Environmental Product Declaration

EPOXY RESIN SYSTEMS

KAUFMAN

Concrete Treatments

Environmental Product Declaration for all Epoxy Resin Systems manufactured by Kaufman Products, Inc. in Baltimore, Maryland USA.

AMERICAN OWNED & MANUFACTURED

ADMINISTRATIVE INFORMATION

International Certified Environmental Product Declaration

Declared Product:	This Environmental Product Declaration (EPD) covers epoxy resin system products produced by Kaufman Products Inc. Declared unit: 1 kg of epoxy resin system product
Declaration Owner:	Kaufman Products Inc. 3811 Curtis Avenue Baltimore, Maryland 21226 www.kaufmanproducts.net
Program Operator:	Labeling Sustainability 1800 Vine St. Los Angeles, CA 90028 www.labelingsustainability.com
Product Category Rule:	ISO 21930:2017 Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services PCR Program Operator: International Organization for Standardization PCR review was conducted by: Technical Committee: ISO/TC 59/SC 17 Sustainability in buildings and civil engineering works
Independent LCA Reviewer and EPD Verifier:	This declaration was independently verified in accordance with ISO 14025:2006 Independent verification of the declaration, according to ISO 14025:2006 Internal ☐ ; External ☐ X Third Party Verifier Geoffrey Guest, Certified 3rd Party Verifier under Labeling Sustainability Program (www.labelingsustainability.com), CSA Group (www.csaregistries.ca)
Date of Issue:	11 February 2024
Period of Validity:	5 years; valid until 11 February 2029
EPD Number:	e4f9fcee-b1f8-4f89-8eaf-eb0adbae60cc

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COMPANY DESCRIPTION

Kaufman Products, Inc. offers more than two hundred products for use on new concrete construction projects and restoration and repair work of existing concrete structures. Among the various powders and chemicals manufactured, Kaufman Products offers epoxy adhesives, cementitious and polymer-modified repair mortars, curing compounds, form release agents, coatings, non-shrink grouts, retarders and accelerating agents, curing and sealing compounds, shake-on hardeners, penetrating hardeners, and anchoring materials. In addition, the breadth of its product line continues to grow, allowing its business partners to carry a complete line of products that meet a wide range of needs.

Kaufman Products' brand name is now nationally specified and respected. Its brand name is routinely approved in specifications nationwide through strategic business partnerships with both SpecLink and MasterSpec programs. In addition, Kaufman Products has been approved for use on highway and infrastructure projects throughout the United States, with over five hundred individual state (DOT) approvals.

Kaufman Products remains dedicated to preserving and protecting the environment. While they were perhaps the first company to use safer and greener materials, exemplified by our early adoption of emulsion technology and water-based curing compounds over forty years ago, we continue to pursue our vision of using recycled or waste-stream in our selection of both packaging materials and raw materials. To this end, Kaufman Products uses recycled plastic pails, re-conditioned drums, totes, and restored wood pallets to reduce our environmental impact. Moreover, its product formulations incorporate many waste-stream materials to reduce our environmental impact. Accordingly, Kaufman Products can provide LEED credits related to these decisions.

STUDY GOAL

The intended application of this life cycle assessment (LCA) is to comply with the procedures for creating a Type III environmental product declaration (EPD) and publish the EPD for public review on the website, www.labelingsustainability.com . This level of study is in accordance with EPD Product Category Rule (PCR) for Concrete curing compound published by ; International Standards Organization (ISO) 14025:2006 Environmental labels and declarations, Type III environmental declarations-Principles and procedures; ISO 14044:2006 Environmental management, Life cycle assessment- Requirements and guidelines; and ISO 14040:2006 Environmental management, Life cycle assessment-Principles and framework. The performance of this study and its subsequent publishing is in alignment with the business-to-business (B2B) communication requirements for the environmental assessment of building products. The study does not intend to support comparative assertions and is intended to be disclosed to the public.

This project report was commissioned to differentiate Kaufman Products Inc. from their competition for the following reasons: generate an advantage for the organization; offer customers information to help them make informed product decisions; improve the environmental performance of Kaufman Products Inc. by continuously measuring, controlling and reducing the environmental impacts of their products; help project facilitators working on Leadership in Energy and Environmental Design (LEED) projects achieve their credit goal; and to strengthen Kaufman Products Inc.'s license to operate in the community. The intended audience for this LCA report is Kaufman Products Inc.'s employees, their suppliers, project specifiers of their products, architects, and engineers. The EPD report is also available

for policy makers, government officials interested in sustainability, academic professors, and LCA professionals. This LCA report does not include product comparisons from other facilities.

DESCRIPTION OF PRODUCT AND SCOPE

Kaufman's SurePoxy and K Pro epoxy resin systems represent a line of 100%-solids, moisture-insensitive epoxy adhesives, and binders with high-strength bonding properties. These products are specifically designed for versatile applications, serving purposes such as repairing concrete cracks, enhancing corrosion protection, bonding new concrete, or repairing mortars to existing concrete, ideally suited as a binder with aggregate to produce a high-strength epoxy grout. They offer notable attributes including abrasion resistance and chemical resistance, with exceptional durability against deicing chemicals. Additionally, these epoxy resin systems can be applied to green or freshly placed concrete, serving dual functions as both a curing and sealing compound. Furthermore, they function as a long-lasting epoxy protective coating, making them an ideal choice for resurfacing and repairing concrete surfaces where high strength, rapid setting, and abrasion resistance are paramount.

