# Part B: Product group definition | Resinous floor coatings | Part B #25-007

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| **Initiated by** | American Coatings Association (ACA) - https://www.paint.org/ | | |
| **Working group members** | Jim Mellentine, Thrive ESG (PCR committee chair)<br>Annebelle Klein, American Coatings Association (ACA)<br>Heidi McAuliffe, American Coatings Association (ACA)<br>Karen Bab, American Coatings Association (ACA)<br>Michelle Gabriel-Caldwell, BYK USA<br>Peter Song, Key Resin<br>Sarah Meagrow, NSF<br>Alex Duvall, PARQ<br>Juan David Villegas Gomez, PARQ<br>Katie Dierker, Rust-Oleum<br>Casey Ball, Sherwin-Williams<br>Phillip Smith, Sherwin-Williams<br>Ramin Ghamkhar, Sherwin-Williams<br>Roxanne Becker, Sherwin-Williams<br>Chris Trageser, Stonhard<br>Sally Reis, Stonhard<br>Kyle Frakes, Tnemec Company, Inc.<br>Megan Snyder, Tnemec Company, Inc. | | |
| **Public notices of development/ outreach** | • Public notice on the Sustainable Minds website announcing the update to the PCR on June 2, 2025: http://www.sustainableminds.com/transparency-report-program/part-b<br>• Email blast on June 2, 2025 to mailing lists of LCA professionals, building and construction industry and trade associations, and manufacturers of resinous floor coatings, requesting participation on the PCR committee.<br>• Email blast on December 17, 2025 to the same mailing lists requesting public comment. | | |
| **Non-participating parties** | All interested parties who requested participation were invited to join the working group. | | |
| **New Part B?** | No | **Part B version number** | 2.1 |
| **Publication date** | February 5, 2026 | | |
| **Validity period** | 02/05/2026 – 02/04/2031 | | |
| **Expected renewal schedule** | Sustainable Minds intends to notify the working group and post update/renewal information on its website approximately four months prior to expiration to determine update, extension, or expiration options for this Part B. | | |

## 1. Product group

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| **Name** | Resinous floor coatings | **CSI MasterFormat® #** | 07 14 00 Fluid-applied waterproofing<br>07 18 00 Traffic coatings<br>09 66 00 Terrazzo flooring<br>09 67 00 Fluid-applied flooring<br>09 96 56 Epoxy coatings<br>09 97 00 Special coatings |
| **Description** | Resinous floor coating products & systems that are poured and/or formed in place to protect and enhance horizontal substrates such as concrete, metal, and wood. Some resinous floor coatings may be thermoset products. | | |
| **Exclusions** | The scope excludes:<br>• Carpeting<br>• Planks<br>• Veneers<br>• Tile<br>• Sheet goods<br>• Dedicated flooring systems<br>• Coatings that are not field applied<br>• Wood stains<br>• Coatings that fall under the PCR for architectural coatings<br>• Other pre-formed non-resinous floor coverings | | |

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| **Geographic representativeness** | Products and systems sold in North America |
| **Product-specific terms** | For the purposes of this PCR, a resinous floor coating is defined as a fluid-applied and poured / formed in place and cured material coating used to protect and enhance horizontal substrates such as concrete, metal, and wood. Resinous floor coatings can be further classified by these subcategories:<br>• **Thin mil:** a resin rich coating system typically comprised of a primer, body coat(s), and topcoat with a combined dry thickness of less than 40 mils (1.02 mm). This subcategory includes but is not limited to the following subtypes as defined by the International Concrete Repair Institute's Technical Guideline No. 310.2R-2013:<br>o Sealers: A liquid that is applied to the surface of hardened concrete to either prevent or decrease the penetration of liquid or gaseous media, for example water, aggressive solutions, and carbon dioxide, during service exposure. The dry thickness of a sealer is 3 mils (0.0762 mm) or less.<br>o Thin films: a thin coating over the surface of a material with dry thickness 4 to 10 mils (0.102 to 0.254 mm).<br>o High-build coatings: Protective surface treatment with a combined dry thickness greater than 10 mils (0.254 mm) and less than 40 mils (1.02 mm) applied to the surface of concrete<br>• **Self-leveling or broadcast slurries:** a high build coating system using the addition of fillers and/or broadcast aggregates (e.g., quartz, flake silica sand) installed in multiple layers to build combined dry thickness typically from 60 to 120 mils (1.52 to 3.05 mm). This subcategory includes but is not limited to the following subtypes as defined by the International Concrete Repair Institute's Technical Guideline No. 310.2R-2013:<br>o Self-leveling toppings: Protective surface which, when applied as a liquid, exhibits flow sufficient to seek gravitational leveling. The combined dry thickness of a self-leveling topping is 50 mils to 1/8 inch (1.27 to 3.18 mm).<br>o Polymer overlays: A liquid, with or without fillers or reinforcement, that is applied to a substrate and cured by heat or catalysts to form a thermo-set polymer that bonds to and protects the substrate and provides a barrier for containment of chemicals. The dry thickness of a polymer overlay is 1/8 inch to 1/4 inch (3.18 to 6.35 mm).<br>• **Mortars and monolithic mortars:** a composite material consisting of silica sand, glass, or other suitable aggregate in a binder matrix such as portland cement mortar, epoxy resin, polyester resin, vinyl ester resin, or polyurethane. Typically installed to build combined dry thickness greater than 250 mils (6.35 mm). This subcategory includes but is not limited to the following subtypes as defined by the International Concrete Repair Institute's Technical Guideline No. 310.2R-2013:<br>o Polymer overlays: A liquid-based trowelable mortar, with or without fillers or reinforcement, that is applied to a substrate and cured by heat or catalysts to form a thermo-set polymer that bonds to and protects the substrate and provides a barrier for containment of chemicals. The dry thickness of a polymer overlay is 1/8 inch to 1/4 inch (3.18 to 6.35 mm).<br>o Concrete overlays and repair materials: A bonded or unbonded layer of material greater than 1/4 inch (6.35 mm)) dry thickness placed on a concrete surface to either restore or improve the function of the previous surface.<br>• **Resinous terrazzo:** a modern, decorative flooring system composed of a two-part epoxy resin binder (the matrix) mixed with a variety of decorative aggregates like marble, glass, granite, or mother-of-pearl, usually 1/4 to 3/8 inch (6.35 to 9.53 mm) thick.<br>Resinous floor coatings may be assessed as a product system, or as individual layers, or both within the same EPD, provided they conform to their respective system boundary options. This reflects the broad diversity of functional applications and scenarios in which the coatings are used. Some customers purchase a system composed of multiple layers (such as a primer, base coat, and top coat) while other customers might only purchase a single layer for a specific purpose. An example of a resinous floor coating system is shown below in Figure 1. It should be noted that it is possible for a resinous floor coating system to require a different number or different types of layers, or both, as compared to what is represented below. The cover of the EPD shall clearly state whether the EPD is a "Multilayer System EPD" or a "Single-layer Product EPD". |

