

Guidance for Creating and Comparing to Product Group Benchmarks

Version 1 | November 2017

To create comparative ISO 14025 Type III environmental declarations and set performance improvement goals

Introduction

This document provides detailed guidelines, process examples, and tools for creating a Benchmarking Addendum to a PCR, which includes the additional rules needed to create an industry-wide EPD for use as a credible product group benchmark; AND how manufacturers can use it to make comparative claims.

The purpose of this benchmarking guidance is to standardize the creation of industry-wide EPDs to:

- **Create product group benchmarks to which manufacturers' product-specific EPDs can be compared;** these EPDs can then be used to demonstrate business advantage and differentiation
- **Encourage more manufacturers to do LCAs of their products by providing for continual participation;** not limiting the ability to compare to only manufacturers who participated in the initial industry-wide EPD
- **Set goals for improvement over time** by reducing the greatest impacts across all impact categories by life cycle stage
- **Make it possible to achieve the LEED v4 MR credit:** *"Building product disclosure and optimization - environmental product declarations: option 2"* by comparing product-specific EPDs to the industry-wide EPD

A product group benchmark establishes a point of reference against which LCA results can be compared. The reason to establish these benchmarks comes directly from ISO 14025, which says: "Type III environmental declarations present quantified environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function." With a credible product group benchmark established, we are able to deliver on the intent of ISO 14025 to assist decision-makers to **make informed comparisons**, ultimately encouraging the demand for, and supply of, those products that cause less stress on the environment.

Development and use

This guidance has been developed by the [Technical Advisory Board \(TAB\)](#), the group who oversee the harmonized implementation of the SM Transparency Report™ / EPD Framework. The TAB is made up of LCA experts, industry representatives with LCA expertise, and representatives from other program operators. The process included an evaluation of existing industry-wide EPDs and how they were created; and the initial USGBC benchmarking guidance and its creation. A public comment period was held July 15 – Aug 15, 2017. Comments received and ongoing TAB discussions resulted in this first version. We welcome comments and feedback at any time sent to tab@sustainableminds.com.

This guidance is a component of the Sustainable Minds Transparency Report™ / EPD Framework, a 2-part PCR program, and can also be used in conjunction with an existing or new PCR from other programs. Visit the Sustainable Minds website to learn more about [How it works](#).

Table of contents

Section 1: How to establish an industry-wide EPD for use as a credible product group benchmark

Section 2: How to compare a product-specific EPD to the benchmark

Part B and Benchmarking Addendum: How they work together | Request form

Definitions

- **A product group** consists of products that compete for/deliver the SAME function. Product group definitions use a functional performance requirement(s) that impacts/drives the potential environmental performance of the products as codified or specified in standards. [SM Transparency Report™ / EPD Framework [Part B](#)]

- **The Benchmarking Addendum** is a document added to a new or existing Part B or PCR that provides the additional rules for how to create a product group benchmark, created by the PCR committee or by the participants looking to create a product group benchmark.
- **A product group benchmark** is a standard point of reference against which results can be compared at the product group level.
- **An industry-wide SM Transparency Report / EPD (TR/EPD)** is a Type III Environmental Declaration that represents the average environmental impacts of products from industry participants. The industry participants own the declaration.

Section 1: How to establish a credible product group benchmark

This guidance is for the purpose of establishing an industry-wide EPD for use as a credible product group benchmark.

Credibility

In order for a product group benchmark to be credible, it must be created with the participation of the industry, based on primary data from multiple manufacturers. It must be based on the relevant PCR and be verified. Any benchmark using only secondary data or data generated by someone other than the participating manufacturers will not be valid.

Scope

Benchmarks shall be based on a functional unit with a cradle-to-grave scope and only created for products with cradle-to-grave PCRs. Without performance or function, no appropriate average can be considered.

Availability

The program operator responsible for registration of the industry-wide EPD is required to make it publicly available for use as a benchmark.

Industry-wide EPD creation requirements

- **The industry-wide EPD shall be created for one product group.** When an existing PCR represents more than one product group, each product group for which an industry-wide EPD will be created must have its own Part B Benchmarking Addendum and associated industry-wide EPD. No more than one industry-wide EPD shall exist for each product group in each market.
- **A minimum threshold of market participation shall be met.** In the Part B Benchmarking Addendum, specify the market segmentation and coverage, the minimum required level of market participation, and how market share is measured. At least three participants representing the industry is required to create an industry-wide EPD. The benchmark is created by taking a weighted average based on market share by each participant within the group participating in the creation of the industry-wide EPD. Market share data shall be for the same year as the industry-wide EPD data. Collection of market share data shall not violate anti-trust laws or restraint of trade laws.
- **Rule creation:**
 - **For industry-wide EPDs intended to be used for comparisons, the industry-wide EPD shall specify global warming plus at least two of the other five impact categories provided in LEED v4** “Building product disclosure and optimization - environmental product declarations: option 2” to be used for comparison. The industry-wide EPD may specify additional impact categories to which they require comparison. The impact categories should be selected based on EPD results normalized to national or regional per capita averages. The Part B Benchmarking Addendum shall be updated to reflect the chosen impact categories once selected.
 - **Determine whether a specific background LCI data set is preferable or required** for materials or processes which are consistently applied across the industry.
 - If use of a specific background data set is required, designate it in the Part B Benchmarking Addendum with a clear and definitive explanation of why it is required. This explanation may include that the data set is required for the purpose of benchmarking. Required data sets shall be made available to participants in a format compatible with all software products used by the participants, in a way that produces the same results for the specified LCIA method and version number. Specific data sets shall only be required for materials or processes that are consistently applied across the industry.