Kaufman's Krystal Series curing and sealing compounds have been specifically formulated to meet the rigid VOC content regulations from the OTC, LADCO, and EPA. These unique products exhibit superior resistance to yellowing caused by UV exposure, making them particularly well-suited for the curing of freshly placed exterior architectural concrete where any yellowing is deemed unacceptable. Additionally, Krystal products offer a wet-look or glossy finish and have been optimized for cold-weather applications, ensuring proper drying even in temperatures as low as 40˚F.

This LCA assumes the impacts from products manufactured in accordance with the standards outlined in this report. This LCA is a cradle-to-gate study , and therefore, stages extending beyond the plant gate are not included in this LCA. Excluded stages include transportation of the manufactured material to the construction site; on-site construction processes and components; building (infrastructure) use and maintenance; and "end-of-life" effects.

EPOXY RESIN SYSTEM DESIGN SUMMARY

The following tables provide a list of the epoxy resin system products considered in this EPD along with key performance parameters.

Table 1: **Declared products with epoxy resin system considered in this environmental product declaration**

Prod#	Unique name/ID	Short description	Product type
1	SurePoxy Mortar	100% solids, moisture insensitive, multi-purpose epoxy mortar kit	Epoxy resin system
2	SurePoxy LM	Two-component, moisture insensitive, low modulus epoxy bonding agent	Epoxy resin system
3	SurePoxy LMLV	100% solids, low modulus, epoxy adhesive and binder	Epoxy resin system
4	SurePoxy LM Gel	100% solids, low modulus, epoxy gel resin system	Epoxy resin system
5	SurePoxy LMLV EPL	100% solids, low modulus, low viscosity, & extended pot life epoxy system	Epoxy resin system

6	SurePoxy VLM Class B	Quick setting, 100% solids, medium viscosity & very low modulus epoxy resin overlay	Epoxy resin system
7	SurePoxy VLM	100% solids, medium viscosity, moisture insensitive & very low modulus epoxy resin overlay	Epoxy resin system
8	SurePoxy VLM LV	100% solids, low viscosity, moisture insensitive, and very low modulus epoxy resin system	Epoxy resin system
9	SurePoxy VLM Gel	100% solids, moisture insensitive, and very low modulus epoxy gel system	Epoxy resin system
10	SurePoxy 110	100% solids, gray, medium-viscosity, high modulus epoxy bonding agent	Epoxy resin system
11	SurePoxy HM	100% solids, medium-viscosity, high strength epoxy bonding adhesive	Epoxy resin system
12	SurePoxy HMLV	100% solids, low-viscosity, high modulus epoxy resin system	Epoxy resin system
13	SurePoxy HM Gel	100% solids, high modulus gel epoxy bonding agent	Epoxy resin system
14	SurePoxy HM Class B	High modulus, 100% solids, two-component, epoxy bonding agent	Epoxy resin system
15	SurePoxy HMLV Class B	Low viscosity, cold weather, high strength epoxy adhesive & binder	Epoxy resin system
16	SurePoxy 116	Rapid-setting, 100% solids, high modulus epoxy dowel bar adhesive	Epoxy resin system
17	SurePoxy 117	Rapid-setting, 100% solids, high modulus epoxy dowel bar adhesive	Epoxy resin system
18	SurePoxy Flexijoint	100% solids, gray, semi-rigid epoxy joint filler	Epoxy resin system
19	SurePoxy HMSLV	100% solids, super low-viscosity, high modulus epoxy resin system	Epoxy resin system
20	SurePoxy HM EPL	High modulus, extended pot life epoxy adhesive & anti-corrosion coating	Epoxy resin system
21	SurePoxy HMLV EPL	100% solids, high modulus, extended pot life epoxy resin system	Epoxy resin system
22	K Pro HP Grout	100% solids, deep-pour, high modulus epoxy grout	Epoxy resin system
23	SurePoxy DBA	100% solids, high modulus epoxy dowel bar adhesive	Epoxy resin system
24	K Pro TNG	100% solids, high-modulus, two-component, slow-setting epoxy gel	Epoxy resin system
25	AMG K Pro TNG	100% solids, high-modulus, two-component, slow-setting epoxy gel	Epoxy resin system
26	K Pro Flexijoint	100% solids, gray, rapid-setting, urea-modified semi-rigid joint filler	Epoxy resin system
27	K Pro UW Grout	Marine-grade, 100% solids, two component epoxy resin system	Epoxy resin system
28	K Pro UW EPL Grout	100% solids, extended-pot life, marine epoxy grout system	Epoxy resin system
29	AMG K Pro UW Grout	100% solids, marine epoxy grout system	Epoxy resin system
30	AMG K Pro UW EPL Grout	100% solids, extended-pot life, marine epoxy grout system	Epoxy resin system

31	K Pro CRS Gray	100% solids, moisture-insensitive, chemical resistant epoxy sealer	Epoxy resin system
32	SurePoxy HiBild Med Gray	100% solids, moisture-insensitive, flexibilized epoxy protective coating	Epoxy resin system
33	SurePoxy HiBild Light Gray	100% solids, moisture-insensitive, flexibilized epoxy protective coating	Epoxy resin system
34	SurePoxy HiBild Orange	100% solids, moisture-insensitive, flexibilized epoxy protective coating	Epoxy resin system
35	SurePoxy HiBild Dark Gray	100% solids, moisture-insensitive, flexibilized epoxy protective coating	Epoxy resin system
36	SurePoxy HiBild MD	100% solids, moisture-insensitive, flexibilized epoxy protective coating	Epoxy resin system
37	SurePoxy Protective Coating WD Clear	Water-dispersed epoxy curing & sealing compound & protective coating	Epoxy resin system
38	SurePoxy Protective Coating WD Medium Gray	Water-dispersed epoxy curing & sealing compound & protective coating	Epoxy resin system

EPOXY RESIN SYSTEM DESIGN COMPOSITION

The following table provides the breakdown (kg per functional unit) of the material composition of each epoxy resin system product considered. All proprietary information has been withheld.

