



Key Epoxy Terrazzo Flooring



Environmental Product Declaration

Operated By



Certified
Environmental
Product Declaration
www.nsf.org



Program Operator	NSF International 789 N. Dixboro, Ann Arbor, MI 48105 www.nsf.org		
Manufacturer Name and Address	Key Resin Company 4050 Clough Woods Drive Batavia, Ohio 45103		
Declaration Number	EPD10942		
Declared Product and Functional Unit	Key Epoxy Terrazzo One square meter of covered and protected flooring surface for 60 years		
Reference PCR and Version Number	PCR for Resinous Floor Coatings, NSF International, Version 1, December 17, 2018		
Product's intended Application and Use	Commercial and Industrial Applications		
Product RSL	Various		
Markets of Applicability	North America		
Date of Issue	03/26/2024		
Period of Validity	5 years from date of issue		
EPD Type	Product Specific		
Range of Dataset Variability	N/A		
EPD Scope	Cradle to Grave		
Year of reported manufacturer primary data	2022-2023		
LCA Software and Version Number	Sphera LCA for Experts (fka GaBi) 10.7.1.28		
LCI Database and Version Number	Sphera Managed LCA Content (fka GaBi) 2023.2		
LCIA Methodology and Version Number	TRACI 2.1, IPCC AR5		
The sub-category PCR review was conducted by:	Thomas Gloria, PhD Bill Stough Jack Geibig		
<p>This declaration was independently verified in accordance with ISO 14025: 2006. The PCR chosen conforms to ISO 21930:2017.</p> <p><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External</p>	<p>Jack Geibig - EcoForm jgeibig@ecoform.com</p>		
This life cycle assessment was conducted in accordance with ISO 14044 and the reference PCR by:	WAP Sustainability Consulting		
<p>This life cycle assessment was independently verified in accordance with ISO 14044 and the reference PCR by:</p>	<p>Jack Geibig - EcoForm jgeibig@ecoform.com</p>		
<p>Limitations: Environmental declarations from different programs (ISO 14025) may not be comparable. In order to support comparative assertions, this EPD meets all comparability requirements stated in ISO 14025:2006. However, differences in certain assumptions, data quality, and variability between LCA data sets may still exist. As such, caution should be exercised when evaluating EPDs from different manufacturers, as the EPD results may not be entirely comparable. Any EPD comparison must be carried out at the building level per ISO 21930 guidelines. The results of this EPD reflect an average performance by the product and its actual impacts may vary on a case-to-case basis.</p>			

Product Definition and Information

1. Company Description

Key Resin Company is a global leader in the manufacture of high-performance epoxy terrazzo flooring, resinous flooring and wall systems, for use in commercial, institutional and industrial facilities of all types. Key Resin offers the industry experience and a commitment to providing durable, dependable solutions to meet the demands of any application. Key Resin is dedicated to environmental responsibility and innovating sustainable flooring materials, using the earth's natural resources responsibly across all operations to limit the impact on our environment. Key Resin produces flooring products at two manufacturing sites in Batavia, Ohio, and Phoenix, Arizona.

2. Product Description

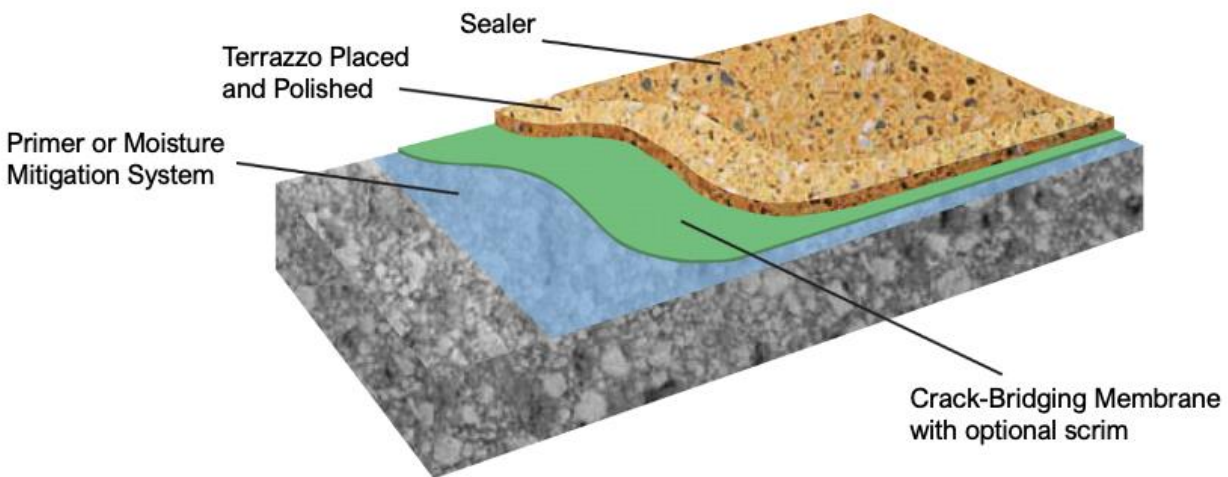


Figure 1: Key Epoxy Terrazzo

Key Epoxy Terrazzo is elegant and timeless, durable and functional, providing customized flooring with virtually unlimited freedom in color, layout and design.

Key Epoxy Terrazzo is a highly decorative resin flooring system that combines pigmented epoxy resin with marble, colored glass, granite, or other approved aggregates and is trowel applied at 1/4" to 3/8" nominal thickness, followed with grinding and then polished to expose a beautiful matrix of epoxy and aggregates. When building owners and/or architects choose recycled terrazzo aggregates, Key Epoxy Terrazzo will contribute more towards environmental sustainability. Key Epoxy Terrazzo provides outstanding durability, wear resistance and low life-cycle costs, lasting the lifetime of your building. Key Epoxy Terrazzo is also available in conductive and highly chemical resistant epoxy novolac formulations.

The standard formulation considered for this assessment of Key Epoxy Terrazzo uses the following components:

- Primer – 502 (Part A and Part B)
- Membrane – 580 (Part A and Part B)
- Terrazzo Matrix – 108 (Part A and Part B)
- Terrazzo Sealer – 804 (optional) – results have been provided for both options below.

Pictures of packaging of the above components are provided below.



Figure 2: Picture of packaging for Primer 502 (Part A and B)



Figure 3: Picture of packaging for Membrane 580 (Part A and B)



Figure 4: Picture of packaging for Terrazzo Matrix 108 (Part A and B)

Table 1: Technical Details

	Key Epoxy Terrazzo	Testing Standard
Adhesion to Concrete	300-400+ psi (Concrete Failure, varies by concrete strength)	ASTM D7234
Compressive Strength	10,000 psi	ASTM C579
Flexural Strength	3,500 psi	ASTM C580
Tensile Strength	2,500 – 2,600 psi	ASTM C307
Thermal Shock Resistance	Passes	ASTM C884
Thermal Coefficient of Linear Expansion	25 x 10 ⁶ inches per inch per degree °F to 140°F maximum	ASTM C531, ASTM D696
Resistance to Elevated Temperature	No slip or flow at required temperature of 158°F	MIL-D-3134F §4.7.4
Indentation	Withstands 2,000 lbs-in ² for 30 mins with no indentation	MIL-D-3134F §4.7.4
Impact Resistance	Withstands 16 ft-lbs without cracking, delamination or chipping	MIL-D-3134F §4.7.4
Abrasion Resistance	35 mg	ASTM D4060, CS17 Wheel, 1000 cycles
Critical Radiant Flux	1.0	ASTM D-648
Electrical Conductivity	Non-Conductive (Conductive Available)	-
Flammability	Self-Extinguishing over concrete	ASTM D635
Fungus and Bacterial Growth	Will not support growth of fungus or bacteria	MIL-F-52505 §4.4.2.11
Water Absorption	0.010%	ASTM D570

3. Application

Key Resin flooring systems protect and beautify concrete surfaces, covering all the primary market segments from decorative to industrial, institutional to commercial.