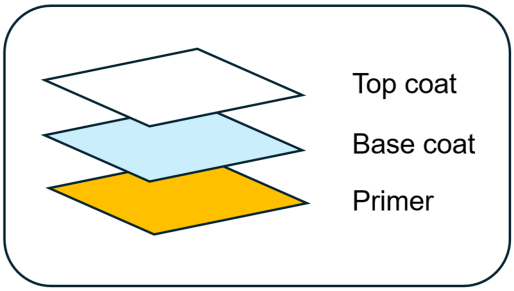


**Figure 1.** Example of a resinous floor coating system with three layers

**Additional terminology**

- **Additive**: Specialty chemicals incorporated into a coating formulation to enhance or modify specific properties of the coating during manufacturing, application, or end-use
- **Adhesion:** The degree of attachment between two surfaces held together by interfacial forces.
- **Aggregate:** decorative or functional materials added to resin-based flooring systems to enhance their properties and aesthetics – this includes grit, flake, etc.
- **Base coat:** Coating applied to the surface after preparation and before the application of a top coat.
- **Broadcast aggregate:** aggregate applied to a wet surface prior to curing
- **Broadcast, full:** broadcast aggregate applied to saturation of the wet resin surface (i.e., further application of the aggregate will not stick to the surface).
- **Broadcast, partial:** broadcast aggregate lightly applied to the wet resin surface such that some resin color still shows through the broadcast application.
- **Commercial setting:** Projects not used for residential, manufacturing, processing, or assembly purposes. Common commercial project types include education, healthcare, hospitality, entertainment, retail, and construction.
- **Failure:** The physical degradation of the floor surfacing material which would require substantial or complete removal in order to return the floor to serviceable condition.
- **Grout coat**: A liquid layer applied on top of an aggregate filled layer. The thickness and application method are dependent upon the system being installed.
- **Industrial setting:** Any project where the primary activity includes the manufacture, production, processing, assembly, or handling of goods or materials. This could include use conditions such as heavy wheeled traffic or the use of fixed or moving machinery. For example, a maintenance facility or an automotive shop.
- **Market service lifetime:** The estimated lifetime of a resinous floor coating based on the predicted use pattern of the system type.
- **Pigment:** The material that gives a coating its color.
- **Primer:** Material applied to a surface to promote adhesion between the substrate and subsequent coats.
- **Product EPD:** An EPD which discloses information about a single layer (e.g., primer, base coat, or top coat), which is typically combined with other products/layers to form a system.
- **Resin/binder:** Acts as the glue or adhesive to adhere the coating to the substrate.
- **Slurry:** Aggregate mixed in with resin prior to application on the substrate
- **System EPD:** An EPD which discloses information about a combined system, usually consisting of multiple layers, that is installed together.
- **Technical service lifetime:** The estimated lifetime of a coating based solely on its hiding and performance characteristics determined by industry consensus values.
- **Top coat:** the final layer of coating put onto a surface over another layer.

## 2. Program operator responsibilities

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| **Existing PCRs, EPDs, TRs, or LCAs** | • This Part B shall be used in conjunction with the latest version of Sustainable Minds Part A: LCA calculation rules and report requirements (version 2023 at the time of publication of this Part B; newest version shall be used when available)<br>• Relevant PCR: IBU: Product Category Rules (PCR) Guidance for Building-Related Products and Services Part B: Coatings with organic binders (version 7)<br>• Relevant PCR: IBU: Product Category Rules (PCR) Guidance for Building-Related Products and Services Part B: Floor coverings (version 8) |

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| | • Relevant PCR: NSF: Product Category Rule for Environmental Product Declarations: PCR for Architectural Coatings (version 2, with three extensions)<br>• Relevant PCR: NSF: Product Category Rule for Environmental Product Declarations: PCR for Resinous Floor Coatings (version 1, with three extensions)<br>• Relevant PCR: UL: Product Category Rules (PCR) Guidance for Building-Related Products and Services Part B: Flooring EPD Requirements (version 1)<br>• Reference LCA: Villegas, J. Reference LCA for resinous floor products and layers, based on synthetic representative data. Parq. September 2025.<br>• Existing EPDs used to inform some aspects of this Part B:<br>o Sherwin-Williams EPD for H&C™ 100% Solids Self-Levelling Epoxy https://info.nsf.org/Certified/Sustain/ProdCert/EPD10922.pdf<br>o Sika Corporation EPD for Sika Resinous & Cementitious Flooring Systems https://usa.sika.com/dam/dms/us01/8/EPD10920.pdf<br>o Stonhard EPD for Stongard MR https://smartepd.com/epd-library/65cf6b3c9f80ba79118ff13b |
| **Justification for new Part B if relevant non-expired PCR exists** | Several members of the original PCR Committee for the previous version of the NSF PCR for resinous floor coatings expressed interest in updating the PCR according to the newest standards and practices. See harmonization activities below. |
| **Harmonization activities pursued** | Sustainable Minds announced the creation of this product group definition to the original PCR Committee members, other program operators, LCA analysts, and manufacturers via email, and posted an update on its website. The previous version of the PCR for resinous floor coatings was found to have its validity period extended through December 2025, with the following note: “This PCR is being revised; when published, the latest version of the PCR supersedes this extension.” Sustainable Minds reached out to the original program operator, who confirmed that they would end the validity period of that extension upon publication of this Sustainable Minds Part B. Other PCRs for coatings and flooring were reviewed and found not to meet the specific scope of this PCR, which focuses on the classification for resinous floor coatings, better reflects the functional unit of resinous floor coatings, and adopts various North American regional assumptions. Sustainable Minds discussed and confirmed with UL, program operator for the Flooring PCR referenced above, that the resinous floor coatings PCR should remain separate. |