- If use of a specific background data set is not required, the industry-wide EPD may include multiple sets of impact assessment results using alternative data sets to better enable comparisons (e.g., a material is modeled using the same chemical represented by data sets from two separate databases).
- **In the Part B Benchmarking Addendum, specify one LCIA method and version number to be used for comparison** (e.g., TRACI v2.1, CML-IA baseline v4.1).
- **In the Part B Benchmarking Addendum, specify the threshold of improvement and reduction for each impact category.** The threshold shall be based on the quantitative uncertainty of the industry-wide results; the participants will determine the method used to determine quantitative uncertainty (e.g., Monte Carlo method). To demonstrate improvement, product-specific EPD results must be statistically significantly lower than the industry-wide EPD results, with a confidence interval of 95%. Any improvement or reduction that is not statistically significantly lower or higher than the benchmark, with a confidence interval of 95%, is considered equivalent to the benchmark.

Industry-wide EPD content requirements

In addition to the EPD content requirements set by the PCR, the following shall be included:

- LCIA method and version number
- Recommendations for improvement where feasible, based on a contribution analysis by impact category for the impact categories required by the industry-wide EPD
 - Recommendations may be quantitative or qualitative
 - At least two recommendations should be included
 - Recommendations are meant to be industry-specific
 - Reduction targets are meant to be impact category-specific
 - Recommendations shall not be based on LCIA methodology changes (e.g., updates to electricity factors which has the appearance of reduced emissions)
 - Recommendations may set long-term improvement goals and establish an incremental path for achievement (e.g., Reduce global warming impacts by 30% by 2030; may refer to the 2030 Challenge for Products¹)
- State the number of participants and total market share of the group. Listing the name of the participants is only required for those participants who will at any time make comparisons to the industry-wide EPD.
- Quantitatively describe the uncertainty of the industry-wide results. The working group will determine the method used to determine quantitative uncertainty (e.g., Monte Carlo method).
- If not already required by the Part B or PCR, the following statement or a similar statement regarding comparison limitations shall be included: “An LCA or LCIA shall not provide the sole basis of comparative assertion intended to describe overall environmental superiority or equivalence, as additional information will be necessary to overcome some of the inherent limitations in the study. Value-choices, exclusion of spatial and temporal, threshold and dose-response information, relative approach, and the variation in precision among impact categories are examples of such limitations. LCIA results are relative expressions and do not predict impacts on category endpoints, the exceeding of thresholds, safety margins, or risks.”

Retroactive participation

The Benchmarking Addendum creators shall determine a pathway for how manufacturers, who did not originally participate in the industry-wide EPD, can participate in and compare their own data to the benchmark.

- **Pathway requirements:**
 - Describe management of NDA.
 - Reach out to stakeholders and include as many participants as possible.

¹ http://architecture2030.org/2030_challenges/products/

- Describe the amount of time manufacturers who did not originally participate in the industry-wide EPD must wait before publishing their own comparisons to the benchmark.
- The industry-wide EPD is valid for 5 years unless otherwise specified by the existing PCR. Updates to the original industry-wide EPD shall be indicated with version numbers.
- **Examples of how retroactive pathway requirements might be written:**

A manufacturer who did not participate in the original industry-wide EPD submits their product-specific LCA primary data, under NDA, to the party responsible for collecting and averaging data for the industry-wide EPD. The data must follow the Part B Benchmarking Addendum for the product group and be reviewed to make sure it can be used in the next update of the industry-wide EPD.

 - **EXAMPLE 1: The industry-wide EPD is not updated.**

The manufacturers who submitted data may compare their product-specific EPDs to the industry-wide EPD no sooner than 12 months after the industry-wide EPD publication date. After a specified number or percentage of new participants submits data, an early update is forced, which is paid for by the new participants. The original participants may choose whether or not to update their data early. The party responsible for collecting and averaging data for the industry-wide EPD shall maintain an ongoing list of manufacturers who submitted data to publicly contribute to the next update of the industry-wide EPD.
 - **EXAMPLE 2: The industry-wide EPD is updated.**

The party responsible for collecting and averaging data for the industry-wide EPD will recalculate the average based on the addition of the manufacturer's product-specific results. The modified average set of results will be provided to the manufacturer for comparison, creating a new version of the industry-wide EPD. Only these manufacturers and the original participants may make credible comparisons for LEED credit.

Section 2: How to make a comparison to the benchmark

This guidance is for comparing product-specific SM Transparency Reports / EPDs to an industry-wide EPD.

Scope

Comparisons shall only be made for Type III environmental declarations with a cradle-to-grave scope.