Table 2: **Material composition - per 1 kg of grouts: cementitious**

Prod#	Unique name/ID	Ingredients
1	SurePoxy Mortar	Epoxy resin Catalyst Organic solvents Curing agent Aggregate Leveling additive Resin modifier
2	SurePoxy LM	epoxy resin Curing agent Catalyst Organic solvent Coating agent
3	SurePoxy LMLV	Epoxy resin Catalyst Organic solvents Curing agent Leveling additive Resin modifier
4	SurePoxy LM Gel	Epoxy resin Filler Pigment Curing agents Catalyst Organic solvents

		Viscosity modifier
5	SurePoxy LMLV EPL	Epoxy resin Epoxy resin modifier Catalyst Organic solvents Curing agents Leveling additive
6	SurePoxy VLM Class B	Epoxy resin Curing agent Catalyst Organic solvent Intermediate Modifying agent
7	SurePoxy VLM	Epoxy resin Curing agent Organic solvent Catalyst Intermediate
8	SurePoxy VLM LV	Epoxy resin Catalyst Organic solvents Curing agent Leveling additive Resin modifier
9	SurePoxy VLM Gel	Epoxy resin Filler Pigment Curing agents Catalyst Organic solvents
10	SurePoxy 110	Epoxy resin Resin Modifier Curing agent Catalyst Pigment Filler Organic solvent
11	SurePoxy HM	Epoxy resin Resin Modifier Curing agent Catalyst Binder Filler Organic solvent
12	SurePoxy HMLV	Epoxy resin Curing agent Organic solvent Resin modifier Intermediate
13	SurePoxy HM Gel	Epoxy resin Pigment Filler Viscosity modifier Organic solvents Binder Curing agents Catalyst Intermediate

14	SurePoxy HM Class B	Epoxy resin Reactive diluent Modifier Catalyst Curing agent
15	SurePoxy HMLV Class B	Epoxy resin Reactive diluent Resin modifier Curing agent Organic solvents Catalyst Coating additive
16	SurePoxy 116	Epoxy resin Filler Curing agent Coating additive Extender Additives Reactive diluent
17	SurePoxy 117	Epoxy resin Reactive diluent Filler Coating additive Catalyst Curing agent Extender
18	SurePoxy Flexijoint	Epoxy resin Resin Modifier Curing agent Catalyst Organic solvent Pigment Filler Plasticizer
19	SurePoxy HMSLV	Epoxy resin Resin modifier Curing agents Catalyst Organic solvent
20	SurePoxy HM EPL	Epoxy resin Curing agents Organic solvent Catalyst Aggregate
21	SurePoxy HMLV EPL	Epoxy resin Resin modifier Curing agent Catalyst Organic solvent Leveling additive
22	K Pro HP Grout	Epoxy resin Modifier Curing agent Catalyst Organic solvent Aggregate Additive
23	SurePoxy DBA	Epoxy resin Resin Modifier

		Pigment Filler Viscosity modifier Curing agent Organic solvents Extender Catalyst Intermediate
24	K Pro TNG	Epoxy resin Pigment Filler Curing agent Organic solvents Extender Catalyst Coating additive
25	AMG K Pro TNG	Epoxy resin Pigment Filler Curing agent Organic solvents Extender Catalyst Coating additive
26	K Pro Flexijoint	Epoxy resin Reactive diluent Filler Viscosity modifier Curing agent Modifying additive Catalyst Coating additive
27	K Pro UW Grout	Epoxy resin Resin modifier Curing agents Organic solvents Aggregate
28	K Pro UW EPL Grout	Epoxy resin Resin modifier Curing agents Organic solvents Aggregate
29	AMG K Pro UW Grout	Epoxy resin Resin modifier Curing agents Organic solvents
30	AMG K Pro UW EPL Grout	Epoxy resin Resin modifier Curing agents Organic solvents
31	K Pro CRS Gray	Epoxy resin Pigment Filler Curing agent
32	SurePoxy HiBild Med Gray	Epoxy resin Curing agents Catalyst Viscosity modifier Pigment

		Filler Organic solvent
33	SurePoxy HiBild Light Gray	Epoxy resin Curing agents Catalyst Viscosity modifier Pigment Filler Organic solvent Plasticizer
34	SurePoxy HiBild Orange	Epoxy resin Curing agents Catalyst Viscosity modifier Pigment Filler Organic solvent
35	SurePoxy HiBild Dark Gray	Epoxy resin Curing agents Catalyst Viscosity modifier Pigment Filler Organic solvent
36	SurePoxy HiBild MD	Epoxy resin Curing agents Catalyst Viscosity modifier Pigment Filler Organic solvent
37	SurePoxy Protective Coating WD Clear	Epoxy resin Proprietary additive Viscosity modifier Plasticizer Water Hardener
38	SurePoxy Protective Coating WD Medium Gray	Epoxy resin Proprietary additive Water Plasticizer Viscosity modifier Hardener Pigment Filler Organic solvents

A1 RAW MATERIAL RECYCLED CONTENT AND MATERIAL LOSSES –

The following table provides a list of the raw material inputs (module A1) across all products considered, their recyclability content and assumed material losses.