## 3. Functional performance

| Standard/certification | URL |
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| No standards were identified that are consistently used across the industry regarding performance of resinous floor coatings. This may be reevaluated in future versions of the PCR. | |

## 4. System boundary

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| **System boundary** | Depending on the application, resinous flooring is sometimes sold as single layer products or as multilayer systems. EPDs using this PCR may be either single-layer or multilayer (except for terrazzo products), and the respective type shall be clearly disclosed on the cover page of the EPD and include one of the following disclosure statements:<br>• **Single-layer Product EPD:** The results of this EPD represent a single layer product of resinous flooring. A single layer product of resinous flooring is typically included as a component of a multilayer system. The EPD does not include [*choose the following stages based on which are not included in the EPD – installation, use, or end of life*] impacts. Specifically, the use phase of an LCA has the ability to differentiate systems based on requirements for refurbishment and replacement. All life cycle stages must be considered when comparing EPDs. This product cannot be combined with other single layers to form a whole system comparable with multilayer system EPDs. All modules from cradle to grave must be considered when evaluating product system impacts.<br>• **Multilayer System EPD:** The results of this EPD represent multiple layers of a complete resinous flooring system. Based on different system boundaries, multilayer EPDs cannot be compared to single-layer product EPDs. If comparisons are desired, a multilayer product EPD can be compared to other multilayer system EPDs assuming both studies meet the ISO 14044 and ISO 14025 requirements for comparison.<br>Single-layer results shall use either a cradle-to-gate, cradle-to-construction-site, or cradle-to-gate and end-of-life system boundary. Multilayer system results may be specified as cradle-to-gate, cradle-to-construction-site, cradle-to-gate and end-of-life, or cradle-to-grave. Single-layer results shall not include installation or use stage modules. The modules considered in the LCA shall be described in brief as per “System boundaries” outlined in ISO 21930:2017 section 5.2, and the system boundary shall follow both the modularity and polluter |

pays principle, discussed in greater detail in ISO 21930:2017 Section 7.1.1 and Table 1. Module D may be optionally declared if end of life is included. The following diagram summarizes the system boundary options.

For terrazzo flooring, only multilayer system EPDs shall be published.

| | | | Production Stage | | | Construction Stage | | Use Stage | | | | | | | End of Life Stage | | | | Beyond the system boundary |
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| EPD type | | | A1 Extraction and upstream production | A2 Transport to factory | A3 Manufacturing | A4 Transport to site | A5 Installation | B1 Use | B2 Maintenance | B3 Repair | B4 Replacement | B5 Refurbishment | B6 Operational energy use | B7 Operational Water use | C1 Deconstruction/ Demolition | C2 Transport to waste processing or disposal | C3 Waste processing | C4 Disposal of waste | D Potential net benefits beyond the system boundary |
| Product (single-layer) | System (multi-layer) | System boundary | | | | | | | | | | | | | | | | | |
| Yes | Yes | Cradle-to-gate | Req. | Req. | Req. | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND |
| Yes | Yes | Cradle-to-construction-site | Req. | Req. | Req. | Req. | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND | MND |
| Yes | Yes | Cradle-to-gate and end-of-life | Req. | Req. | Req. | MND | MND | MND | MND | MND | MND | MND | MND | MND | Req. | Req. | Req. | Req. | Opt. |
| No | Yes | Cradle-to-grave | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Req. | Opt. |
| | | | Req. = Required; MND = Module not declared; Opt. = Optional | | | | | | | | | | | | | | | | |

**Figure 2.** System boundary options

**Rationale**

While it is unclear whether capital goods and infrastructure are significant to the overall impacts of the products/systems, it is known that they are quantified inconsistently, varying based on the secondary data sets used and the database. To reduce possible artificial variation in EPD results across the product group, capital goods and system infrastructure flows shall be excluded from the system boundary by default, with justification required for alternative assumptions.

In addition, personnel impacts, research and development activities, business travel, any secondary packaging such as pallets or shrink wrap, all point of sale infrastructure, and the coating applicator shall be excluded, as they were determined by internal LCAs conducted by ACA member companies to represent a negligible environmental impact in the overall life cycle performance of a coating. In the case of the coating applicator, it is not practically feasible to calculate impacts given the variety of application techniques. For example, a roller or spray applicator could be used to coat 1,000 $m^2$ of substrate or 10 $m^2$ of substrate, given differing job sizes, products selected, applicator type, or substrate. As such, it is difficult to determine an average impact per functional unit. However, screening LCAs conducted by coatings manufacturers show that this impact is minimal relative to the overall life cycle impacts of resinous floor coatings and would not significantly impact total results.

## 5. Functional unit

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| **Unit** | Cradle-to-grave EPDs shall use a functional unit of **1 m² of covered and protected flooring surface** over the estimated service life of the building.<br>Cradle-to-gate, cradle-to-construction-site, and cradle-to-gate and end of life EPDs shall use a declared unit of **1 m² of covered and protected flooring surface.**<br>For system EPDs, coating systems shall exhibit an appropriate thickness (based on its technology type and defined by the manufacturer's published application guidelines) and desired performance attributes after curing.<br>The reference flow shall be the amount of product/system needed to satisfy the above functional/declared unit. For multilayer products, the reference flow may be disclosed for each layer. |
| **Rationale** | The amount of product/system needed depends on the functional performance of the resinous floor coating over some surface area. In order to satisfy the functional unit, multiple coats or recoatings may be needed in a System EPD. |

