-02	0.00E+00	0.00E+00	0.00E+00	**1.48E+00**
BCEK	kg CO2e	0.00E+00	0.00E+00	1.48E+00	0.00E+00	0.00E+00	0.00E+00	**1.48E+00**
BCEW	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
CCE	kg CO2e	3.01E+00	0.00E+00	8.92E-02	0.00E+00	0.00E+00	0.00E+00	**3.10E+00**
CCR	kg CO2e	0.00E+00	0.00E+00	0.00E+00	4.81E+00	0.00E+00	2.78E+00	**7.59E+00**

5.3 TecCrete 1500SL Results

TABLE 31. TECCRETE 1500SL LIFE CYCLE ASSESSMENT RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
GWP	kg CO_2 eq	7.55E+01	8.10E+00	5.13E+00	-4.79E+00	2.25E+00	-2.56E+00	**8.36E+01**
AP	kg SO_2 eq	3.58E-01	2.71E-02	1.42E-02	0.00E+00	6.92E-03	1.62E-03	**4.08E-01**
POCP	kg O_3 eq	4.45E+00	6.20E-01	2.29E-01	0.00E+00	1.52E-01	5.03E-02	**5.50E+00**
EP	kg N eq	4.44E-02	5.29E-03	2.18E-03	0.00E+00	1.30E-03	4.22E-04	**5.36E-02**
ODP	kg CFC-11 eq	1.35E-06	1.08E-07	7.32E-08	0.00E+00	3.02E-08	2.97E-09	**1.57E-06**
ADPfossil	MJ	8.17E+02	1.10E+02	4.11E+01	0.00E+00	3.08E+01	2.54E+00	**1.00E+03**
ADP	kg Sb eq	6.62E-03	2.61E-05	1.30E-04	0.00E+00	7.39E-06	7.38E-08	**6.78E-03**

TABLE 32. TECCRETE 1500SL RESOURCE USE AND WASTE RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
RPRE	MJ	9.46E+01	1.55E+00	2.89E+00	0.00E+00	4.16E-01	2.15E-02	**9.94E+01**
RPRM	MJ	1.98E+01	0.00E+00	3.99E-01	0.00E+00	0.00E+00	2.39E-02	**2.02E+01**
NRPRE	MJ	9.66E+02	1.12E+02	4.56E+01	0.00E+00	3.12E+01	2.56E+00	**1.16E+03**
NRPRM	MJ	2.54E+01	0.00E+00	5.15E-01	0.00E+00	0.00E+00	0.00E+00	**2.59E+01**
SM	kg	4.97E+01	0.00E+00	1.36E+00	0.00E+00	0.00E+00	0.00E+00	**5.10E+01**
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
RE	MJ	1.77E+00	0.00E+00	5.24E-02	0.00E+00	0.00E+00	0.00E+00	**1.82E+00**
FW	m3	2.15E+01	5.24E-01	6.30E-01	0.00E+00	1.45E-01	5.95E-03	**2.28E+01**
HWD	kg	5.01E-04	0.00E+00	1.48E-05	0.00E+00	0.00E+00	0.00E+00	**5.15E-04**
NHWD	kg	2.77E-02	0.00E+00	2.21E+00	0.00E+00	0.00E+00	6.92E+01	**7.15E+01**
HLRW	kg	2.01E-03	2.31E-05	5.73E-05	0.00E+00	6.26E-06	2.88E-07	**2.09E-03**
ILLRW	kg	1.24E-02	1.20E-04	3.80E-04	0.00E+00	3.25E-05	1.53E-06	**1.29E-02**
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
MFR	kg	8.26E+00	0.00E+00	1.43E-01	0.00E+00	0.00E+00	0.00E+00	**8.40E+00**
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
EE	MJ	5.10E-01	0.00E+00	1.51E-02	0.00E+00	0.00E+00	0.00E+00	**5.25E-01**