4. Properties of Declared Product as Delivered

In general, the product systems are built layer by layer by mixing components within pre-measured kits. The components typically include a resin, a hardener, and an aggregate. The layers include:

- Primer and/or optional moisture mitigation primer layer
- One or more body layers with or without fillers and aggregates
- Sealer (optional)

Products produced at Key Resin facilities are in liquid form and are packaged on-site in either plastic or metal containers in different sizes of metal cans and plastic pails.

5. Declaration of Methodological Framework

This EPD is considered a Cradle-to-Grave study. A summary of the life cycle stages included in this EPD is presented in System Boundary. The reference service life is outlined in Table 7 and is only applicable if all manufacturing guidelines are followed regarding site-selection and installation, found online. No known flows are deliberately excluded from this EPD.

6. Flow Diagram

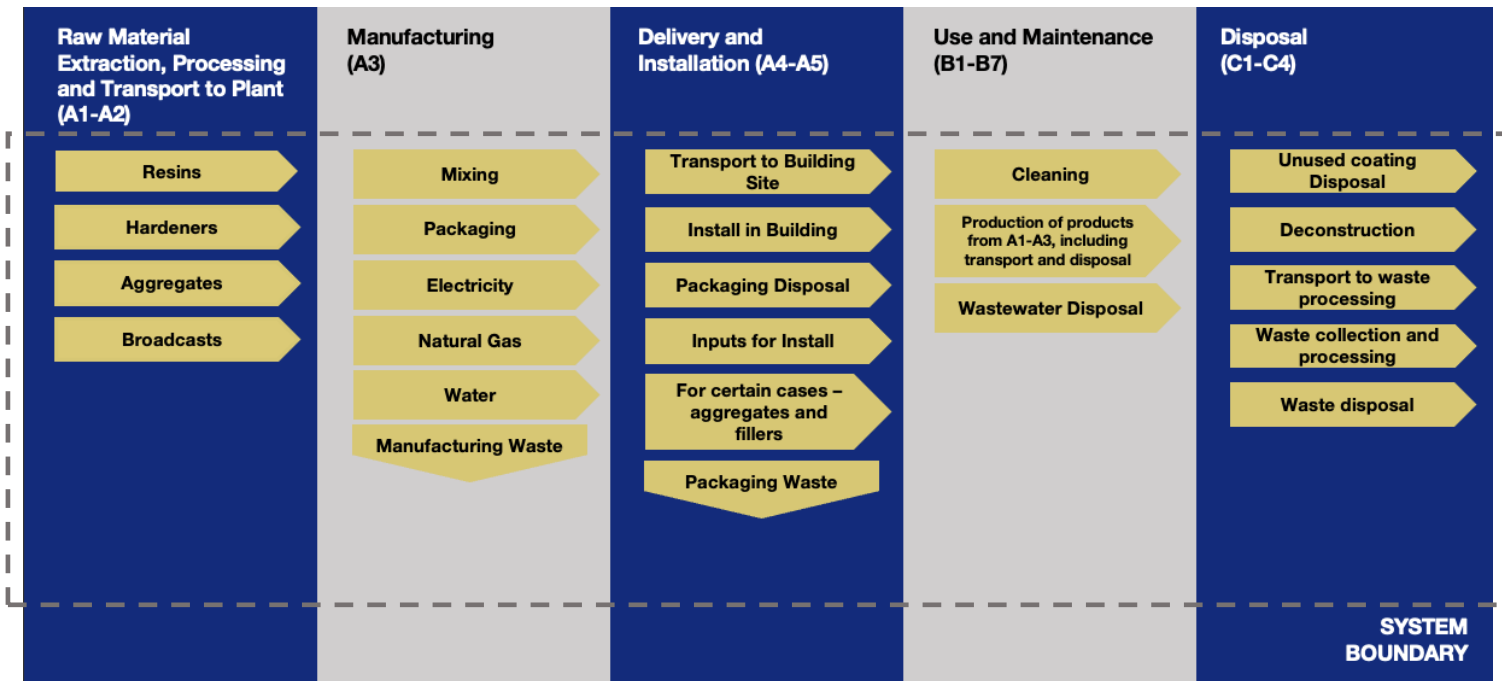


Figure 5: Flow Diagram

7. Manufacturing

The Key Epoxy Terrazzo flooring system resin component products are manufactured in liquid form at Key Resin’s two facilities located in Batavia, OH and Phoenix, AZ and are packaged on-site in various sizes of either plastic or metal containers. The fillers and aggregates used in the Key Epoxy Terrazzo flooring system are procured by the customer (installation contractor) themselves and hence are accounted for in the installation (A5) module as an ancillary material rather than the product (A1-A3) life cycle module. Transport of manufacturing waste to disposal is included in the study. The distance was assumed to be 20 miles per PCR requirements.

8. Material Composition

Table 2: Material Composition

Component	(Mass %)
Calcium Carbonate	75 – 85 %
Epoxy Resin	9 – 14 %
Amine	3 – 5 %
Glycidyl Ether	2-4 %
Dry pigment	1 – 3 %
Plasticizer	2 – 5 %
Silica, amorphous treated	0.3 – 1.1%
All other additives	0 – 1%

9. Packaging

Table 3: Packaging Details per Reference flow

Input per sq. m	Value	Unit
HDPE Pail	0.73	kg
Steel tin	0.22	kg

10. Transportation

It is assumed that all raw materials are distributed by truck. The distances were modeled by material and were calculated using the supplier location and the location of manufacturing. The product is delivered to the customer via truck. Transportation distances used are based on PCR defaults.

11. Product Installation

The detailed installation instructions are provided by the Key Resin Technical Service department. Installation equipment is required though not included in the study as these are multi-use tools and the impacts per functional unit is considered negligible. Apart from tools, the electricity used to power the

tools to grind and polish the cured terrazzo surface is taken into account. It is assumed that a floor grinder with a power of 15 kW is used, and it takes 1 minute on average to grind and polish 1 m² of terrazzo surface. None of the products in the system requires a sprayer for application. Therefore, no spraying application efficiency is taken into consideration. The only product loss accounted for is that 2% of wet mass of the coating remains unused and is disposed as solid waste in the C1-C4 module, as required by the reference PCR. For the Key Epoxy Terrazzo product, the fillers and aggregates used are procured by the customer themselves and hence are accounted for in the installation (A5) module as an ancillary material rather than the product (A1-A3) life cycle module.

Packaging waste is generated and disposed of in this stage. Emissions released from the drying of the coating are modeled as individual releases. These emissions were taken from VOC testing reports.

12. Use

In this study, the product system does not require repairing or refurbishment under normal use circumstances. However, regular cleaning is needed and recoating over the whole service life of a building (60 years) is required. The maintenance scenario is per PCR guidelines. The cleaner selected for the study is a pH neutral cleaner with an active ingredient modeled as ethoxylated alcohol.

Additionally, the product is reapplied at the end of its reference service life, and these impacts are found within stage B4. The VOC emissions during the use phase are negligible and pass the requirements of the California Department of Public Health v1.2 (CDPH – CA 01350) indoor emissions testing standard.

13. Reference Service Life

Since resinous flooring products may be replaced before they technically fail, the reference service life of the products, as dictated by the PCR, is reported with both an estimated market service life (MSL) and an estimated technical service life (TSL). According to the PCR, the reference service life (RSL) details vary by coating type and installation type. Since Key Resin's products can be used in both commercial and industrial applications, results for both applications are provided within this report. Details on specific scenarios is given in the Life Cycle Assessment Scenarios section.

14. Disposal

As per the PCR Section 4.4, any coating including the initial applied coating and those recoated-on top of the initial one is treated as incremental mass at end-of-life. Due to the lack of primary data, it is assumed all the coating is sent to landfill. In accordance with the PCR, it is assumed the unused coating travels 32 km to the point of disposal and is landfilled.

Life Cycle Assessment Background Information

15. Functional Unit

The functional unit according to the PCR is one square meter of covered and protected flooring surface for 60 years. Table 4 shows additional details related to the functional unit.