## 6. Additional rules for comparability

**1. TR/EPD types**

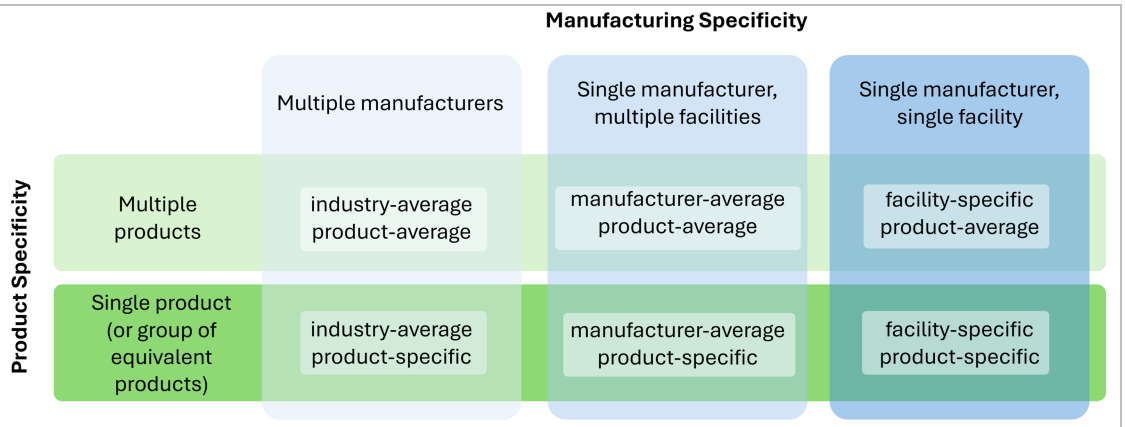


**Figure 3.** EPD types diagram

Industry-average EPDs shall not be created using this PCR[1]. The following EPD types may be created using this PCR, as defined in the ACLCA Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain[2].

- Manufacturer-average/product-average
- Manufacturer-average/product-specific
- Facility-specific/product-average
- Facility-specific/product-specific

The EPD shall prominently include the appropriate EPD label(s) using the following text. If the EPD reports multiple sets of results, each set of results shall be labeled separately:

> "Per the ACLCA Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain v1, this [choose one of: EPD, EPD result, set of EPD results] is [choose one of: manufacturer-average, facility-specific] and [choose one of: product-average, product-specific]. supply-chain-specificity [choose one of: =, ≥] X% [supply chain-specificity statement is not reported in the case of manufacturer average EPDs]."

Products/systems within the same product/system lines (for example, items that share the same product/system name, but have differing colors) may be grouped into a single set of results subject to the +/- 10% limit specified in ISO 21930:2017 section 5.3. Exceeding this limit requires one or more additional separate group of results as needed.

A product/system-average EPD shall also include a description explaining the variation in the composition or performance of the product/system compared with the average product that the EPD represents.

[1] The decision to not allow industry-average EPDs was carefully considered by the PCR committee. The primary reasons for this are a) a lack of interest from the largest manufacturers, and b) wide product variation that would make appropriate averaging difficult to represent. This may be reconsidered in future PCR updates.
[2] American Center for Life Cycle Assessment. Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain. 2025. Available at https://www.aclca.org/initiatives#PCR-Open-Standard.

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| | For products/systems made at multiple facilities by the same manufacturer, a weighted average of production volume at each facility shall be used. |
| **2. Additional rules to Part A** | • EPDs shall disclose the LCA software and version used for modeling, and the database name(s) and version(s) used.<br>• EPDs shall disclose the following information for each covered product/system:<br>o Name of the product system or coating<br>o Model number<br>o General description including all components and layers<br>o Coverage rate ($ft^2$/gallon and $m^2$/liter) for each product/layer used in the system<br>o Dry film thickness of each product/layer included in the system represented in the EPD.<br>o Manufacturer's published minimum and maximum range of thickness for each product/layer used in the system.<br>o Whether the disclosed product/system includes aggregate, and if used, what type of aggregate is used in the analysis<br>o If aggregate is included, the layer(s) in which it is included, whether is it considered "full" or "partial" broadcast, and the coverage rate ($ft^2$/gallon and $m^2$/liter)<br>o If the EPD covers a range of products/systems or multiple SKUs of the same product/system, the general description must cover all of them while the picture should be labeled as an example and clearly identify the specific product/system being displayed<br>o VOC emissions per California Department of Public Health (CDPH) Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers, Version 1.2 (2017). All VOC emissions during or after installation shall be reported in module A5 even if emitted in later stages. If module A5 is not included in the EPD, VOC emissions testing results shall still be reported.<br>• In addition to the latest version of TRACI (as required by Part A), global warming potential shall be additionally reported using the latest version of IPCC characterization factors which are available in the LCA modeling software used.<br>• Any hazardous substances contained in the disclosed product/system shall be disclosed. For EPDs including products/systems sold in the United States, the following regulations shall be considered when identifying hazardous substances. EPDs covering other countries should consider relevant standards or regulations in that market.<br>o US Occupational Safety and Health Administration (OSHA) Hazard Communication Standard (HCS) (29 CFR 1910.1200)<br>o US Environmental Protection Agency (EPA) Emergency Planning and Community Right-to-Know Act (EPCRA) (40 CFR Part 370)<br>o US Environmental Protection Agency (EPA) Toxic Substances Control Act (TSCA) (15 U.S.C. § 2601 et seq.)<br>o US Department of Transportation (DOT) Hazardous Materials Regulations (HMR) (49 CFR Parts 100-185)<br>• Product EPD results may be accompanied by an impact scaling table for other thicknesses. If included, the underlying LCA shall include a description and justification of the method used to develop the scaling factors.<br>• System EPD results may not be directly scalable and therefore should not be accompanied by a scaling table. |
| **3. Default life cycle stage scenario(s)** | **Extraction and upstream production (A1)**<br>This stage includes all upstream activities consistent with ISO 21930:2017 through when the material purchased by the final manufacturing facility is prepared for shipping to the manufacturing facility. When materials used in the product/system are represented by secondary data, the electricity grid profile of the data set should be adapted to the source country or region, if known and possible with the selected data set. Average data sets with "Global" or "Rest of World" average electricity profiles may only be used if the material source location is unknown or adapting the electricity grid is not possible.<br>In cases when the EPD owner purchases manufactured components, the manufacturing process activity at the upstream supplier shall be counted in the extraction and upstream production stage, separate and in addition to the upstream raw material extraction. For example, if a manufacturer purchases titanium dioxide pigment, the pigment cannot be simply represented by titanium dioxide ore alone. Additional manufacturing must be added to represent the manufacturing of ore into pigment. The upstream supplier location and potential scrap rate during the manufacturing process activity should be considered.<br>In cases where an EPD covers a product or system for which aggregate is an integral part of the finished product and/or very likely to be added during installation, and the EPD owner does not make |

or sell the aggregate, the EPD shall report the combined results which include the sum of the EPD owner's product(s) and the aggregate. Results for the EPD owner's products that exclude aggregate shall not be reported separately. In this case, aggregate which needs no additional processing after leaving the extraction site may be included in A1 only. Other aggregate which needs additional processing (e.g., coloring, sizing) at a separate site shall count these additional processes in modules A2 and A3 as appropriate. If the type of aggregate to be used is unknown, crushed stone shall be assumed. The cradle-to-gate environmental impacts of the aggregate shall also be reported separately in the EPD along with the data set(s) used to model the aggregate.