TABLE 33. TECCRETE 1500SL CARBON DIOXIDE REMOVALS AND EMISSIONS RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
BCRP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCEP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCRK	kg CO2e	1.80E+00	0.00E+00	5.39E-02	0.00E+00	0.00E+00	0.00E+00	**1.85E+00**
BCEK	kg CO2e	0.00E+00	0.00E+00	1.85E+00	0.00E+00	0.00E+00	0.00E+00	**1.85E+00**
BCEW	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
CCE	kg CO2e	4.00E+00	0.00E+00	1.18E-01	0.00E+00	0.00E+00	0.00E+00	**4.11E+00**
CCR	kg CO2e	0.00E+00	0.00E+00	0.00E+00	4.79E+00	0.00E+00	2.77E+00	**7.55E+00**

5.4 TecCrete 2000 Results

TABLE 34. TECCRETE 2000 LIFE CYCLE ASSESSMENT RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
GWP	kg CO_2 eq	7.90E+01	8.10E+00	5.14E+00	-4.79E+00	2.26E+00	-2.56E+00	**8.72E+01**
AP	kg SO_2 eq	3.66E-01	2.71E-02	1.43E-02	0.00E+00	6.95E-03	1.62E-03	**4.16E-01**
POCP	kg O_3 eq	4.57E+00	6.20E-01	2.29E-01	0.00E+00	1.53E-01	5.05E-02	**5.62E+00**
EP	kg N eq	4.47E-02	5.29E-03	2.18E-03	0.00E+00	1.31E-03	4.24E-04	**5.39E-02**
ODP	kg CFC-11 eq	1.35E-06	1.08E-07	7.33E-08	0.00E+00	3.03E-08	2.98E-09	**1.57E-06**
ADPfossil	MJ	8.22E+02	1.10E+02	4.12E+01	0.00E+00	3.09E+01	2.55E+00	**1.01E+03**
ADP	kg Sb eq	6.64E-03	2.61E-05	1.30E-04	0.00E+00	7.43E-06	7.41E-08	**6.80E-03**

TABLE 35. TECCRETE 2000 RESOURCE USE AND WASTE RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
RPRE	MJ	9.52E+01	1.55E+00	2.89E+00	0.00E+00	4.18E-01	2.16E-02	**1.00E+02**
RPRM	MJ	1.98E+01	0.00E+00	3.99E-01	0.00E+00	0.00E+00	2.39E-02	**2.02E+01**
NRPRE	MJ	1.00E+03	1.12E+02	4.58E+01	0.00E+00	3.13E+01	2.57E+00	**1.20E+03**
NRPRM	MJ	2.54E+01	0.00E+00	5.15E-01	0.00E+00	0.00E+00	0.00E+00	**2.60E+01**
SM	kg	5.07E+01	0.00E+00	1.36E+00	0.00E+00	0.00E+00	0.00E+00	**5.21E+01**
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
RE	MJ	1.77E+00	0.00E+00	5.24E-02	0.00E+00	0.00E+00	0.00E+00	**1.82E+00**
FW	m3	2.18E+01	5.24E-01	6.33E-01	0.00E+00	1.46E-01	5.98E-03	**2.31E+01**
HWD	kg	5.01E-04	0.00E+00	1.48E-05	0.00E+00	0.00E+00	0.00E+00	**5.15E-04**
NHWD	kg	2.77E-02	0.00E+00	2.21E+00	0.00E+00	0.00E+00	6.96E+01	**7.18E+01**
HLRW	kg	2.03E-03	2.31E-05	5.78E-05	0.00E+00	6.29E-06	2.90E-07	**2.11E-03**
ILLRW	kg	1.25E-02	1.20E-04	3.84E-04	0.00E+00	3.27E-05	1.53E-06	**1.31E-02**
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
MFR	kg	9.24E+00	0.00E+00	1.43E-01	0.00E+00	0.00E+00	0.00E+00	**9.39E+00**
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
EE	MJ	5.10E-01	0.00E+00	1.51E-02	0.00E+00	0.00E+00	0.00E+00	**5.25E-01**