Table 3: **Module A1 raw material inputs, the recyclability content and assumed material losses (dry basis)**

product.name	mix.category	primary.content	post.industrial.content	post.consumer.content	material.losses
Amine curing agent	acrylonitrile	0%	50%	50%	2%
Fumed Silica	silica fume, densified	0%	0%	100%	2%

SYSTEM BOUNDARIES

The following figure depicts the cradle-to-gate system boundary considered in this study:

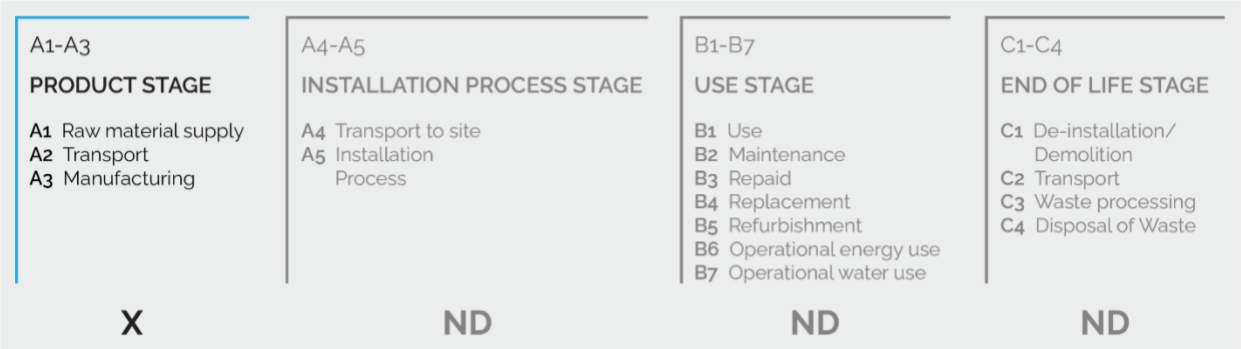

Figure 1: **General life cycle phases for consideration in a construction works system**

This is a Cradle-to-gate life cycle assessment and the following life cycle stages are included in the study:

- A1: Raw material supply (upstream processes) - Extraction, handling, and processing of the materials used in manufacturing the declared products in this LCA.
- A2: Transportation - Transportation of A1 materials from the supplier to the "gate" of the manufacturing facility (i.e. A3).
- A3: Manufacturing (core processes)- The energy and other utility inputs used to store, move, and manufacture the declared products and to operate the facility.

As according to the PCR, the following figure illustrates the general activities and input requirements for producing concrete curing compounds products and is not necessarily exhaustive.

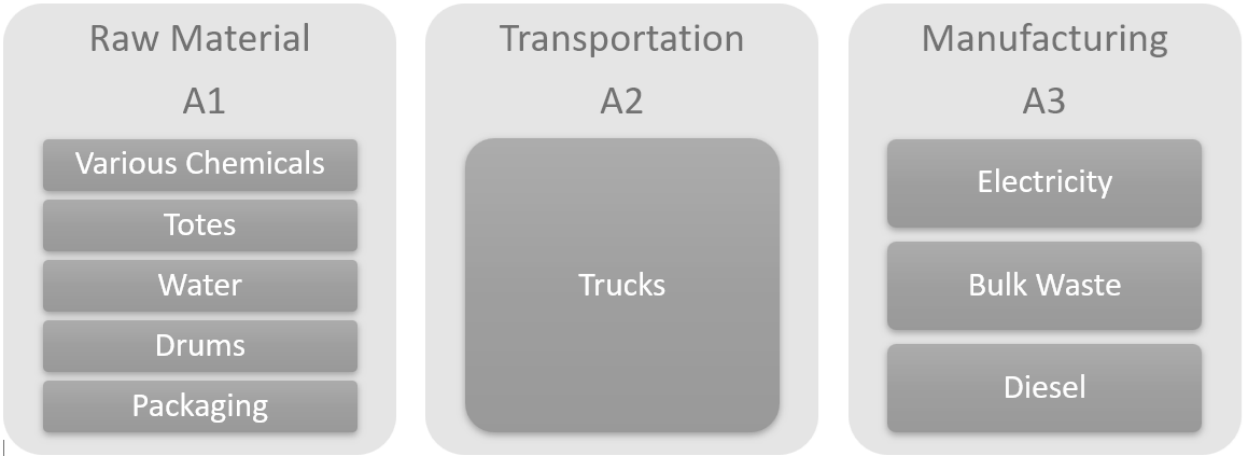

Figure 2: **General system inputs considered in the product system and categorized by modules in scope**

In addition, as according to the relevant PCR, the following requirements are excluded from this study:

- Production, manufacture and construction of A3 building/capital goods and infrastructure.
- Production and manufacture of steel production equipment, steel delivery vehicles, earth-moving equipment, and laboratory equipment.
- Personnel-related activities (travel, furniture, office supplies).
- Energy use related to company management and sales activities.

For this LCA the manufacturing plant, owned and operated by Kaufman Products Inc., is located at their Kaufman Products facility in Northeast United States. All operating data is formulated using the actual data from Kaufman Products Inc.'s plant at the above location, including water, energy consumption and waste generation. All inputs for this system boundary are calculated for the plant.