EPDs that are facility-specific shall report a supply-chain-specificity (SCS) score, $GWP\text{-}SCS_{A1\text{-}A3}$. $GWP\text{-}SCS_{A1\text{-}A3}$ represents the portion of the A1-A3 GWP that is deemed specific in representing the product's/system's manufacturing and its supply chain. The SCS score shall be calculated according to the ACLCA Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain[3]. The method of determining the SCS score shall be documented in the LCA report similar to the example in Table 3 of the ACLCA Guidance. This table may be optionally reported in the EPD.

**Transport to factory (A2)**

All transportation including inter-facility transport prior to the material being shipped to the production site shall be included. In cases where the EPD owner maintains multiple suppliers for the same material or part, the life cycle inventory and impact assessment results shall reflect a weighted average transportation distance from the multiple suppliers for each mode of transport used. To simplify the calculation for those with many suppliers for the same material or part, suppliers which provide less than 5%, by mass or by volume, of a particular material or part may be excluded from the calculation of weighted average transport distance, subject to existing cut-off requirements in SM Part A.

If the location of a material/part supplier is unknown, transport distances listed in Table 1 shall be used for inbound raw material transportation to facilities located in the United States. If the precise location of the supplier is unknown but is known to not require ocean transport, then the sea distances in Table 1 may be omitted with appropriate explanation/justification. For processes outside of the United States, appropriate regional or national transportation distances and mode(s) shall be used where primary data is unavailable.

**Table 1.** Material one-way transportation distances to production site to be used in the absence of primary data

| Raw material / classification grouping | Rail | Truck | Sea |
|---|---|---|---|
| **Raw coating materials**<br>Any material used in a coating where no primary source data is available | 579 miles<br>(932 km) | 412 miles<br>(663 km) | 525 miles<br>(845 km) |
| **Plastics (for packing)**<br>Polymer-based materials, excluding textiles | 592 miles<br>(953 km) | 332 miles<br>(534 km) | 842 miles<br>(1,355 km) |
| **Steel (for packaging)**<br>Base metal in primary or semifinal forms and in finished basic shapes | 550 miles<br>(885 km) | 390 miles<br>(628 km) | 95 miles<br>(153 km) |
| These distances are from Table 21 Geographic Area Series: Shipment Characteristics by Origin Geography by Destination Geography by Commodity by Mode: 2017 as referenced from The 2017 Commodity Flow Survey Tables: https://data.census.gov/cedsci/table?q=cf1700a21&hidePreview=true&tid=CFSAREA2017.CF1700A21<br>NOTE: Truck distances represent round trip distances, as the assumption is made that the delivery truck returns empty after making the delivery.<br>NOTE: The 2017 version of this dataset was used instead of 2022 because the latest version specifies great circle distance instead of routed distance, which is considered less accurate for this application. | | | |

Transportation modes and distances to the manufacturing plant are considered foreground data. Load factors, if known on existing supply routes, should be used to adjust for partial loading and

[3] American Center for Life Cycle Assessment. Guidance for Determining EPD Types and Calculating and Communicating Data Specificity Through the Supply Chain. 2025. Available at https://www.aclca.org/initiatives#PCR-Open-Standard

empty back hauls. If load factors are unknown, one-way transportation distances shall be multiplied by 1.35 to account for partial loading and empty back hauls.

For ‘cradle-to-gate’ and ‘cradle-to-gate and end of life’ EPDs where A4 is not declared, in cases where the manufacturer does not produce aggregate required for the product (e.g., purchased separately by the contractor at the installation site), a transport distance of 250 miles (402 km) shall be assumed for the aggregate and be reported in A2.

**Manufacturing (A3)**

This stage includes activities consistent with ISO 21930 related to the final manufacturing facility.

Carbon offsets shall not be considered in the inventory. These refer to credits purchased for processes not under the control of the purchaser. For example, a coal fired power plant might buy carbon credits that support the planting of forests. While these activities can be accounted for on a corporate level, they shall not be applied to the product/system LCA or EPD.

Market-based renewable electricity purchases shall not be considered in the inventory. Market-based renewable electricity purchases can have various forms and while these activities can be accounted for on a corporate level, they shall not be applied to the product/system LCA or EPD.

On-site renewable electricity may be included in the inventory if any RECs generated from the on-site generation have not been sold to a third party. In such cases, the electricity shall be allocated to all products/systems made at the facility (i.e., not disproportionately to a subset of products/systems). When on-site renewable electricity is considered, results shall be reported both with and without the electricity generated from the on-site system (i.e., the renewable portion must be modeled as grid electricity).

VOC emissions during manufacturing may occur from both products and cleaners/solvents. All manufacturing-related VOC emissions shall be included in A3.

In the absence of primary data, the transport distance from the production site to waste processing or disposal shall follow the latest version of the US EPA WARM model (20 miles (32.2 km) as of this writing). Outside of North America, other appropriate regional or national assumptions may be used.

**Transport to site (A4)**

Transport from the manufacturing site to the installation site shall be included. Several legs of distribution and storage may occur for one resinous floor coating (e.g., storage at a distribution center, installer warehouse). Intercompany movement shall be accounted for, whether or not facilities fall under operational control of the reporting company.

When primary data are available, a weighted average distance shall be used for each transport leg.

In the absence of primary data, the distances in Table 2 shall be used for transportation within North America. For destinations requiring transportation by sea, if primary data are unavailable for land transport before the port of origin, assume the land transport distance is 497 miles (800 km) by truck with an empty return trip of the same distance, if the generic dataset chosen to represent the transport does not already include an assumption for empty return trips. For destinations requiring transportation by sea, if primary data are unavailable, sea transport shall also be included based on publicly available sea routing databases (such as sea-distances.org). If load factors are unknown, one-way transportation distances shall be multiplied by 1.35 to account for partial loading and empty back hauls.