TABLE 36. TECCRETE 2000 CARBON DIOXIDE REMOVALS AND EMISSIONS RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
BCRP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCEP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BCRK	kg CO2e	1.80E+00	0.00E+00	5.39E-02	0.00E+00	0.00E+00	0.00E+00	**1.85E+00**
BCEK	kg CO2e	0.00E+00	0.00E+00	1.85E+00	0.00E+00	0.00E+00	0.00E+00	**1.85E+00**
BCEW	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CCE	kg CO2e	4.00E+00	0.00E+00	1.18E-01	0.00E+00	0.00E+00	0.00E+00	4.11E+00
CCR	kg CO2e	0.00E+00	0.00E+00	0.00E+00	4.79E+00	0.00E+00	2.77E+00	7.55E+00

5.5 TecCrete 2500 Results

TABLE 37. TECCRETE 2500 LIFE CYCLE ASSESSMENT RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
GWP	kg CO_2 eq	8.08E+01	8.10E+00	5.14E+00	-4.79E+00	2.27E+00	-2.56E+00	**8.90E+01**
AP	kg SO_2 eq	3.70E-01	2.71E-02	1.43E-02	0.00E+00	6.97E-03	1.63E-03	**4.20E-01**
POCP	kg O_3 eq	4.62E+00	6.20E-01	2.30E-01	0.00E+00	1.53E-01	5.06E-02	**5.67E+00**
EP	kg N eq	4.49E-02	5.29E-03	2.18E-03	0.00E+00	1.31E-03	4.25E-04	**5.41E-02**
ODP	kg CFC-11 eq	1.35E-06	1.08E-07	7.33E-08	0.00E+00	3.04E-08	2.99E-09	**1.57E-06**
ADPfossil	MJ	8.24E+02	1.10E+02	4.13E+01	0.00E+00	3.10E+01	2.56E+00	**1.01E+03**
ADP	kg Sb eq	6.64E-03	2.61E-05	1.30E-04	0.00E+00	7.44E-06	7.43E-08	**6.80E-03**

TABLE 38. TECCRETE 2500 RESOURCE USE AND WASTE RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
RPRE	MJ	9.55E+01	1.55E+00	2.90E+00	0.00E+00	4.19E-01	2.16E-02	**1.00E+02**
RPRM	MJ	1.98E+01	0.00E+00	3.99E-01	0.00E+00	0.00E+00	2.39E-02	**2.02E+01**
NRPRE	MJ	1.02E+03	1.12E+02	4.59E+01	0.00E+00	3.14E+01	2.58E+00	**1.22E+03**
NRPRM	MJ	2.54E+01	0.00E+00	5.15E-01	0.00E+00	0.00E+00	0.00E+00	**2.60E+01**
SM	kg	5.12E+01	0.00E+00	1.36E+00	0.00E+00	0.00E+00	0.00E+00	**5.26E+01**
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
RE	MJ	1.77E+00	0.00E+00	5.24E-02	0.00E+00	0.00E+00	0.00E+00	**1.82E+00**
FW	m3	2.19E+01	5.24E-01	6.34E-01	0.00E+00	1.46E-01	5.99E-03	**2.32E+01**
HWD	kg	5.01E-04	0.00E+00	1.48E-05	0.00E+00	0.00E+00	0.00E+00	**5.15E-04**
NHWD	kg	2.77E-02	0.00E+00	2.21E+00	0.00E+00	0.00E+00	6.97E+01	**7.20E+01**
HLRW	kg	2.03E-03	2.31E-05	5.80E-05	0.00E+00	6.30E-06	2.91E-07	**2.12E-03**
ILLRW	kg	1.26E-02	1.20E-04	3.86E-04	0.00E+00	3.28E-05	1.54E-06	**1.31E-02**
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
MFR	kg	9.75E+00	0.00E+00	1.43E-01	0.00E+00	0.00E+00	0.00E+00	**9.89E+00**
MER	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
EE	MJ	5.10E-01	0.00E+00	1.51E-02	0.00E+00	0.00E+00	0.00E+00	**5.25E-01**