This life cycle inventory was organized in a spreadsheet and was then input into an RStudio environment where pre-calculated LCIA results for relevant products/activities stemming from the ecoinvent v3.8 database and a local EPD database in combination with primary data from Kaufman Products Inc. were utilized. Explanations of the contribution of each data source to this study are outlined in the section 'Data Sources and Quality'. Further LCI details for each declared product are provided in the sections 'Detailed LCI tables' and 'Transport tables' of the detailed LCA report. A parameter uncertainty analysis was also performed where key statistical results (e.g. min/mean/max etc.) are provided in the detailed LCA report.

No known flows are deliberately excluded from this EPD.

CUT-OFF CRITERIA

ISO 14044:2006 and the focus PCR requires the LCA model to contain a minimum of 95% of the total inflows (mass and energy) to the upstream and core modules be included in this study. The cut-off criteria were applied to all other processes unless otherwise noted above as follows. A 1% cut-off is considered for all renewable and non-renewable primary energy consumption and the total mass of inputs within a unit process where the total of the neglected inputs does not exceed 5%.

DATA SOURCES AND DATA QUALITY ASSESSMENT

No recovered on-site energy occurs at this facility.

No re-used or recycled material for utilization on-site or off-site was reported at this facility.

The following statements explain how the above facility requirements/generation were derived:

Raw material transport: Kaufman provided all the raw material data for the reference year 2022. Raw material transportation is based on the actual distance from the manufacturer/distributor. The transportation was reported using Kaufman primary data that consisted of the actual distance, mode of transport, and location in the city, state, and country.

Electricity: Electricity usage for the study was based on primary data from the utility bills for the reporting period. The products covered in this EPD consist of 99% of the overall product volume; therefore, all electricity was allocated based on that 99% figure.

Process/space heating: This facility does not use natural gas on-site.

Fuel required for machinery: Machinery at this facility uses either electricity, reported in the utility bills, or diesel, which was also calculated from direct purchases records for the 2022 reference year.

Waste generation: All waste generation values were taken from primary waste hauling records and then confirmed by Kaufman personnel. Transportation defaults were used because the driver's route and ultimate final destination are unknown. Therefore, the exact mileage could not be confirmed by the waste hauler.

Recovered energy: No on-site energy is recovered on site.

Recycled/reused material/components: Default material losses, 2%, were used.

Module A1 material losses: Diesel combustion emissions on-site were assumed with a default ecoinvent process for burning diesel in a building machine.

Direct A3 emissions accounting: NA

The following tables depict a list of assumed life cycle inventory utilized in the LCA modeling to generate the impact results across the life cycle modules in scope. An assessment of the quality of each LCI activities utilized from various sources is also provided.

Table 4: **LCI inputs assumed for module A3**

Input	LCI.activity	Data.source	Geo	Year	Technology	Time	Geography	Reliability	Completeness
Bulk waste	process-specific burdens, residual material	ecoinvent v3.8	Maryland	v3.8 in 2021	2	3	2	3	3

	landfill/process-specific burdens, residual material landfill/RoW/kg								
Diesel	diesel, burned in building machine/diesel, burned in building machine/GLO/MJ	ecoinvent v3.8	Maryland	v3.8 in 2021	2	3	2	3	3
Electricity	market for electricity, medium voltage/electricity, medium voltage/US-SERC/kWh	ecoinvent v3.8	Maryland	v3.8 in 2021	2	3	2	3	3
HDPE Drum	market for blow moulding/blow moulding/GLO/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	1	3	3
Pallet	market for EUR-flat pallet/EUR-flat pallet/RoW/unit	ecoinvent v3.8	Maryland	v3.8 in 2021	2	3	2	3	3
Plastic Cartridge	market for blow moulding/blow moulding/GLO/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	1	3	3
Plastic film wrap	market for extrusion, plastic film/extrusion, plastic film/GLO/kg	ecoinvent v3.8	Maryland	v3.8 in 2021	2	3	2	3	3
Plastic granules for blow moulding	market for polyethylene, high density, granulate, recycled/polyethylene, high density, granulate, recycled/RoW/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	1	3	3
Plastic Pail	market for blow moulding/blow moulding/GLO/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	1	3	3
Steel Can	market for impact extrusion of steel, cold, 1 strokes/impact extrusion of steel, cold, 1 strokes/GLO/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	1	3	3
Steel Drum	market for steel, low-alloyed/steel, low-alloyed/GLO/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	0	3	1	3	3
Steel Pail	market for deep drawing, steel, 3500 kN press, automode/deep drawing, steel, 3500 kN press, automode/GLO/kg	ecoinvent v3.8	Multiple Regions	v3.8 in 2021	2	3	1	3	3

DATA QUALITY ASSESSMENT

Data quality/variability requirements, as specified in the PCR, are applied. This section describes the achieved data quality relative to the ISO 14044:2006 requirements. Data quality is judged based on its precision (measured, calculated or estimated), completeness (e.g., unreported emissions), consistency (degree of uniformity of the methodology applied within a study serving as a data source) and representativeness (geographical, temporal, and technological).

Precision: Through measurement and calculation, the manufacturers collected and provided primary data on their annual production. For accuracy, the LCA practitioner and 3rd Party Verifier validated the plant gate-to-gate data.