Table 4: Functional Unit Details

	Key Epoxy Terrazzo
Applied thickness [inch]	0.425 (average)
Reference Flow [kg/m ²]	25.2
Mass per functional unit [kg/m ²] (MSL – commercial) – 30 years	50.4
Mass per functional unit [kg/m ²] (TSL – commercial) – 60 years	25.2
Mass per functional unit [kg/m ²] (MSL – industrial) – 20 years	75.6
Mass per functional unit [kg/m ²] (TSL – industrial) – 30 years	50.4

16. System Boundary

This EPD is a cradle-to-grave study.

Table 5: Description of system boundary modules (X = Included in study)

	PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Install	Use	Maintenance	Repair	Replacement	Refurbishment	Building Operational Energy Use During Product Use	Building Operational Water Use During Product Use	Deconstruction	Transport	Waste processing	Disposal	Reuse, Recovery, Recycling Potential
EPD Type	X			X	X	X	X	X	X	X	X	X	X	X	X	X	MND

17. Estimates and Assumptions

All estimates and assumptions are within the requirements of ISO 14040/44. The majority of the estimations are within the primary data. The primary data was collected as annual totals including all utility usage and production information. For the LCA, the usage information was divided by the production to create an energy and water use per unit weight. As there are different products produced at this facility, it is assumed all products are using the same amount of energy. Another assumption is that the installation tools are used enough times that the per square meter impacts are negligible.

18. Cut-Off Rules

Material inputs greater than 1% (based on total mass of the final product) were included within the scope of analysis. Material inputs less than 1% were included if sufficient data was available to warrant inclusion and/or the material input was thought to have significant environmental impact. Cumulative excluded material inputs and environmental impacts are less than 5% based on total weight of the functional unit. In addition, as per PCR, substances that are characterized as hazardous according to Globally Harmonized System are not cut off.

19. Data Sources

Primary data was collected by KRC associates for onsite energy, water and waste during the course of manufacturing. When primary data did not exist, secondary data for raw material production was used from Sphera LCA for Experts (fka GaBi) 10.7.1.28. All calculation procedures adhere to ISO14044.

20. Data Quality

Geographical Coverage

The geographical scope of the manufacturing portion of the life cycle are Batavia, OH and Phoenix, AZ. This EPD uses country specific energy datasets that take into account US eGrid specific energy and transportation mixes. Overall geographic data quality is considered good.

Time Coverage

Primary data was provided by KRC associates and represent June 2022 to June 2023. Using 2022/2023 data meets the PCR requirement that manufacturer specific data be within the last 5 years. Time coverage of this data is considered very good. Data necessary to model cradle-to-gate unit processes was sourced from Sphera LCI datasets. Time coverage of the MLC datasets varies from approximately 2006 to present. All datasets rely on at least one 1-year average data. While there were a couple of datasets used that are outside of the requirement of the PCR that all data be updated within a 10-year period, these were deemed appropriate as they represent the best technological and geographical coverage available. The specific time coverage of secondary datasets can be referenced in the dataset references table in the background LCA report.

Technological Coverage

Primary data provided by KRC are specific to the technology that the company uses in manufacturing their product. It is site specific and considered of good quality. It is worth noting that the energy and water used in manufacturing the product includes overhead energy such as lighting, heating and sanitary use of water. Sub-metering was not available to extract process only energy and water use from the total energy use. Sub-metering would improve the technological coverage of data quality.

Data necessary to model cradle-to-grave unit processes was sourced from Sphera LCI datasets (GaBi). Technological coverage of the datasets is considered good relative to the actual supply chain of KRC. While improved life cycle data from suppliers would improve technological coverage, the use of lower quality generic datasets does meet the goal of this EPD.

Completeness

The data included is considered complete. The LCA model included all known material and energy flows, with the exception of what is listed in Section 18. As pointed out in that section, no known flows above 1% were excluded and the sum of all excluded flows totals less than 5%.

21. Period under Review

The period under review is June 2022 to June 2023.

22. Allocation

General principles of allocation were based on ISO 14040/44. To derive a per-unit value for manufacturing inputs such as electricity, thermal energy and water, allocation based on total production by mass was adopted. As a default, secondary MLC datasets use a physical basis for allocation.

23. Comparability and Benchmarking

The user of the EPD should take care when comparing EPDs from different companies. Assumptions, data sources, and assessment tools may all impact the uncertainty of the final results and make comparisons misleading. Without understanding the specific variability, the user is therefore, not encouraged to compare EPDs. Even for similar products, differences in use and end-of-life stage assumptions, and data quality may produce incomparable results. Comparison of the environmental performance of flooring products using EPD information shall be based on the product's use and impacts at the building level, and therefore EPDs may not be used for comparability purposes when not considering the building energy use phase as instructed under this PCR.

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



Life Cycle Assessment Scenarios

Table 6: Transport to building site (A4)

Name	Heavy Truck	Medium Truck
Vehicle Type	Heavy Heavy-duty Diesel Truck / 53,333 lb payload – 8b	Medium Heavy-duty Diesel Truck / 13,000 lb payload – 5
Fuel Efficiency [L/100km]	42	10.7
Fuel Type	Diesel	Diesel
Distance [km]	1205.4	8.05
Capacity Utilization [%]	67%	76%
Weight of Products Transported [kg]	6.65	6.65
Capacity utilization volume factor	1	1

Table 7: Reference Service Life (MSL and TSL)

Product Type	Estimated Market Service Life	Estimated Technical Service Life
Product Designed for <u>Commercial</u> Applications		
Mortar/Monolithic Mortar/Terrazzo Floor Coating	30 years	60 years
Product Designed for <u>Industrial</u> Applications		
Mortar/Monolithic Mortar/Terrazzo Floor Coating	20 years	30 years

Table 8: Installation into the building (A5)

Name	Key Epoxy Terrazzo
Filler [kg]	2.79
Aggregates [kg]	16.7
Net Freshwater Consumption [m ³]	0
Electricity Usage [kWh]	0.25
Product wastage [%]	2%
Packaging Waste to Landfill [kg]	0.56
Packaging Waste to Incineration [kg]	0.14
Packaging Waste to Recycling [kg]	0.27
Filler [kg]	2.79

Table 9: Maintenance (B2)

Parameter	Input per m ²	Unit
Cleaning Event over 60 years	220	PCR Section 4.3
Water Per Cleaning Event	3.79 liter	
Cleaner Per Cleaning Event	0.12 liter	
Cleaner Specification	C16-18 Alcohol Ethoxylate (2.5%)	SDS of the cleaner
Cleaner Density	1 kg/liter	Assumption

Table 10: Replacement (B4)

Name	Value	Unit
Commercial - Replacement cycle	1	Number/ MSL
Commercial - Replacement cycle	0	Number/ TSL
Industrial - Replacement cycle	2	Number/ MSL
Industrial - Replacement cycle	1	Number/ TSL

Table 11: End of life (C1-C4)

Name		Value	Unit
Assumptions for scenario development		Product is either disposed of with the underlying floor or manually removed via scraping	
Collection process	Collected separately	0	kg
	Collected with mixed construction waste	25.7	kg
Recovery	Reuse	0	kg
	Recycling	0	kg
	Landfill	25.7	kg
	Incineration	0	kg
	Incineration with energy recovery	0	kg
Disposal	Product or material for final deposition	25.7	kg
Removals of biogenic carbon (excluding packaging)		0	kg

Life Cycle Assessment Results

All results are given per functional unit, which is one square meter of covered and protected flooring surface for 60 years. Impact results have been calculated using both TRACI 2.1 and IPCC AR5 characterization factors. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins or risks. 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.

See Impact Category Key below for definition of acronyms.