**Table 2.** Distribution one-way distances to installation site to be used in the absence of primary data for transport legs within North America

| Distribution transport leg | Truck | Passenger vehicle |
|---|---|---|
| Manufacturing site to distribution center | 250 miles (402 km) | 0 miles (0 km) |
| Distribution center to point of sale | 500 miles (805 km) | 0 miles (0 km) |
| Point of sale to installation site | 0 miles (0 km) | 5 miles (8 km) |

In cases where the manufacturer does not produce aggregate required for the product (e.g., purchased separately by the contractor at the installation site), a transport distance from the manufacturing site to distribution center shall be assumed for the aggregate.

For manufacturing locations outside North America, initial transport from the country of origin to North America shall be added to the above distances based on the location of regional ports and publicly available shipping calculators.

Warehouse/distribution center

Resinous floor coatings may be distributed through distribution centers en route to the final customer. However, the energy use at these facilities is considered insignificant and can be assumed to be zero.

**Installation (A5)**

The installation stage shall include, as applicable, any ancillary materials, energy and/or water consumption, and disposal of waste materials.

Many resinous flooring systems are installed over substrate surfaces such as concrete that require surface preparation prior to installing the system. The surface preparation profile and activities may vary considerably by system and manufacturer. Surface preparation activities shall be included according to the manufacturer's guidance. If the manufacturer's guidance does not specify a specific method to achieve a surface profile, refer to the Technical Guideline 310.2R-2013 from the International Concrete Repair Institute[4] to choose a method that is applicable to the recommended surface profile. A description of the intended surface profile, a description of the surface preparation method, and inventory of the surface preparation process shall be disclosed in the EPD. A variety of equipment may be used in the surface preparation and system application process and may vary widely based on the specific product system. If primary data or estimates are unavailable, the EPD shall assume installation electricity usage of 0.31 kWh per square meter based on generic estimates for commonly used plane grinders, rotary sanders, shot blasters, and mixing drills. The intent of this assumption is to provide consistency among EPDs and avoid potential arbitrary site-to-site differences that may not reflect actual product differences.

Surface preparation may generate dust and debris. Most airborne dust is expected to be collected by HEPA-filtration systems or subsequently vacuumed by HEPA-filtered vacuum cleaners, and therefore not enter the environment as a direct emission. Dust and debris shall be assumed to be disposed of in a landfill.

Terrazzo products often require additional grinding and polishing steps during installation. If primary data or estimates are unavailable, the EPD shall assume additional electricity usage of 0.62 kWh per square meter for terrazzo products. This is based on committee estimates that terrazzo may require approximately three times the installation energy of other resinous flooring products.

Resinous floor coatings are not typically formulated to be tinted at point-of-sale or in the field. However, there may be some unusual cases where this occurs. If this is expected to occur for a specific product and the pigment is unknown, it shall be assumed that 6 ounces of carbon black is used per each gallon of product (44.9 grams per liter). If applicable, the data set(s) used to model the pigment at point-of-sale shall be disclosed in the EPD.

For resinous floor coatings specifically formulated to be spray-applied, an application-efficiency shall be estimated and disclosed in the EPD as well as used for all relevant calculations. If no application-efficiency is available, a 90% application efficiency shall be assumed as a conservative estimate.

Emissions associated with installation of the resinous floor coating systems, including the curing process and any waste materials generated, shall be modeled as individual releases. If the exact emissions from drying are unknown, they shall be modeled as generic non-methane volatile organic compounds (NMVOCs). For many resinous floor coatings, the application does not require energy or generate VOC emissions. Unless the product is designed to be installed with a thinner/solvent, thinners and solvents may be excluded from the scope of the EPD.

It shall be assumed that 2% of the uncured mass of the coating remains unused[5] and is properly disposed of, where 100% of unused coating shall be assumed to be fully cured and sent to landfill.

[4] International Concrete Repair Institute. Technical Guidelines. Guideline No. 310.2R-2013. October 2013. Available at https://store.icri.org/item/3102r2013-english-pdf-selecting-concrete-surface-preparation-sealers-coatings-polymer-overlays-concrete-repair-342521

[5] U.S. Environmental Protection Agency Report: Quantifying the Disposal of Post-Consumer Architectural Paint (April 2007).

Based on data from the coating industry's PaintCare® program[6], it shall be assumed that waste coatings travel 15 miles (24 km) by passenger vehicle to the point of disposal.

**Estimated service life and system reference service life**

This Part B uses a building estimated service life (ESL) of 75 years. All use stage activity and impacts shall be counted for the full ESL period.

Resinous flooring systems are typically not completely replaced over the service life of the building but instead are periodically resurfaced by partial removal of the original thickness and application of one or more new layers. Therefore, the system reference service life (RSL) in this PCR refers to the timeline for this periodic refurbishment and not a complete replacement[7].

The system dry thickness determines the proper RSL. The following expected RSLs are based on industry consensus. The dry thicknesses used in the EPD shall reflect what is reported in the Product Data Sheet or Technical Data Sheet for the relevant system. If a system has a thickness outside the range of the typical thicknesses presented in Table 3, the smaller RSL shall be used (for example, systems with thickness between 20-40 mills shall use an RSL of 6 years and systems between 120-250 mills shall use an RSL of 7 years).

**Table 3.** RSL by dry thickness

| Dry thickness | Resinous floor type | RSL (years) | Number of refurbishments per ESL |
|---|---|---|---|
| 15-20 mils (0.381-0.508 mm) | Thin mil coatings, No Broadcast | 6 | 11.5 |
| 15-20 mils (0.381-0.508 mm) | Thin mil coatings, Partial Broadcast | 6 | 11.5 |
| 20-40 mils (0.508-1.02 mm) | Thin mil coatings, Full Broadcast | 6 | 11.5 |
| 60-100 mils (1.52-2.54 mm) | Self-Leveling or slurries, No Broadcast | 7 | 9.7 |
| 60-100 mils (1.52-2.54 mm) | Self-Leveling or slurries, Partial Broadcast Slurry | 7 | 9.7 |
| 80-120 mils (2.03-3.05 mm) | Self-Leveling or slurries, Full Broadcast Slurry | 7 | 9.7 |
| 1/4"-3/8" (250-380 mils) (6.35-9.53 mm) | Mortar or monolithic mortar, No Broadcast | 9 | 7.3 |
| 1/4"-3/8" (250-380 mils) (6.35-9.53 mm) | Mortar or monolithic mortar, Partial Broadcast | 9 | 7.3 |
| 1/4"-3/8" (250-380 mils) (6.35-9.53 mm) | Mortar or monolithic mortar, Full Broadcast | 9 | 7.3 |
| 1/4"-3/8" (250-380 mils) (6.35-9.53 mm) | Terrazzo | 75 | 0 |

EPDs shall include the following statement along with the disclosure of the RSL:

*This RSL is required by the PCR based on a consensus of industry experts for the sake of consistent reporting. Actual service life durations vary considerably depending on the use and environmental conditions in which the flooring is placed.*

**Use or application of the installed system (B1)**

Any activity related to system use and not included in stages B2-B7 shall be included in this stage. Zero activity may be assumed for this stage unless otherwise justified.