Completeness: All relevant specific processes, including inputs (raw materials, energy and ancillary materials) and outputs (emissions and production volume) were considered and modeled to represent the specified and declared products. The majority of relevant background materials and processes were taken from ecoinvent v3.8 LCI datasets where relatively recent region-specific electricity inputs were utilized. The most relevant EPDs requiring key A1 inputs were also utilized where readily available.

Consistency: To ensure consistency, the same modeling structure across the respective product systems was utilized for all inputs, which consisted of raw material inputs and ancillary material, energy flows, water resource inputs, product and co-products outputs, returned and recovered concrete curing compounds products, emissions to air, water and soil, and waste recycling and treatment. The same background LCI datasets from the ecoinvent v3.8 database were used across all product systems. Crosschecks concerning the plausibility of mass and energy flows were continuously conducted. The LCA team conducted mass and energy balances at the plant and selected process level to maintain a high level of consistency.

Reproducibility: Internal reproducibility is possible since the data and the models are stored and available in a machine readable project file for all foreground and background processes, and in Labeling Sustainability's proprietary concrete curing compounds LCA calculator* for all production facility and product-specific calculations. A considerable level of transparency is provided throughout the detailed LCA report as the specifications and material quantity make-up for the declared products are presented and key primary and secondary LCI data sources are summarized. The provision of more detailed publicly accessible data to allow full external reproducibility was not possible due to reasons of confidentiality.

*Labeling Sustainability has developed a proprietary tool that allows the calculation of PCR-compliant LCA results for concrete curing compounds product designs. The tool auto-calculates results by scaling base-unit Technosphere inputs (i.e. 1 kg sand, 1 kWh electricity, etc.) to replicate the reference flow conversions that take place in any typical LCA software like openLCA or SimaPro. The tool was tested against several LCAs performed in openLCA and the tool generated identical results to those realized in openLCA across every impact category and inventory metric (where comparisons could be readily made).

Representativeness: The representativeness of the data is summarized as follows.

- Time related coverage of the manufacturing processes' primary collected data from 2022-01-01 to 2022-12-31.

- Upstream (background) LCI data was either the PCR specified default (if applicable) or more appropriate LCI datasets as found in the country-adjusted ecoinvent v3.8 database.
- Geographical coverage for inputs required by the A3 facility(ies) is representative of its region of focus; other upstream and background processes are based on US, North American, or global average data and adjusted to regional electricity mixes when relevant.
- Technological coverage is typical or average and specific to the participating facilities for all primary data.

ENVIRONMENTAL INDICATORS AND INVENTORY METRICS

Per the PCR, this EPD supports the life cycle impact assessment indicators and inventory metrics as listed in the tables below. As specified in the PCR, the most recent US EPA Tool for the Reduction and Assessment of Chemical and Other Environmental Impacts (TRACI), impact categories were utilized as they provide a North American context for the mandatory category indicators to be included in the EPD. Additionally, the PCR requires a set of inventory metrics to be reported with the LCIA indicators (see tables below).

Table 5: **Life cycle impact categories and life cycle inventory metrics**

ID	LCIA.indicators	Abbreviations	Units
1	environmental impact: acidification	AP	moles of H+-Eq
2	environmental impact: eutrophication	EP	kg N
3	environmental impact: global warming	GWP	kg CO2-Eq
4	environmental impact: ozone depletion	ODP	kg CFC-11-Eq
5	environmental impact: photochemical oxidation	PCOP	kg NOx-Eq
6	material resources: metals/minerals: abiotic depletion potential (ADP): elements (ultimate reserves)	ADPe	kg Sb-Eq
7	energy resources: non-renewable: abiotic depletion potential (ADP): fossil fuels	ADPf	MJ, net calorific value
Inventory metrics			
8	Total primary energy	TPE	MJ-Eq
9	Renewable energy	RE	MJ-Eq
10	Non-renewable energy	NRE	MJ-Eq
11	Non-renewable resources	NRR	kg
12	Renewable resources	RR	m3
13	Water Depletion: WDP	WDP	m3
14	Land filling: bulk waste	LFW	kg waste
15	Land filling: hazardous waste	LFHW	kg waste

It should be noted that emerging LCA impact categories and inventory items are still under development and can have high levels of uncertainty that preclude international acceptance pending further development. Use caution when interpreting data in any of the following categories.

- Renewable primary energy resources as energy (fuel);
- Renewable primary resources as material;
- Non-renewable primary resources as energy (fuel);
- Non-renewable primary resources as material;

- Secondary Materials;
- Renewable secondary fuels;
- Non-renewable secondary fuels;
- Recovered energy;
- Abiotic depletion potential for non-fossil mineral resources.
- Land use related impacts, for example on biodiversity and/or soil fertility;
- Toxicological aspects;
- Emissions from land use change [GWP 100 (land-use change)];
- Hazardous waste disposed;
- Non-hazardous waste disposed;
- High-level radioactive waste;
- Intermediate and low-level radioactive waste;
- Components for reuse;
- Materials for recycling;
- Materials for energy recovery;
- Recovered energy exported from the product system.

TOTAL IMPACT SUMMARY

The following table reports the total LCA results for each product produced at the given facility on a 1 kg of epoxy resin system basis.