Table 12: LCIA Indicators

Abbreviation	Parameter	Unit
IPCC AR5		
GWP	Global warming potential (100 years, includes biogenic CO ₂)	kg CO ₂ eq
TRACI 2.1		
AP	Acidification potential of soil and water	kg SO ₂ eq
EP	Eutrophication potential	kg N eq
ODP	Depletion of stratospheric ozone layer	kg CFC 11 eq
Resources	Depletion of non-renewable fossil fuels	MJ, surplus energy
SFP	Smog formation potential	kg O ₃ eq

Table 13: Biogenic Carbon Indicators

Parameter	Parameter	Unit
BCRP	Biogenic Carbon Removal from Product	[kg CO ₂]
BCEP	Biogenic Carbon Emission from Product	[kg CO ₂]
BCRK	Biogenic Carbon Removal from Packaging	[kg CO ₂]
BCEK	Biogenic Carbon Emission from Packaging	[kg CO ₂]
BCEW	Biogenic Carbon Emission from Combustion of Waste from Renewable Sources Used in Production Processes	[kg CO ₂]
CCE	Calcination Carbon Emissions	[kg CO ₂]
CCR	Carbonation Carbon Removals	[kg CO ₂]
CWNR	Carbon Emissions from Combustion of Waste from Non- Renewable Sources used in Production Processes	[kg CO ₂]

Table 14: Resource Use, Waste, and Output Flow Indicators

Abbreviation	Parameter	Unit
Resource Use Parameters		
RPR _E	Use of renewable primary energy excluding renewable primary energy resources used as raw materials	MJ, net calorific value (LHV)
RPR _M	Use of renewable primary energy resources used as raw materials	MJ, net calorific value
NRPR _E	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	MJ, net calorific value
NRPR _M	Use of non-renewable primary energy resources used as raw materials	MJ, net calorific value
SM	Use of secondary materials	kg
RSF	Use of renewable secondary fuels	MJ, net calorific value
NRSF	Use of non-renewable secondary fuels	MJ, net calorific value
RE	Recovered energy	MJ, net calorific value
FW	Net use of fresh water	m ³
-	Nonrenewable Fossil	MJ, net calorific value (HHV)
-	Nonrenewable Nuclear	MJ, net calorific value (HHV)
-	Solar, Wind, Hydro, Geothermal	MJ, net calorific value (HHV)
-	Renewable - Biomass	MJ, net calorific value (HHV)
-	Nonrenewable Material Resources	kg
-	Renewable Material Resources	kg
Waste Parameters and Output Flows		
HWD	Disposed-of-hazardous waste	kg
NHWD	Disposed-of non-hazardous waste	kg
HLRW	High-level radioactive waste, conditioned, to final repository	kg
ILLRW	Intermediate- and low-level radioactive waste, conditioned, to final repository	kg
CRU	Components for reuse	kg
MR	Materials for recycling	kg
MER	Materials for energy recovery	kg

24. Key Epoxy Terrazzo – Commercial Application – With Sealer 804

The LCIA results presented below are for 1 m² of Key Epoxy Terrazzo when used commercially.

Table 15: LCIA and LCI results for Key Epoxy Terrazzo – Commercial Application, per functional unit – Market Service Life

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	1.80E-01	8.03E-02	2.98E-03	5.62E-04	0.00E+00	6.41E-03	0.00E+00	8.70E-02	0.00E+00	3.38E-04	0.00E+00	2.75E-03	
EP [kg N eq]	1.90E-02	4.25E-03	2.65E-04	1.55E-04	0.00E+00	7.88E-04	0.00E+00	9.12E-03	0.00E+00	3.61E-05	0.00E+00	4.41E-03	
IPCC AR5 GWP [kg CO ₂ eq]	4.32E+01	1.90E+01	6.58E-01	5.98E-01	0.00E+00	1.35E+00	0.00E+00	2.09E+01	0.00E+00	1.29E-01	0.00E+00	5.34E-01	
ODP [kg CFC 11 eq]	8.25E-07	1.68E-15	9.93E-09	0.00E+00	4.49E-08	0.00E+00	3.90E-07	3.80E-07	0.00E+00	3.30E-16	0.00E+00	2.55E-14	
POCP [kg O ₃ eq]	3.52E+00	1.59E+00	6.91E-02	9.03E-03	0.00E+00	6.49E-02	0.00E+00	1.73E+00	0.00E+00	7.70E-03	0.00E+00	5.02E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	4.86E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _E [MJ]	7.04E+01	3.08E+01	3.65E-01	7.74E-01	0.00E+00	4.49E+00	0.00E+00	3.29E+01	0.00E+00	7.16E-02	0.00E+00	9.73E-01	
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _E [MJ]	3.44E+02	1.26E+02	9.16E+00	4.86E+00	0.00E+00	4.44E+01	0.00E+00	1.50E+02	0.00E+00	1.80E+00	0.00E+00	8.31E+00	
NRPR _M [MJ]	3.43E+02	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	1.06E+00	8.82E-02	1.25E-03	2.23E-03	0.00E+00	8.71E-01	0.00E+00	9.30E-02	0.00E+00	2.46E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	2.75E+01	1.25E+01	2.87E-01	1.27E-01	0.00E+00	1.08E+00	0.00E+00	1.32E+01	0.00E+00	5.63E-02	0.00E+00	2.26E-01	
Nonrenewable Nuclear [MJ (HHV)]	7.28E-05	3.29E-05	1.35E-07	1.36E-06	0.00E+00	2.91E-06	0.00E+00	3.49E-05	0.00E+00	2.64E-08	0.00E+00	4.75E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	6.76E-04	3.38E-04	-1.14E-10	-4.61E-10	0.00E+00	-1.87E-10	0.00E+00	3.38E-04	0.00E+00	-2.23E-11	0.00E+00	-9.93E-10	
Nonrenewable Material Resources [kg]	1.18E+02	3.02E+01	7.29E-02	2.37E+01	0.00E+00	2.29E+00	0.00E+00	5.79E+01	0.00E+00	1.43E-02	0.00E+00	4.00E+00	
Renewable Material Resources [kg]	6.10E+00	2.37E+00	1.11E-01	2.23E-02	0.00E+00	6.41E-01	0.00E+00	2.73E+00	0.00E+00	1.69E-01	0.00E+00	5.69E-02	
HWD [kg]	1.93E-02	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	5.91E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	1.32E-05	5.74E-06	3.12E-08	3.16E-07	0.00E+00	8.37E-07	0.00E+00	6.19E-06	0.00E+00	6.12E-09	0.00E+00	1.03E-07	
ILLRW [kg]	1.10E-02	4.80E-03	2.62E-05	2.65E-04	0.00E+00	6.45E-04	0.00E+00	5.19E-03	0.00E+00	5.15E-06	0.00E+00	9.19E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	5.32E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	2.72E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

Table 16: LCIA and LCI results for Key Epoxy Terrazzo – Commercial Application, per functional unit – **Technical Service Life**