TABLE 39. TECCRETE 2500 CARBON DIOXIDE REMOVALS AND EMISSIONS RESULTS

Indicator	Unit	A1-A3	A4	A5	B1	C2	C4	Total (A-C)
BCRP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCEP	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
BCRK	kg CO2e	1.80E+00	0.00E+00	5.39E-02	0.00E+00	0.00E+00	0.00E+00	**1.85E+00**
BCEK	kg CO2e	0.00E+00	0.00E+00	1.85E+00	0.00E+00	0.00E+00	0.00E+00	**1.85E+00**
BCEW	kg CO2e	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	**0.00E+00**
CCE	kg CO2e	4.00E+00	0.00E+00	1.18E-01	0.00E+00	0.00E+00	0.00E+00	**4.11E+00**
CCR	kg CO2e	0.00E+00	0.00E+00	0.00E+00	4.79E+00	0.00E+00	2.77E+00	**7.55E+00**

6.0 LCA Interpretation

LCA modules A1-A3 are the greatest contributors to all of the reported environmental impacts across all of the TecCrete flooring systems. For each TecCrete flooring system, LCA modules A1-A3 represent more than 75% of total GWP. It is clear from this analysis that the product stage (A1-A3) and construction stage (A4-A5) contribute the vast majority of GWP and all environmental impacts shown in Figure 3-Figure 7.

The end-of-life stage, represented here by LCA modules C2 and C4, comprises 2-30% of total environmental impacts, contributing most to POCP and EP, while contributing minimally to ADP.

These results are expected, as steel and concrete are relatively carbon-intensive to produce. Emissions at the end of life stage are relatively low for TecCrete products, as most of the products are landfilled, which requires minimal process emissions aside from transportation and landfill processes.