Table 6: **Total life cycle (across modules in scope) impact results for All declared products, assuming the geometric mean point values on a per 1 kg of epoxy resin system basis.**

a) Midpoint Impact Categories:

Indicator/LCI Metric	AP	EP	GWP	ODP	PCOP	ADPe	ADPf
Unit	**moles of H+-Eq**	**kg N**	**kg CO2-Eq**	**kg CFC-11-Eq**	**kg NOx-Eq**	**kg Sb-Eq**	**MJ, net calorific value**
SurePoxy Mortar	0.755	0.00488	3.16	4.68e-07	0.00861	4.72e-05	64.4
SurePoxy LM	1.11	0.00654	4.62	6.99e-07	0.0132	6.87e-05	99.4
SurePoxy LMLV	1.16	0.00799	4.84	6.91e-07	0.0129	7.31e-05	97
SurePoxy LM Gel	0.892	0.00583	3.65	4.29e-07	0.00977	5.03e-05	75.3
SurePoxy LMLV EPL	1.29	0.0185	5.32	1.11e-06	0.0161	9.79e-05	109
SurePoxy VLM Class B	1.44	0.008	4.83	6.3e-07	0.0135	6.72e-05	96.2
SurePoxy VLM	1.14	0.00693	4.77	7.85e-07	0.014	7.68e-05	102
SurePoxy 110	0.944	0.00464	3.87	5.4e-07	0.011	6.67e-05	74.5
SurePoxy HM	1.22	0.00854	5.15	6e-07	0.0137	7.32e-05	103
SurePoxy HMLV	1.19	0.00824	4.92	7.53e-07	0.0134	8.12e-05	99.3
SurePoxy HM Gel	0.881	0.00572	3.6	4.24e-07	0.00967	4.98e-05	74.2
SurePoxy HM Class B	1.73	0.0454	7.56	7.54e-07	0.0224	0.00012	147

SurePoxy HMLV Class B	1.53	0.0174	6.63	8.79e-07	0.0183	0.000102	127
SurePoxy 116	0.957	0.0121	4.14	5.16e-07	0.0116	6.98e-05	78
SurePoxy 117	0.705	0.00542	3.04	3.69e-07	0.0088	5.33e-05	58.7
SurePoxy Flexijoint	0.911	0.0045	3.81	5.04e-07	0.0107	6.35e-05	74.9
SurePoxy HMSLV	1.49	0.026	6.35	1.02e-06	0.019	0.000112	124
SurePoxy HM EPL	0.946	0.00643	4.04	8.08e-07	0.012	7.38e-05	74.6
SurePoxy HMLV EPL	1.36	0.019	5.63	1.14e-06	0.0169	0.000104	113
K Pro HP Grout	0.83	0.00553	3.51	4.99e-07	0.00925	5.07e-05	68.1
SurePoxy DBA	0.891	0.00467	3.66	5.1e-07	0.0104	5.92e-05	70.8
K Pro TNG	0.762	0.00588	3.13	5.33e-07	0.00939	6.22e-05	59.1
AMG K Pro TNG	0.844	0.00619	3.43	5.78e-07	0.0106	6.65e-05	64.6
K Pro Flexijoint	2.09	0.00898	4.92	5.38e-07	0.016	7.3e-05	86.1
K Pro UW Grout	0.798	0.00542	3.28	5.34e-07	0.00899	5.4e-05	65.6
K Pro UW EPL Grout	0.798	0.00542	3.28	5.34e-07	0.00899	5.4e-05	65.6
AMG K Pro UW Grout	1.19	0.00811	4.89	7.89e-07	0.0133	8.07e-05	97.9
AMG K Pro UW EPL Grout	1.17	0.00616	4.84	9.74e-07	0.0143	8.79e-05	98.9
K Pro CRS Gray	0.963	0.00301	3.89	5.36e-07	0.0114	6.91e-05	76.3
SurePoxy HiBild Med Gray	1.31	0.00568	5.05	7.38e-07	0.0168	7.38e-05	98.2
SurePoxy HiBild Light Gray	1.48	0.00468	5.49	7.83e-07	0.0187	8.58e-05	102
SurePoxy HiBild Orange	1.01	0.00531	4.18	6.32e-07	0.012	6.93e-05	85.4
SurePoxy HiBild Dark Gray	1.01	0.00494	4.1	5.88e-07	0.0118	6.99e-05	80.3
SurePoxy HiBild MD	1.09	0.00538	4.39	6.41e-07	0.0126	7.29e-05	87.2
SurePoxy Protective Coating WD Clear	0.65	0.00395	2.79	4.45e-07	0.00744	4.71e-05	51.9
SurePoxy Protective Coating WD Medium Gray	0.762	0.00316	2.96	4.34e-07	0.00838	5.5e-05	52.5

b) Inventory Metrics:

Indicator/LCI Metric	TPE	RE	NRE	NRR	RR	WDP	LFW	LFHW
Unit	**MJ-Eq**	**MJ-Eq**	**MJ-Eq**	**kg**	**m3**	**m3**	**kg waste**	**kg waste**
SurePoxy Mortar	69.9	2.53	67.3	1.86	8.23e-05	0.0128	0.496	4.5e-05
SurePoxy LM	107	3.5	104	2.86	9.59e-05	0.0169	0.684	7.18e-05
SurePoxy LMLV	105	3.77	101	2.82	0.000119	0.0152	0.735	6.52e-05
SurePoxy LM Gel	81.6	2.67	78.9	2.2	8.85e-05	0.0153	0.598	4.89e-05
SurePoxy LMLV EPL	115	4.76	110	3.12	0.000135	0.0177	0.823	8.67e-05
SurePoxy VLM Class B	105	4.45	101	2.79	9.93e-05	0.156	0.728	6.81e-05