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	9.34E-02	8.03E-02	2.98E-03	5.62E-04	0.00E+00	6.41E-03	0.00E+00	0.00E+00	0.00E+00	3.38E-04	0.00E+00	2.75E-03	
EP [kg N eq]	9.91E-03	4.25E-03	2.65E-04	1.55E-04	0.00E+00	7.88E-04	0.00E+00	0.00E+00	0.00E+00	3.61E-05	0.00E+00	4.41E-03	
IPCC AR5 GWP [kg CO ₂ eq]	2.22E+01	1.90E+01	6.58E-01	5.98E-01	0.00E+00	1.35E+00	0.00E+00	0.00E+00	0.00E+00	1.29E-01	0.00E+00	5.34E-01	
ODP [kg CFC 11 eq]	4.35E-07	3.80E-07	1.68E-15	9.93E-09	0.00E+00	4.49E-08	0.00E+00	0.00E+00	0.00E+00	3.30E-16	0.00E+00	2.55E-14	
POCP [kg O ₃ eq]	1.79E+00	1.59E+00	6.91E-02	9.03E-03	0.00E+00	6.49E-02	0.00E+00	0.00E+00	0.00E+00	7.70E-03	0.00E+00	5.02E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	2.43E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
GCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _E [MJ]	3.74E+01	3.08E+01	3.65E-01	7.74E-01	0.00E+00	4.49E+00	0.00E+00	0.00E+00	0.00E+00	7.16E-02	0.00E+00	9.73E-01	
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _E [MJ]	1.94E+02	1.26E+02	9.16E+00	4.86E+00	0.00E+00	4.44E+01	0.00E+00	0.00E+00	0.00E+00	1.80E+00	0.00E+00	8.31E+00	
NRPR _M [MJ]	1.72E+02	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	9.64E-01	8.82E-02	1.25E-03	2.23E-03	0.00E+00	8.71E-01	0.00E+00	0.00E+00	0.00E+00	2.46E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	1.43E+01	1.25E+01	2.87E-01	1.27E-01	0.00E+00	1.08E+00	0.00E+00	0.00E+00	0.00E+00	5.63E-02	0.00E+00	2.26E-01	
Nonrenewable Nuclear [MJ (HHV)]	3.78E-05	3.29E-05	1.35E-07	1.36E-06	0.00E+00	2.91E-06	0.00E+00	0.00E+00	0.00E+00	2.64E-08	0.00E+00	4.75E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	3.38E-04	3.38E-04	-1.14E-10	-4.61E-10	0.00E+00	-1.87E-10	0.00E+00	0.00E+00	0.00E+00	-2.23E-11	0.00E+00	-9.93E-10	
Nonrenewable Material Resources [kg]	6.02E+01	3.02E+01	7.29E-02	2.37E+01	0.00E+00	2.29E+00	0.00E+00	0.00E+00	0.00E+00	1.43E-02	0.00E+00	4.00E+00	
Renewable Material Resources [kg]	3.37E+00	2.37E+00	1.11E-01	2.23E-02	0.00E+00	6.41E-01	0.00E+00	0.00E+00	0.00E+00	1.69E-01	0.00E+00	5.69E-02	
HWD [kg]	9.64E-03	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	2.95E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	7.03E-06	5.74E-06	3.12E-08	3.16E-07	0.00E+00	8.37E-07	0.00E+00	0.00E+00	0.00E+00	6.12E-09	0.00E+00	1.03E-07	
ILLRW [kg]	5.83E-03	4.80E-03	2.62E-05	2.65E-04	0.00E+00	6.45E-04	0.00E+00	0.00E+00	0.00E+00	5.15E-06	0.00E+00	9.19E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	2.66E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	1.36E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

25. Key Epoxy Terrazzo – Industrial Application – With Sealer 804

The LCIA results presented below are for 1 m² of Key Epoxy Terrazzo when used industrially.

Table 17: LCIA results for Key Epoxy Terrazzo – Industrial Application, per functional unit – Market Service Life

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	2.67E-01	8.03E-02	2.98E-03	5.62E-04	0.00E+00	6.41E-03	0.00E+00	1.74E-01	0.00E+00	3.38E-04	0.00E+00	2.75E-03	
EP [kg N eq]	2.82E-02	4.25E-03	2.65E-04	1.55E-04	0.00E+00	7.88E-04	0.00E+00	1.82E-02	0.00E+00	3.61E-05	0.00E+00	4.41E-03	
IPCC AR5 GWP [kg CO ₂ eq]	6.41E+01	1.90E+01	6.58E-01	5.98E-01	0.00E+00	1.35E+00	0.00E+00	4.18E+01	0.00E+00	1.29E-01	0.00E+00	5.34E-01	
ODP [kg CFC 11 eq]	1.21E-06	3.80E-07	1.68E-15	9.93E-09	0.00E+00	4.49E-08	0.00E+00	7.80E-07	0.00E+00	3.30E-16	0.00E+00	2.55E-14	
POCP [kg O ₃ eq]	5.24E+00	1.59E+00	6.91E-02	9.03E-03	0.00E+00	6.49E-02	0.00E+00	3.45E+00	0.00E+00	7.70E-03	0.00E+00	5.02E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	7.29E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	7.29E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.86E-02	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _E [MJ]	1.03E+02	3.08E+01	3.65E-01	7.74E-01	0.00E+00	4.49E+00	0.00E+00	6.59E+01	0.00E+00	7.16E-02	0.00E+00	9.73E-01	
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _E [MJ]	4.94E+02	1.26E+02	9.16E+00	4.86E+00	0.00E+00	4.44E+01	0.00E+00	3.00E+02	0.00E+00	1.80E+00	0.00E+00	8.31E+00	
NRPR _M [MJ]	5.15E+02	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.43E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	1.15E+00	8.82E-02	1.25E-03	2.23E-03	0.00E+00	8.71E-01	0.00E+00	1.86E-01	0.00E+00	2.46E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	4.07E+01	1.25E+01	2.87E-01	1.27E-01	0.00E+00	1.08E+00	0.00E+00	2.64E+01	0.00E+00	5.63E-02	0.00E+00	2.26E-01	
Nonrenewable Nuclear [MJ (HHV)]	1.08E-04	3.29E-05	1.35E-07	1.36E-06	0.00E+00	2.91E-06	0.00E+00	6.99E-05	0.00E+00	2.64E-08	0.00E+00	4.75E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	1.01E-03	3.38E-04	-1.14E-10	-4.61E-10	0.00E+00	-1.87E-10	0.00E+00	6.76E-04	0.00E+00	-2.23E-11	0.00E+00	-9.93E-10	
Nonrenewable Material Resources [kg]	1.76E+02	3.02E+01	7.29E-02	2.37E+01	0.00E+00	2.29E+00	0.00E+00	1.16E+02	0.00E+00	1.43E-02	0.00E+00	4.00E+00	
Renewable Material Resources [kg]	8.83E+00	2.37E+00	1.11E-01	2.23E-02	0.00E+00	6.41E-01	0.00E+00	5.46E+00	0.00E+00	1.69E-01	0.00E+00	5.69E-02	
HWD [kg]	2.89E-02	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	8.86E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	1.94E-05	5.74E-06	3.12E-08	3.16E-07	0.00E+00	8.37E-07	0.00E+00	1.24E-05	0.00E+00	6.12E-09	0.00E+00	1.03E-07	
ILLRW [kg]	1.62E-02	4.80E-03	2.62E-05	2.65E-04	0.00E+00	6.45E-04	0.00E+00	1.04E-02	0.00E+00	5.15E-06	0.00E+00	9.19E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	7.98E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	5.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	4.08E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	2.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

Table 18: LCIA and LCI results for Key Epoxy Terrazzo – Industrial Application, per functional unit – **Technical Service Life**