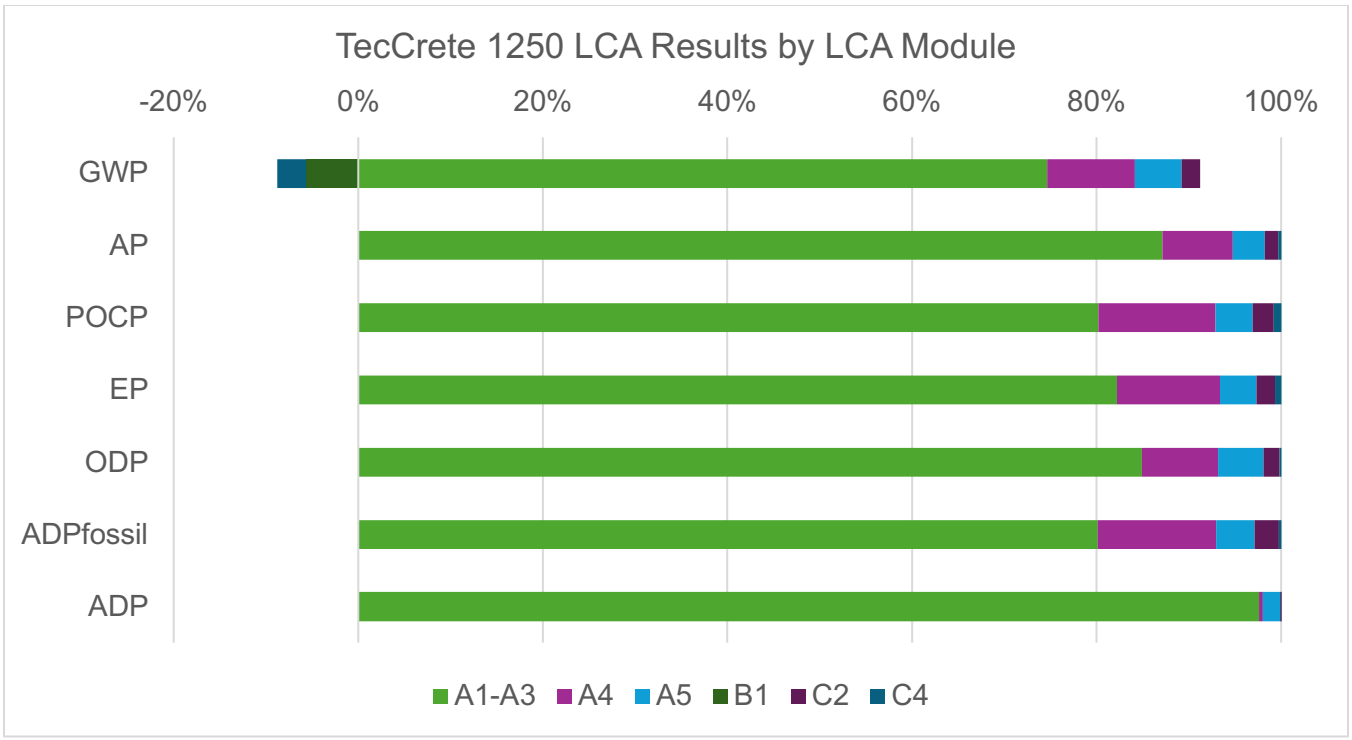

FIGURE 3. LCA RESULTS BY MODULE FOR TECCRETE 1250

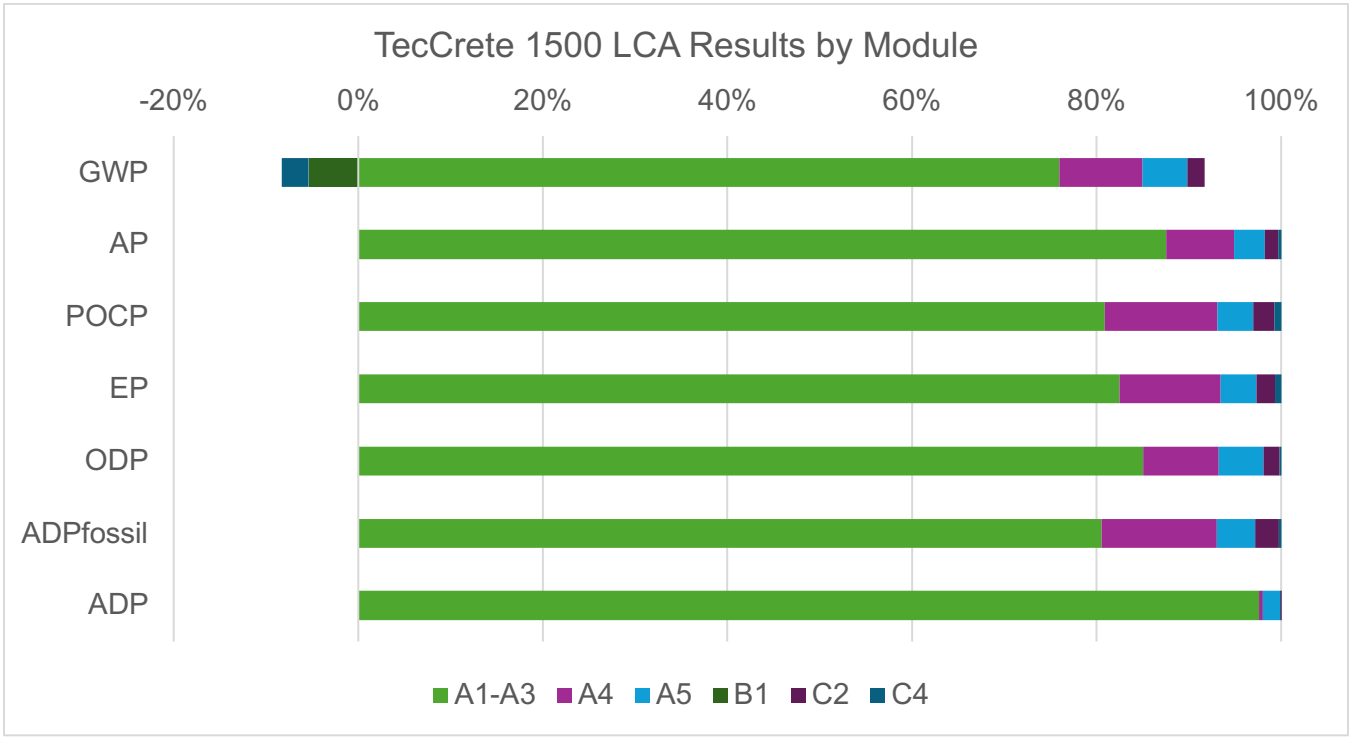

FIGURE 4. LCA RESULTS BY MODULE FOR TECCRETE 1500

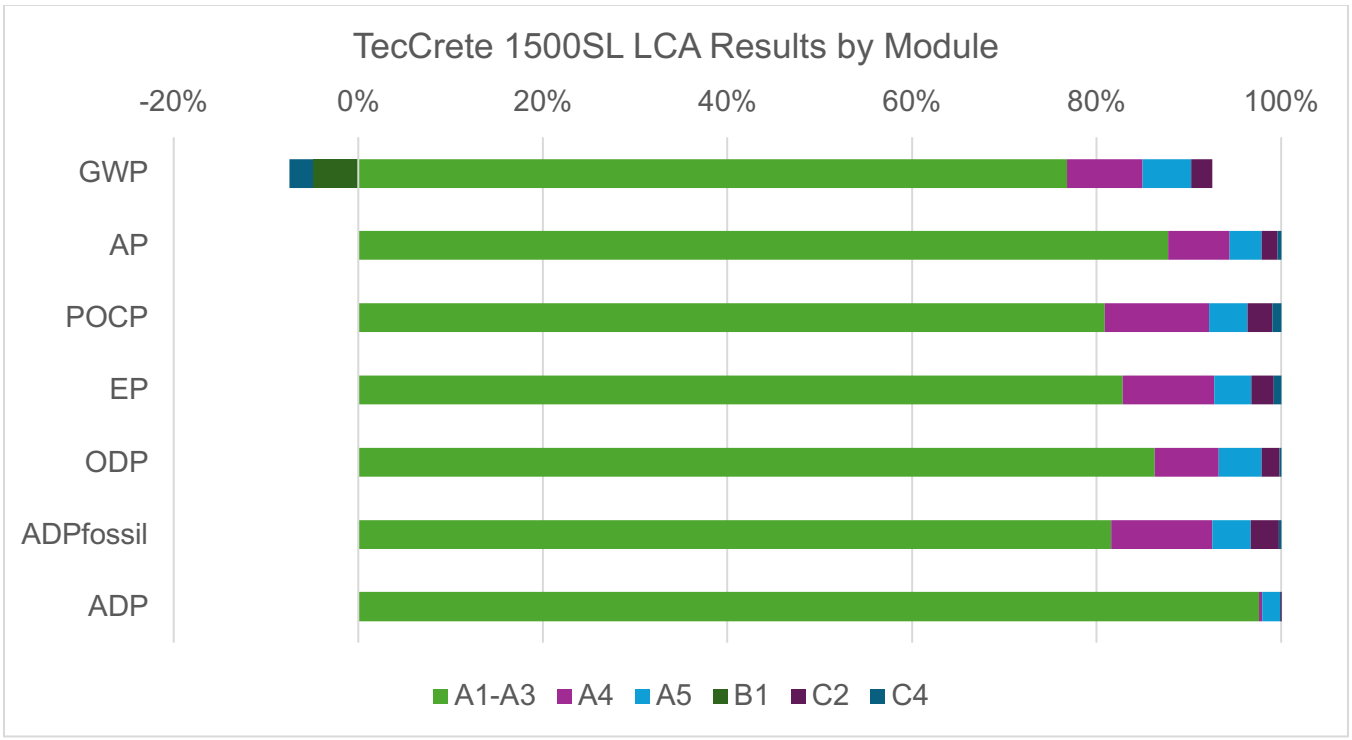

FIGURE 5. LCA RESULTS BY MODULE FOR TECCRETE 1500SL

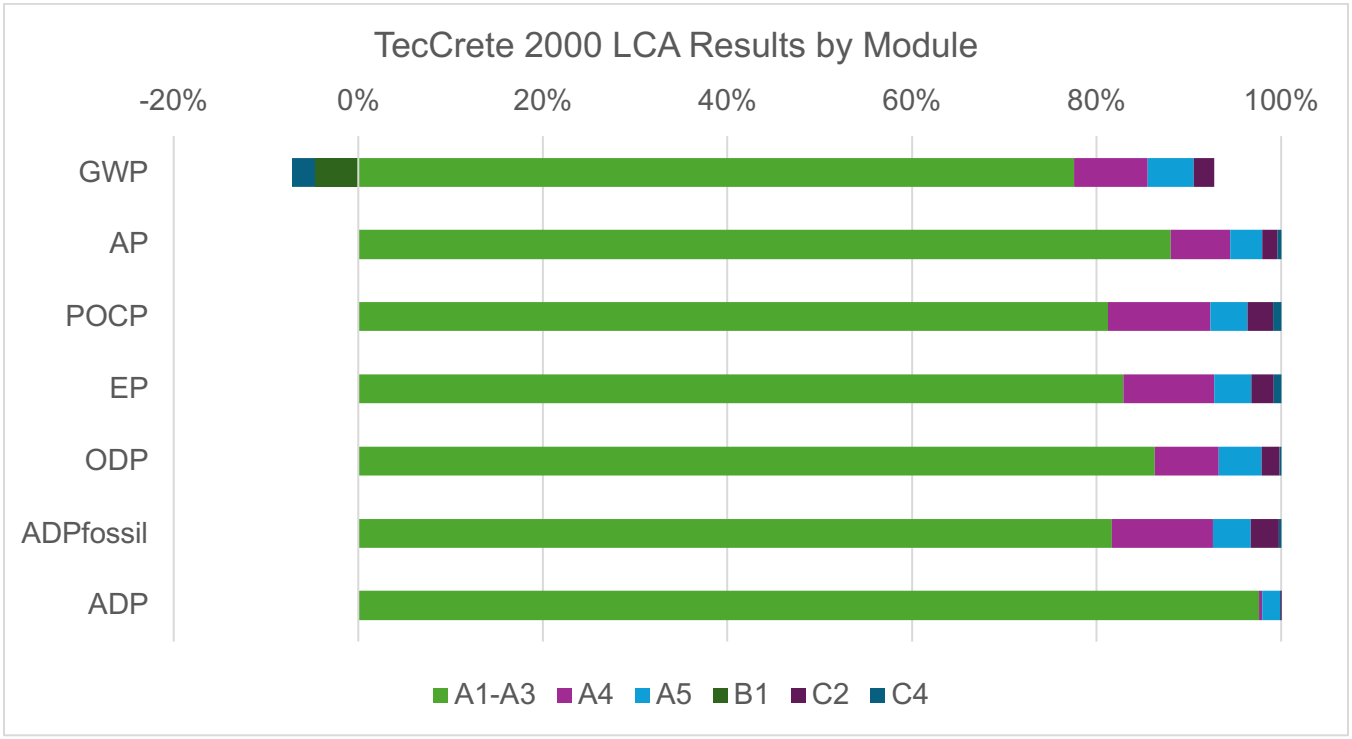

FIGURE 6. LCA RESULTS BY MODULE FOR TECCRETE 2000

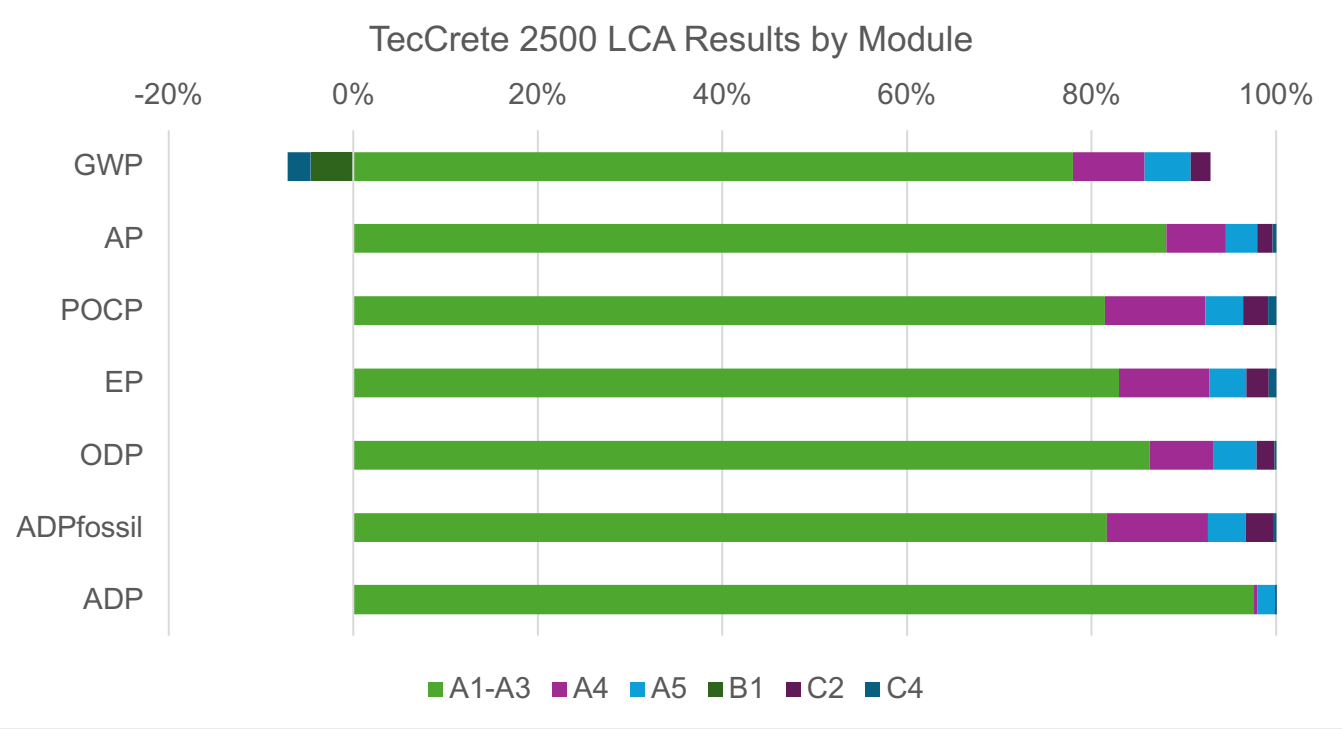

FIGURE 7. LCA RESULTS BY MODULE FOR TECCRETE 2500

7.0 References

[1] ecoinvent, (2024). https://ecoinvent.org/.