**Maintenance (B2)**

Resinous floor coating systems require periodic cleaning. The following schedule of maintenance and corresponding quantities shall be used unless primary data or system usage guides are available to justify alternative assumptions.

[6] California Paint Stewardship Program 2023 Annual Report https://www.paintcare.org/wp-content/uploads/docs/ca-annual-report-2023.pdf
[7] The approach to RSL, replacements, and refurbishments used in this updated PCR is a significant departure from the approach used in the previous version of the PCR. Based on a review of EPDs using the previous version PCR, there was confusion and inconsistency in the application of the different RSLs, so this updated approach was aimed to provide more clarity and consistency to EPDs while better reflecting actual practices in the use stage seen across the industry (i.e., refurbishments are the norm, rather than replacements).

Cleaning shall be assumed to occur 250 days per year over the ESL. The cleaning solution shall be based on manufacturer recommendations for the subject system. The assumed cleaning solution composition shall be disclosed in the EPD.

Each cleaning event shall assume 38 mL of water plus 1.2 mL of sodium lauryl sulfate cleaning solution per square meter of flooring area. (This is based on an estimate of 1 gallon water + ½ cup cleaning agent per 100 $m^2$ flooring area).

Over the 75-year ESL, the total number of cleaning events, water, and cleaning agent as shown in Table 4 shall be included.

**Table 4.** Maintenance assumptions

| Maintenance assumption | Value |
|---|---|
| Number of cleaning events over 75 years | 18,750 |
| Water used over 75 years, per square meter | 712.5 liters |
| Cleaning agent (sodium lauryl sulfate) used over 75 years, per square meter | 22.5 liters |

The cleaning solution shall be assumed to be 50% dissipated into the environment and 50% sent to wastewater treatment via municipal sewer[8].

Terrazzo products are assumed to require periodic polishing. While this frequency varies widely, polishing on terrazzo products shall be assumed to be conducted annually. In the absence of primary data, each polishing shall assume a default electricity usage of 0.1 kWh per square meter.

**Repair (B3)**

Repair of resinous floor coatings is uncommon and expected to be insignificant. Also, repairs are usually done as a part of refurbishment and included in B5. Zero activity may be assumed for this stage unless otherwise justified.

**Replacement (B4)**

Full resinous floor replacements are not part of the expected service life. Instead, see assumptions in the refurbishment section (B5). Zero activity may be assumed for this stage unless otherwise justified.

**Refurbishment (B5)**

Resinous floor coatings are commonly refurbished over the estimated service life of the building instead of being completely replaced. Once the end of the RSL is reached, typical processes include material removal and reapplication, and removal and disposal of waste. The refurbishment stage shall include, as applicable, any product, ancillary materials, energy and/or water consumption, and disposal of waste materials.

A variety of equipment may be used in the material removal and reapplication process, and may vary widely based on the specific project and system. Based on estimates for commonly used plane grinders, rotary sanders, shot blasters, and mixing drills, the EPD shall assume electricity usage of 0.31 kWh per square meter. The electricity grid mix used to model the refurbishment energy shall be a weighted average country-level mix based on the share of sales to one or more countries, unless otherwise justified. The grid mix shall be based on low-voltage consumption and include transmission and distribution losses.

The amount of material removed in the sanding process depends on the type of flooring installed. A typical resinous floor without broadcast aggregate will usually have only the top layer of the initial application removed, whereas a floor with broadcast aggregate will often have additional material removed from the broadcast/receiver layer. The assumptions in Table 5 shall be used according to the coating type.

[8] The PCR committee did not have data to substantiate this assumption but wanted to provide consistency among EPDs. This assumption is not expected to significantly affect the results.

**Table 5.** Refurbishment product removal and reapplication scenarios by coating type

| Coating type | Material removed and subsequently reapplied (new) during refurbishing |
|---|---|
| Thin mil coatings, No Broadcast | Top layer |
| Thin mil coatings, Partial or Full Broadcast | Top layer and receiver layer |
| Self-Leveling or slurries, No Broadcast | Top layer |
| Self-Leveling or slurries, Partial or Full Broadcast Slurry | Top layer and receiver layer |
| Mortar or monolithic mortar, No Broadcast | Top layer |
| Mortar or monolithic mortar, Partial or Full Broadcast | Top layer and receiver layer |
| Terrazzo | None (not applicable; polishing is included in the maintenance stage (B2)) |

Refurbishment processes often generate dust and debris. Most airborne dust is expected to be collected by HEPA-filtration systems or subsequently vacuumed by HEPA-filtered vacuum cleaners, and therefore not enter the environment as a direct emission. Dust and debris shall be assumed to be disposed of in a landfill.

In the absence of primary data, the transport distance to waste processing or disposal shall be assumed to be 15 miles (24 km) based on data from the coating industry's PaintCare® program. Refurbishment waste shall be disposed via the appropriate end-of-life channels based on primary data for that specific coating type. If data is not feasibly obtainable or is unavailable, 100% disposal in an inert or construction landfill in North America shall be assumed unless otherwise justified. The landfill process shall be modeled based on the mass of resinous floor coatings using secondary data, unless otherwise justified.

**Operational energy use (B6) and operational water use (B7)**

Once installed, resinous floor coatings are not expected to require any electricity or water for use during the lifetime of the system. Zero activity may be assumed for this stage unless otherwise justified.