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	1.80E-01	8.03E-02	2.98E-03	5.62E-04	0.00E+00	6.41E-03	0.00E+00	8.70E-02	0.00E+00	3.38E-04	0.00E+00	2.75E-03	
EP [kg N eq]	1.90E-02	4.25E-03	2.65E-04	1.55E-04	0.00E+00	7.88E-04	0.00E+00	9.12E-03	0.00E+00	3.61E-05	0.00E+00	4.41E-03	
IPCC AR5 GWP [kg CO ₂ eq]	4.32E+01	1.90E+01	6.58E-01	5.98E-01	0.00E+00	1.35E+00	0.00E+00	2.09E+01	0.00E+00	1.29E-01	0.00E+00	5.34E-01	
ODP [kg CFC 11 eq]	8.25E-07	3.80E-07	1.68E-15	9.93E-09	0.00E+00	4.49E-08	0.00E+00	3.90E-07	0.00E+00	3.30E-16	0.00E+00	2.55E-14	
POCP [kg O ₃ eq]	3.52E+00	1.59E+00	6.91E-02	9.03E-03	0.00E+00	6.49E-02	0.00E+00	1.73E+00	0.00E+00	7.70E-03	0.00E+00	5.02E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	4.86E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _e [MJ]	7.04E+01	3.08E+01	3.65E-01	7.74E-01	0.00E+00	4.49E+00	0.00E+00	3.29E+01	0.00E+00	7.16E-02	0.00E+00	9.73E-01	
RPR _m [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _e [MJ]	3.44E+02	1.26E+02	9.16E+00	4.86E+00	0.00E+00	4.44E+01	0.00E+00	1.50E+02	0.00E+00	1.80E+00	0.00E+00	8.31E+00	
NRPR _m [MJ]	3.43E+02	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.72E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	1.06E+00	8.82E-02	1.25E-03	2.23E-03	0.00E+00	8.71E-01	0.00E+00	9.30E-02	0.00E+00	2.46E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	2.75E+01	1.25E+01	2.87E-01	1.27E-01	0.00E+00	1.08E+00	0.00E+00	1.32E+01	0.00E+00	5.63E-02	0.00E+00	2.26E-01	
Nonrenewable Nuclear [MJ (HHV)]	7.28E-05	3.29E-05	1.35E-07	1.36E-06	0.00E+00	2.91E-06	0.00E+00	3.49E-05	0.00E+00	2.64E-08	0.00E+00	4.75E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	6.76E-04	3.38E-04	-1.14E-10	-4.61E-10	0.00E+00	-1.87E-10	0.00E+00	3.38E-04	0.00E+00	-2.23E-11	0.00E+00	-9.93E-10	
Nonrenewable Material Resources [kg]	1.18E+02	3.02E+01	7.29E-02	2.37E+01	0.00E+00	2.29E+00	0.00E+00	5.79E+01	0.00E+00	1.43E-02	0.00E+00	4.00E+00	
Renewable Material Resources [kg]	6.10E+00	2.37E+00	1.11E-01	2.23E-02	0.00E+00	6.41E-01	0.00E+00	2.73E+00	0.00E+00	1.69E-01	0.00E+00	5.69E-02	
HWD [kg]	1.93E-02	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	5.91E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	1.32E-05	5.74E-06	3.12E-08	3.16E-07	0.00E+00	8.37E-07	0.00E+00	6.19E-06	0.00E+00	6.12E-09	0.00E+00	1.03E-07	
ILLRW [kg]	1.10E-02	4.80E-03	2.62E-05	2.65E-04	0.00E+00	6.45E-04	0.00E+00	5.19E-03	0.00E+00	5.15E-06	0.00E+00	9.19E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	5.32E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	2.72E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

26. Key Epoxy Terrazzo – Commercial Application – Without Sealer 804

The LCIA results presented below are for 1 m² of Key Epoxy Terrazzo when used commercially.

Table 19: LCIA and LCI results for Key Epoxy Terrazzo – Commercial Application, per functional unit – Market Service Life

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	1.79E-01	8.00E-02	2.94E-03	5.62E-04	0.00E+00	6.39E-03	0.00E+00	8.65E-02	0.00E+00	3.36E-04	0.00E+00	2.74E-03	
EP [kg N eq]	1.89E-02	4.23E-03	2.61E-04	1.55E-04	0.00E+00	7.84E-04	0.00E+00	9.07E-03	0.00E+00	3.59E-05	0.00E+00	4.39E-03	
IPCC AR5 GWP [kg CO ₂ eq]	4.28E+01	1.88E+01	6.47E-01	5.98E-01	0.00E+00	1.34E+00	0.00E+00	2.07E+01	0.00E+00	1.28E-01	0.00E+00	5.31E-01	
ODP [kg CFC 11 eq]	8.25E-07	3.80E-07	1.65E-15	9.93E-09	0.00E+00	4.47E-08	0.00E+00	3.90E-07	0.00E+00	3.28E-16	0.00E+00	2.54E-14	
POCP [kg O ₃ eq]	3.50E+00	1.58E+00	6.80E-02	9.03E-03	0.00E+00	6.46E-02	0.00E+00	1.72E+00	0.00E+00	7.67E-03	0.00E+00	5.00E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	4.86E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _E [MJ]	7.00E+01	3.06E+01	3.59E-01	7.74E-01	0.00E+00	4.48E+00	0.00E+00	3.28E+01	0.00E+00	7.13E-02	0.00E+00	9.69E-01	
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _E [MJ]	3.41E+02	1.24E+02	9.01E+00	4.86E+00	0.00E+00	4.42E+01	0.00E+00	1.48E+02	0.00E+00	1.79E+00	0.00E+00	8.27E+00	
NRPR _M [MJ]	3.40E+02	1.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	1.05E+00	8.72E-02	1.23E-03	2.23E-03	0.00E+00	8.67E-01	0.00E+00	9.19E-02	0.00E+00	2.45E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	2.72E+01	1.24E+01	2.82E-01	1.27E-01	0.00E+00	1.07E+00	0.00E+00	1.31E+01	0.00E+00	5.61E-02	0.00E+00	2.25E-01	
Nonrenewable Nuclear [MJ (HHV)]	7.22E-05	3.26E-05	1.32E-07	1.36E-06	0.00E+00	2.90E-06	0.00E+00	3.46E-05	0.00E+00	2.63E-08	0.00E+00	4.73E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	6.76E-04	3.38E-04	-1.12E-10	-4.61E-10	0.00E+00	-1.86E-10	0.00E+00	3.38E-04	0.00E+00	-2.22E-11	0.00E+00	-9.89E-10	
Nonrenewable Material Resources [kg]	1.18E+02	2.99E+01	7.17E-02	2.37E+01	0.00E+00	2.28E+00	0.00E+00	5.76E+01	0.00E+00	1.42E-02	0.00E+00	3.98E+00	
Renewable Material Resources [kg]	6.09E+00	2.37E+00	1.09E-01	2.23E-02	0.00E+00	6.38E-01	0.00E+00	2.72E+00	0.00E+00	1.68E-01	0.00E+00	5.67E-02	
HWD [kg]	1.93E-02	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	5.91E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	1.31E-05	5.67E-06	3.07E-08	3.16E-07	0.00E+00	8.33E-07	0.00E+00	6.12E-06	0.00E+00	6.09E-09	0.00E+00	1.02E-07	
ILLRW [kg]	1.09E-02	4.74E-03	2.58E-05	2.65E-04	0.00E+00	6.42E-04	0.00E+00	5.13E-03	0.00E+00	5.13E-06	0.00E+00	9.15E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	5.32E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	2.72E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

Table 20: LCIA and LCI results for Key Epoxy Terrazzo – Commercial Application, per functional unit – **Technical Service Life**

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	9.29E-02	8.00E-02	2.94E-03	5.62E-04	0.00E+00	6.39E-03	0.00E+00	0.00E+00	0.00E+00	3.36E-04	0.00E+00	2.74E-03	
EP [kg N eq]	9.86E-03	4.23E-03	2.61E-04	1.55E-04	0.00E+00	7.84E-04	0.00E+00	0.00E+00	0.00E+00	3.59E-05	0.00E+00	4.39E-03	
IPCC AR5 GWP [kg CO ₂ eq]	2.21E+01	1.88E+01	6.47E-01	5.98E-01	0.00E+00	1.34E+00	0.00E+00	0.00E+00	0.00E+00	1.28E-01	0.00E+00	5.31E-01	
ODP [kg CFC 11 eq]	4.35E-07	3.80E-07	1.65E-15	9.93E-09	0.00E+00	4.47E-08	0.00E+00	0.00E+00	0.00E+00	3.28E-16	0.00E+00	2.54E-14	
POCP [kg O ₃ eq]	1.78E+00	1.58E+00	6.80E-02	9.03E-03	0.00E+00	6.46E-02	0.00E+00	0.00E+00	0.00E+00	7.67E-03	0.00E+00	5.00E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	2.43E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _E [MJ]	3.73E+01	3.06E+01	3.59E-01	7.74E-01	0.00E+00	4.48E+00	0.00E+00	0.00E+00	0.00E+00	7.13E-02	0.00E+00	9.69E-01	
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _E [MJ]	1.92E+02	1.24E+02	9.01E+00	4.86E+00	0.00E+00	4.42E+01	0.00E+00	0.00E+00	0.00E+00	1.79E+00	0.00E+00	8.27E+00	
NRPR _M [MJ]	1.70E+02	1.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	9.59E-01	8.72E-02	1.23E-03	2.23E-03	0.00E+00	8.67E-01	0.00E+00	0.00E+00	0.00E+00	2.45E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	1.41E+01	1.24E+01	2.82E-01	1.27E-01	0.00E+00	1.07E+00	0.00E+00	0.00E+00	0.00E+00	5.61E-02	0.00E+00	2.25E-01	
Nonrenewable Nuclear [MJ (HHV)]	3.75E-05	3.26E-05	1.32E-07	1.36E-06	0.00E+00	2.90E-06	0.00E+00	0.00E+00	0.00E+00	2.63E-08	0.00E+00	4.73E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	3.38E-04	3.38E-04	-1.12E-10	-4.61E-10	0.00E+00	-1.86E-10	0.00E+00	0.00E+00	0.00E+00	-2.22E-11	0.00E+00	-9.89E-10	
Nonrenewable Material Resources [kg]	5.99E+01	2.99E+01	7.17E-02	2.37E+01	0.00E+00	2.28E+00	0.00E+00	0.00E+00	0.00E+00	1.42E-02	0.00E+00	3.98E+00	
Renewable Material Resources [kg]	3.36E+00	2.37E+00	1.09E-01	2.23E-02	0.00E+00	6.38E-01	0.00E+00	0.00E+00	0.00E+00	1.68E-01	0.00E+00	5.67E-02	
HWD [kg]	9.64E-03	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	2.95E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	6.96E-06	5.67E-06	3.07E-08	3.16E-07	0.00E+00	8.33E-07	0.00E+00	0.00E+00	0.00E+00	6.09E-09	0.00E+00	1.02E-07	
ILLRW [kg]	5.77E-03	4.74E-03	2.58E-05	2.65E-04	0.00E+00	6.42E-04	0.00E+00	0.00E+00	0.00E+00	5.13E-06	0.00E+00	9.15E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	2.66E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	1.36E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