[2] PRé Sustainability, PlasticsEurope, worldsteel, ERASM, Alliance for Beverage Cartons and the Environment, International Molybdenum Association, Industry Data 2.0 LCI Database, (2018).

[3] US EPA, Tool for Reduction and Assessment of Chemicals and Other Environmental Impacts (TRACI), (2022). https://www.epa.gov/chemical-research/tool-reduction-and-assessment-chemicals-and-other-environmental-impacts-traci (accessed April 12, 2024).

[4] Universiteit Leiden, CML-IA Characterisation Factors, (2016). https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors.

[5] European Commission, DG JRC, EF reference package 3.1, (2022).

[6] IPCC, Climate Change 2021 – The Physical Science Basis: Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, 1st ed., Cambridge University Press, 2023. https://doi.org/10.1017/9781009157896.

[7] UL, Product Category Rules for Building-Related Products and Services Part A: Life Cycle Assessment Calculation Rules and Report Requirements, (2022). https://www.ul.com/offerings/product-category-rules-pcrs.

[8] UL, Product Category Rules for Building-Related Products and Services Part B: Flooring EPD Requirements, (2018). https://www.ul.com/offerings/product-category-rules-pcrs.

[9] ISO, ISO 21930:2017 Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services, (2017).

[10] Sustainability of construction works – Environmental product declarations – Product Category Rules for concrete and concrete elements, (2017).

[11] ISO, ISO 14025: 2006-Environmental labels and declarations — Type III environmental declarations — Principles and procedures, (2006).

[12] ISO, ISO 14040: 2006 environmental management—life cycle assessment—principles and framework, (2006).

[13] ACLCA, ACLCA Guidance to Calculating Non-LCIA Inventory Metrics in Accordance with ISO 21930:2017, 2019. https://aclca.org/wp-content/uploads/ISO-21930-Final.pdf (accessed November 24, 2024).