**Deconstruction/demolition (C1)**

Once a surface is coated, it is rarely removed through chemical or mechanical means and instead is coated-over and then eventually assumed to be disposed with the substrate. As such, energy or material inputs may be assumed negligible for this stage unless otherwise justified.

**Transport to waste processing or disposal (C2)**

In the absence of primary data, the transport distance to waste processing or disposal shall be assumed to be 15 miles (24 km) based on data from the coating industry's PaintCare® program[9].

**Waste processing (C3)**

Waste is assumed to be disposed with the substrate at end of life. As such, no waste processing activity is applicable in this stage.

**Waste disposal (C4)**

Any coating applied to the substrate shall be treated as incremental mass at end-of-life and shall be disposed via the appropriate end-of-life channels based on primary data for that specific product/system type. If data is not feasibly obtainable or is unavailable, 100% disposal in an inert or construction landfill in North America shall be assumed unless otherwise justified. The landfill process shall be modeled based on the mass of resinous floor coatings using secondary data, unless otherwise justified.

**Benefits and loads beyond the system boundary (D), Optional**

Since the default end-of-life assumption is 100% landfill, there are no anticipated burdens or benefits beyond the system boundary. However, if alternative end-of-life pathways are justified, such benefits and burdens may be reasonably quantified or qualitatively described in this stage.

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|---|---|
| **4. Additional data quality requirements** | No additional data collection specifications or data quality requirements were identified. |

[9] California Paint Stewardship Program 2023 Annual Report https://www.paintcare.org/wp-content/uploads/docs/ca-annual-report-2023.pdf

## 7. Additional LCA calculation rules

| N/A | Optional | Required | *Indicate whether conformance is the manufacturer's choice or required for TRs/EPDs.* |
|---|---|---|---|
| | | X | ISO 21930:2017: conformance is required by construction product/system manufacturers |

## 8. Part B development information

| | |
|---|---|
| **Part B review panel** | This Part B was reviewed for conformance to ISO 14025 and ISO 21930:2017 by the following parties:<br>Jack Geibig, Chair<br>Ecoform<br>Jgeibig@ecoform.com<br>Brandon Kuczenski, PhD,<br>Scope 3 Consulting<br>brandon@scope3consulting.com<br>Beth Cassese<br>Horizon LCA<br>bcassese@horizonlca.com |
| **Open consultation** | Sustainable Minds solicited public comments on this Part B from December 17, 2025 – January 16, 2026. This consultation period and list of parties to submit comments were made available to the review panel. |
| **Update justification** | This Part B was updated upon consideration of manufacturers looking to create new EPDs beyond the validity period of the previous version of the PCR. |
| **Conflict statement** | Funding sources used to develop this Part B were disclosed to the working group during the development process. The policies identified in Sustainable Minds' Program Governance were followed to identify and resolve any potential conflicts of interest. |
| **Sustainable Minds information** | This Part B was developed by Sustainable Minds and participating interested parties according to the Sustainable Minds Program Governance available at http://www.sustainableminds.com/transparency-report-program/how-it-works.<br>For questions about this or another Part B, to submit comments on this Part B, or to obtain a template for developing a transparency report, contact us using the information on the following page: http://www.sustainableminds.com/contact-us. |

## Part B revision history

| Version | Change log |
|---|---|
| 1.0 | November 2018: Original, published by NSF |
| Extension | July 2021: Extension by NSF with no additional changes |
| Extension | June 2024: Extension by NSF with no additional changes |
| Extension | March 2025: 12-month extension by NSF with no additional changes |
| 2.0 | February 5, 2026: Updated upon anticipation of expiration of the extended v1.0. Made updates as suggested by the PCR committee along with other best practice assumptions.<br>• Estimated service life of the building updated from 60 years to 75<br>• Installation waste activities moved from stage C to module A5<br>• Addition of CSI sections, ICRI product classifications, and list of hazardous material regulations<br>• Exclusion of excluding other pre-formed non-resinous floor coverings from scope<br>• Geographic representativeness of products and systems sold in North America<br>• Definitions added for additives, aggregates, and grout coat; polyurethane binders added to the mortars and monolithic mortars term<br>• Terrazzo separated into its own subcategory with assumptions for all life cycle stage scenarios<br>• Addition of dry film thickness of each component/layer, coverage rate, aggregate layer & coverage rate, and minimum and maximum range of thicknesses to the list of disclosures reported in the EPD<br>• Addition of supply chain specificity score guidance<br>• Flexibility for reporting results per product system and by layers<br>• Use of latest versions of TRACI and IPCC<br>• Requirement for manufactured materials in A1 to use the electricity grid profile adapted to the source country or region of manufacture if known and possible<br>• Allowance to exclude suppliers providing less than 5% of a raw material or part from the calculation of A2 weighted averages<br>• Default multiplier of 1.35 added to account for empty backhauls in A2<br>• Optional inclusion of on-site renewable electricity with requirements noted<br>• Specification to use a weighted average for calculating default A4 distances with primary data, updated default A4 distances, and defined installation energy |

| | |
|---|---|
| | • Inclusion of surface preparation activities and refurbishment activities, updated maintenance activities, updated RSLs<br>• Replacement activities removed<br>• Prescribing the use of carbon black to represent pigment without prescribing a specific data set to use<br>• Unused product is considered to be fully cured and sent to a landfill<br>• End-of-life landfill activity to be modeled with an inert or construction landfill data set |
| 2.1 | October 13, 2026: Made clarifications related to the development of EPDs for terrazzo products.<br>• Functional unit used for cradle-to-grave EPDs only<br>• For multilayer products, the reference flow may be disclosed for each layer<br>• Coverage rate disclosed for each product/layer used in the system<br>• If used, what type of aggregate is used in the analysis<br>• If the type of aggregate to be used is unknown, crushed stone shall be assumed<br>• Default transportation distances are one-way<br>• A2 empty backhaul assumptions added for A4<br>• Clarifying update from term ‘wet mass’ to ‘uncured mass’ for unused product<br>• For ‘cradle-to-gate’ and ‘cradle-to-gate and end of life’ EPDs where A4 is not declared, in cases where the manufacturer does not produce aggregate required for the product, transportation is included in A2<br>• Clarification that if the EPD owner does not make or sell the aggregate, the EPD shall report the combined results which include the sum of the EPD owner’s product(s) and the aggregate |