27. Key Epoxy Terrazzo – Industrial Application – Without Sealer 804

The LCIA results presented below are for 1 m² of Key Epoxy Terrazzo when used industrially.

Table 21: LCIA results for Key Epoxy Terrazzo – Industrial Application, per functional unit – Market Service Life

Impact Category	Production Stage		Construction Stage			Use Stage				End of Life Stage			
	Total	A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	2.66E-01	8.00E-02	2.94E-03	5.62E-04	0.00E+00	6.39E-03	0.00E+00	1.73E-01	0.00E+00	3.36E-04	0.00E+00	2.74E-03	
EP [kg N eq]	2.80E-02	4.23E-03	2.61E-04	1.55E-04	0.00E+00	7.84E-04	0.00E+00	1.81E-02	0.00E+00	3.59E-05	0.00E+00	4.39E-03	
IPCC AR5 GWP [kg CO ₂ eq]	6.35E+01	1.88E+01	6.47E-01	5.98E-01	0.00E+00	1.34E+00	0.00E+00	4.14E+01	0.00E+00	1.28E-01	0.00E+00	5.31E-01	
ODP [kg CFC 11 eq]	1.21E-06	3.80E-07	1.65E-15	9.93E-09	0.00E+00	4.47E-08	0.00E+00	7.80E-07	0.00E+00	3.28E-16	0.00E+00	2.54E-14	
POCP [kg O ₃ eq]	5.21E+00	1.58E+00	6.80E-02	9.03E-03	0.00E+00	6.46E-02	0.00E+00	3.43E+00	0.00E+00	7.67E-03	0.00E+00	5.00E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	7.29E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	7.29E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.86E-02	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _E [MJ]	1.03E+02	3.06E+01	3.59E-01	7.74E-01	0.00E+00	4.48E+00	0.00E+00	6.56E+01	0.00E+00	7.13E-02	0.00E+00	9.69E-01	
RPR _M [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _E [MJ]	4.89E+02	1.24E+02	9.01E+00	4.86E+00	0.00E+00	4.42E+01	0.00E+00	2.97E+02	0.00E+00	1.79E+00	0.00E+00	8.27E+00	
NRPR _M [MJ]	5.10E+02	1.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.40E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	1.14E+00	8.72E-02	1.23E-03	2.23E-03	0.00E+00	8.67E-01	0.00E+00	1.84E-01	0.00E+00	2.45E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	4.03E+01	1.24E+01	2.82E-01	1.27E-01	0.00E+00	1.07E+00	0.00E+00	2.61E+01	0.00E+00	5.61E-02	0.00E+00	2.25E-01	
Nonrenewable Nuclear [MJ (HHV)]	1.07E-04	3.26E-05	1.32E-07	1.36E-06	0.00E+00	2.90E-06	0.00E+00	6.93E-05	0.00E+00	2.63E-08	0.00E+00	4.73E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	1.01E-03	3.38E-04	-1.12E-10	-4.61E-10	0.00E+00	-1.86E-10	0.00E+00	6.76E-04	0.00E+00	-2.22E-11	0.00E+00	-9.89E-10	
Nonrenewable Material Resources [kg]	1.75E+02	2.99E+01	7.17E-02	2.37E+01	0.00E+00	2.28E+00	0.00E+00	1.15E+02	0.00E+00	1.42E-02	0.00E+00	3.98E+00	
Renewable Material Resources [kg]	8.81E+00	2.37E+00	1.09E-01	2.23E-02	0.00E+00	6.38E-01	0.00E+00	5.45E+00	0.00E+00	1.68E-01	0.00E+00	5.67E-02	
HWD [kg]	2.89E-02	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	8.86E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.91E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	1.92E-05	5.67E-06	3.07E-08	3.16E-07	0.00E+00	8.33E-07	0.00E+00	1.22E-05	0.00E+00	6.09E-09	0.00E+00	1.02E-07	
ILLRW [kg]	1.60E-02	4.74E-03	2.58E-05	2.65E-04	0.00E+00	6.42E-04	0.00E+00	1.03E-02	0.00E+00	5.13E-06	0.00E+00	9.15E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	7.98E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	5.32E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	4.08E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	2.72E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	

*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.

Table 22: LCIA and LCI results for Key Epoxy Terrazzo – Industrial Application, per functional unit – **Technical Service Life**