SurePoxy VLM	109	3.76	104	2.95	9.9e-05	0.0193	0.742	7.24e-05
SurePoxy VLM LV	105	3.77	101	2.82	0.000119	0.0152	0.735	6.52e-05
SurePoxy VLM Gel	81.6	2.67	78.9	2.2	8.85e-05	0.0153	0.598	4.89e-05
SurePoxy 110	80.6	3.11	77.8	2.24	8.82e-05	0.0185	0.653	5.52e-05
SurePoxy HM	112	3.85	107	3.01	0.000122	0.0162	0.755	6.29e-05
SurePoxy HMLV	108	4.01	103	2.89	0.000128	0.0155	0.77	6.49e-05
SurePoxy HM Gel	80.7	2.65	78.3	2.16	8.84e-05	0.0153	0.596	4.84e-05
SurePoxy HM Class B	147	5.72	141	4.08	0.000175	0.0234	1.03	9.02e-05
SurePoxy HMLV Class B	134	5.21	129	3.67	0.000166	0.0204	1.01	8.54e-05
SurePoxy 116	82.2	3.07	79.6	2.25	8.94e-05	0.016	0.635	5.63e-05
SurePoxy 117	62.5	2.36	60.4	1.7	7.02e-05	0.0119	0.478	4.13e-05
SurePoxy Flexijoint	81.5	3.03	79.1	2.2	8.66e-05	0.0154	0.603	5.16e-05
SurePoxy HMSLV	129	5.4	122	3.53	0.000157	0.0207	0.955	8.6e-05
SurePoxy HM EPL	79.9	3.54	76.7	2.23	8.55e-05	0.0156	0.631	5.69e-05
SurePoxy HMLV EPL	118	4.85	113	3.24	0.000126	0.0209	0.875	8.93e-05
K Pro HP Grout	74.4	2.64	71.5	2	8.42e-05	0.0122	0.603	5.03e-05
SurePoxy DBA	76.8	3.01	74.2	2.11	9.6e-05	0.0153	0.647	5.22e-05
K Pro TNG	62.9	2.81	60.7	1.76	8.27e-05	0.0124	0.532	4.53e-05
AMG K Pro TNG	68.6	2.98	66.1	1.9	8.7e-05	0.0137	0.628	5.01e-05
K Pro Flexijoint	95.6	7.18	88.2	2.52	0.000101	0.487	0.773	6.15e-05
K Pro UC Epoxy Grout	71.3	2.7	68.6	1.92	8.83e-05	0.0127	0.535	4.72e-05
AMG K Pro UW Grout	106	4.04	102	2.86	0.000129	0.0156	0.765	6.84e-05
AMG K Pro UW EPL Grout	107	4.52	102	2.91	0.000131	0.0163	0.797	7.35e-05
K Pro CRS Gray	83.8	3.28	79.4	2.32	9.02e-05	0.0221	0.721	5.45e-05
SurePoxy HiBild Med Gray	106	3.84	102	2.91	0.000122	0.0254	1.2	7.99e-05
SurePoxy HiBild Light Gray	111	4.41	105	3.13	0.000141	0.0354	1.5	8.47e-05
SurePoxy HiBild Orange	92.8	3.39	88.3	2.51	8.96e-05	0.016	0.645	6.43e-05
SurePoxy HiBild Dark Gray	87.1	3.33	83.7	2.42	9.5e-05	0.0204	0.701	5.99e-05
SurePoxy HiBild MD	94	3.52	91.9	2.62	9.93e-05	0.0235	0.785	6.62e-05
SurePoxy Protective Coating WD Clear	56.3	2.37	54.7	1.58	6.53e-05	0.0117	0.393	3.61e-05

SurePoxy Protective Coating WD Medium Gray	57.3	2.58	54.7	1.68	7.86e-05	0.0212	0.625	4.3e-05

ADDITIONAL ENVIRONMENTAL INFO

No regulated substances of very high concern are utilized on site.

REFERENCES

ISO Standards:

- ISO 6707-1: 2014 Buildings and Civil Engineering Works - Vocabulary - Part 1: General Terms
- ISO 14021:1999 Environmental Labels and Declarations - Self-declared Environmental Claims (Type II Environmental Labeling)
- ISO 14025:2006 Environmental Labels and Declarations - Type III Environmental Declarations - Principles and Procedures
- ISO 14040:2006 Environmental Management - Life Cycle Assessment - Principles and Framework
- ISO 14044:2006 Environmental Management - Life Cycle Assessment - Requirements and Guidelines
- ISO 14067:2018 Greenhouse Gases – Carbon Footprint of Products – Requirements and Guidelines for Quantification
- ISO 14050:2009 Environmental Management - Vocabulary
- ISO 21930:2017 Sustainability in Building Construction - Environmental Declaration of Building Products

EN Standards:

- EN 16757 Sustainability of construction works - Environmental product declarations – Product Category Rules for concrete and concrete elements.
- EN 15804 Sustainability of construction works - Environmental product declarations -Core rules for the product category of construction products.

Other References:

- USGBC LEED v4 for Building Design and Construction, 11 Jan 2019 available at https://www.usgbc.org/resources/pcr-committee-process-resources-part-b
- USGBC PCR Committee Process & Resources: Part B, USGBC, 7 July 2017 available at https://www.usgbc.org/resources/pcr-committee-process-resources-part-b.
- US EPA (2020) Advancing Sustainable Materials Management: 2018 Fact Sheet, https://www.epa.gov/sites/production/files/2021-01/documents/2018_ff_fact_sheet_dec_2020_fnl_508.pdf