Impact Category	Total	Production Stage	Construction Stage			Use Stage				End of Life Stage			
		A1-A3	A4	A5	B1	B2	B3	B4	C1	C2	C3	C4	
LCIA Impact Indicators – TRACI 2.1 and IPCC AR5													
AP [kg SO ₂ eq]	1.79E-01	8.00E-02	2.94E-03	5.62E-04	0.00E+00	6.39E-03	0.00E+00	8.65E-02	0.00E+00	3.36E-04	0.00E+00	2.74E-03	
EP [kg N eq]	1.89E-02	4.23E-03	2.61E-04	1.55E-04	0.00E+00	7.84E-04	0.00E+00	9.07E-03	0.00E+00	3.59E-05	0.00E+00	4.39E-03	
IPCC AR5 GWP [kg CO ₂ eq]	4.28E+01	1.88E+01	6.47E-01	5.98E-01	0.00E+00	1.34E+00	0.00E+00	2.07E+01	0.00E+00	1.28E-01	0.00E+00	5.31E-01	
ODP [kg CFC 11 eq]	8.25E-07	3.80E-07	1.65E-15	9.93E-09	0.00E+00	4.47E-08	0.00E+00	3.90E-07	0.00E+00	3.28E-16	0.00E+00	2.54E-14	
POCP [kg O ₃ eq]	3.50E+00	1.58E+00	6.80E-02	9.03E-03	0.00E+00	6.46E-02	0.00E+00	1.72E+00	0.00E+00	7.67E-03	0.00E+00	5.00E-02	
Biogenic Carbon Indicators													
BCRP [kg CO ₂]	4.86E-02	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEP [kg CO ₂]	4.86E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.43E-02	0.00E+00	0.00E+00	0.00E+00	2.43E-02	
BCRC [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEK [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
BCEW [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCE [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CCR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
CWNR [kg CO ₂]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Material and Energy Resources and, Waste													
RPR _e [MJ]	7.00E+01	3.06E+01	3.59E-01	7.74E-01	0.00E+00	4.48E+00	0.00E+00	3.28E+01	0.00E+00	7.13E-02	0.00E+00	9.69E-01	
RPR _m [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRPR _e [MJ]	3.41E+02	1.24E+02	9.01E+00	4.86E+00	0.00E+00	4.42E+01	0.00E+00	1.48E+02	0.00E+00	1.79E+00	0.00E+00	8.27E+00	
NRPR _m [MJ]	3.40E+02	1.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RE [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
SM [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
RSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NRSF [MJ]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
FW [m ³]	1.05E+00	8.72E-02	1.23E-03	2.23E-03	0.00E+00	8.67E-01	0.00E+00	9.19E-02	0.00E+00	2.45E-04	0.00E+00	1.03E-03	
Nonrenewable Fossil [MJ (HHV)]	2.72E+01	1.24E+01	2.82E-01	1.27E-01	0.00E+00	1.07E+00	0.00E+00	1.31E+01	0.00E+00	5.61E-02	0.00E+00	2.25E-01	
Nonrenewable Nuclear [MJ (HHV)]	7.22E-05	3.26E-05	1.32E-07	1.36E-06	0.00E+00	2.90E-06	0.00E+00	3.46E-05	0.00E+00	2.63E-08	0.00E+00	4.73E-07	
Renewable (Solar, Wind, Hydro, Geo) [MJ (HHV)]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Renewable (Biomass) [MJ (HHV)]	6.76E-04	3.38E-04	-1.12E-10	-4.61E-10	0.00E+00	-1.86E-10	0.00E+00	3.38E-04	0.00E+00	-2.22E-11	0.00E+00	-9.89E-10	
Nonrenewable Material Resources [kg]	1.18E+02	2.99E+01	7.17E-02	2.37E+01	0.00E+00	2.28E+00	0.00E+00	5.76E+01	0.00E+00	1.42E-02	0.00E+00	3.98E+00	
Renewable Material Resources [kg]	6.09E+00	2.37E+00	1.09E-01	2.23E-02	0.00E+00	6.38E-01	0.00E+00	2.72E+00	0.00E+00	1.68E-01	0.00E+00	5.67E-02	
HWD [kg]	1.93E-02	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
NHWD [kg]	5.91E-02	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.95E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
HLRW [kg]	1.31E-05	5.67E-06	3.07E-08	3.16E-07	0.00E+00	8.33E-07	0.00E+00	6.12E-06	0.00E+00	6.09E-09	0.00E+00	1.02E-07	
ILLRW [kg]	1.09E-02	4.74E-03	2.58E-05	2.65E-04	0.00E+00	6.42E-04	0.00E+00	5.13E-03	0.00E+00	5.13E-06	0.00E+00	9.15E-05	
CRU [kg]	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MFR [kg]	5.32E-01	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	2.66E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
MER [kg]	2.72E-01	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	1.36E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
<small>*Life Cycle Stages B5, B6, and B7 are 0 and therefore were excluded from the table. Significant data limitations currently exist within the LCI data used to generate waste metrics for Life Cycle Assessments and Environmental Product Declarations. The waste metrics were calculated in a way conformant with the requirements of ISO 21930:2017, but these values represent rough estimates and are for informational purposes only. As such, no decisions regarding actual cradle-to-grave waste performance between products should be derived from these reported values.</small>													

Life Cycle Assessment Interpretation

For all impact categories the vast majority of impacts are aggregated in the B4 Replacement phase of the life cycle of the product. The second largest life cycle stage is A1-A3, which is raw material sourcing, transportation and manufacturing.

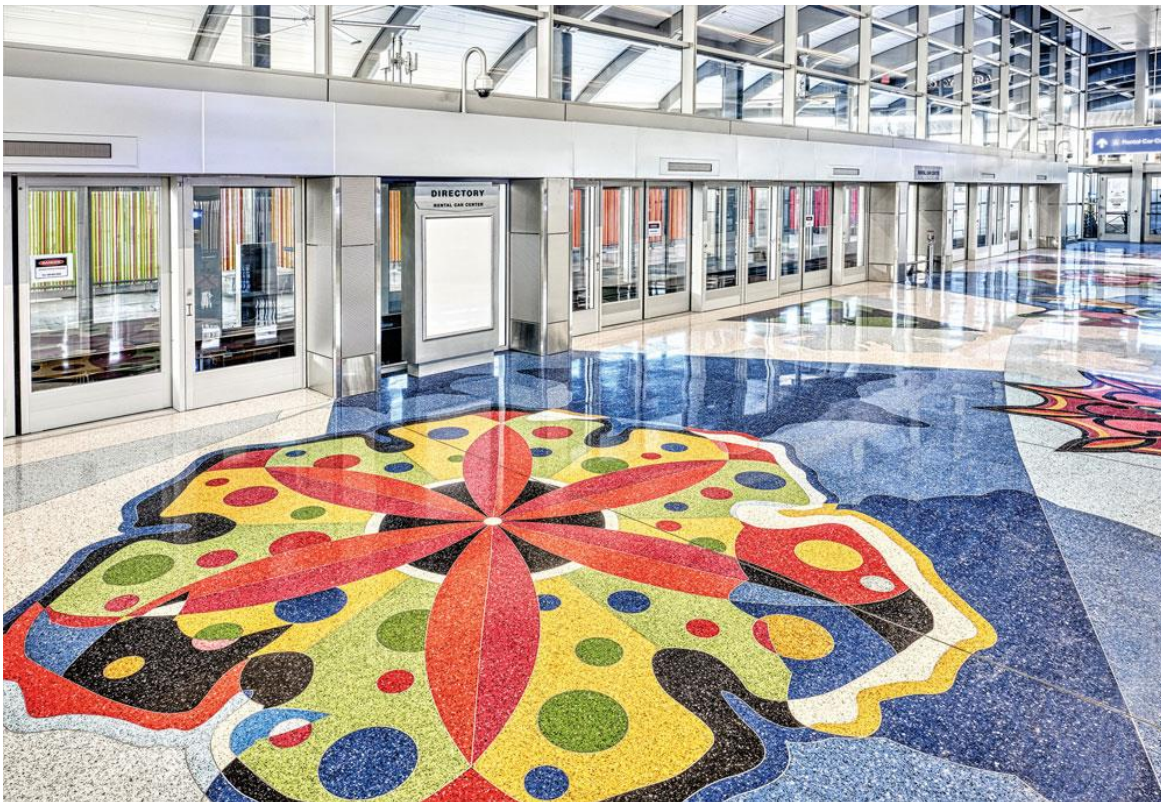
For Key Epoxy Terrazzo, in the sourcing and extraction stage, the largest contributors to the impacts in terms of raw materials are terrazzo matrix resin (41%) and terrazzo matrix hardener (25%). Within manufacturing, plastic packaging contributes to 8% of overall GWP impacts while steel packaging contributes to 3%.

Shipping to customer contributes around 1-3% of total GWP impacts, while installation contributes around 1-2% of GWP impacts, depending on the RSL scenario. Finally, disposal of the product to landfill contributes 1-3% to total GWP impacts.

28. Additional Environmental Information

Key Resin Company has published a Health Product Declaration (HPD) for this product that can be found in the HPD Repository [here](#).

Please contact [Key Resin](#) for further information on their CDPH Section 01350 V1.2 emissions testing.



References

1. ISO 14044: 2006 Environmental Management – Life cycle assessment – Requirements and Guidelines.
2. ISO 14044: 2006/ Amd 1:2017 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 1.
3. ISO 14044: 2006/ Amd 2:2020 Environmental Management – Life cycle assessment – Requirements and Guidelines – Amendment 2.
4. ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and Procedures.
5. ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.
6. TRACI: The Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts. Version 2.1 – User Guide – <https://nepis.epa.gov/Adobe/PDF/P100HN53.pdf>.
7. NSF Product Category Rule for Environmental Product Declarations: PCR for Resinous Floor Coatings. December 17, 2018.