Requirements for comparison

- The modules declared in the product-specific EPD shall be the same as those declared in the industry-wide EPD
- The manufacturing sites used in the product-specific EPD shall be the same those used in the industry-wide EPD or submitted for use in the next update of the industry-wide EPD
- To demonstrate impact reduction below industry average, the product-specific EPD results shall be lower than the industry-wide EPD results by the threshold for improvement set by the Part B Benchmarking Addendum
- Provide justification when impacts in any required impact category are greater than 100% above the industry average
- LCIA method and version number shall be the same
- Any comparisons made shall include the industry-wide EPD results, the product-specific EPD results, the percent improvement or reduction for each impact category being compared, and interpretation identifying what contributed to the improvement or reduction.
- Specify if the manufacturer is a participant in the original industry-wide EPD or if data has been submitted for inclusion in the next update to the industry-wide EPD.
- Comparisons optionally made within the product-specific EPD shall be reviewed by the EPD verifier.

Part B and Benchmarking Addendum: How they work together

The intended application of the framework is to provide a common structural set of general LCA calculation rules, requirements, and guidelines applicable to any product in order to ensure that all Type III environmental declarations based on the framework are derived, verified, and presented in a harmonized and consistent manner.

[Part B](#) establishes the LCA rules for one product group, which consists of products that compete for/deliver the SAME function. Product group definitions use a functional performance requirement(s) that impacts/drives the potential environmental performance of the products as codified or specified in standards. From this baseline, each manufacturer can demonstrate business advantage and differentiation.

The Benchmarking Addendum to Part B establishes the additional rules needed to create an industry-wide product group EPD for benchmarking and making comparative claims.

Similarly to the Part B form seen on the right, the Benchmarking Addendum is a form that, once filled out, becomes an addendum to the PCR or Part B it applies to. Using Part A, Part B, and the Benchmarking Addendum together, manufacturers have all the rules needed to begin working on creating an industry-wide EPD.

[Download Part B: Product group definition](#)


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Sustainable Minds Transparency Report™ / EPD Framework
Page 3 of 8

Part B: Product group definition | Request form
Part B describes functional and environmental attributes of products that compete to deliver the SAME function.

When complete email to TAB@sustainableminds.com.

Initiated by	
Title	
Organization	
Email/telephone	
Other company(s) and organization(s) involved	

Product group

Name	CSI MasterFormat® #(s) or UNCCP(s)
Description	Define the types of products included under this Part B
New Part B request? Yes / No	Update to an existing Part B? Yes / No
Existing PCRs, EPDs, TRs, or LCAs	Explain relevance and provide URL or document(s).
This information will be used to identify additional rules for comparability and to substantiate the rationale for creating a Part B.	
Relevant literature and published material	

Functional performance

Standard/certification	URL
1.	
2.	
Add rows as needed	

Functional / declared unit

Unit	
Rationale	

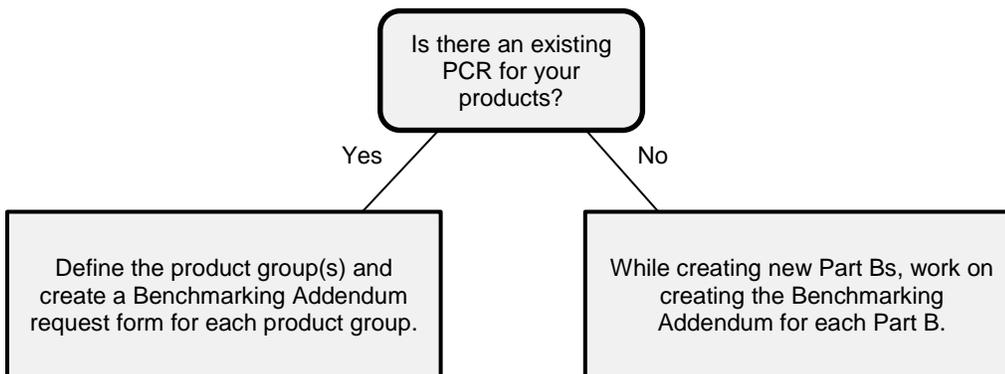
Additional rules for comparability

1. Clarification More product group specificity as needed	
2. Additional rules to Part A	
3. Default life cycle stage scenario(s)	Proposed scenario & rationale
4. Additional data	

Part B: Product group definition v0417 | © 2014-2017 Sustainable Minds, www.sustainableminds.com | www.programoperators.org | tab@sustainableminds.com

Getting started

Anyone can start a Benchmarking Addendum request form. It is publicly available and can be used by any group of manufacturers, industry organization, or program operator. See the steps below. When completed, submit the request form to the Technical Advisory Board (TAB). This starts a 2-week review process during which the TAB confirms that the requirements of this guidance have been met in the Benchmarking Addendum.



Send all completed Benchmarking Addendum request forms to TAB@sustainableminds.com.

Part B: Benchmarking Addendum | Request form

For one product group

This is an addendum to a Part B or PCR to provide the additional rules needed to create an industry-wide product group EPD for benchmarking and making comparative claims. A product group consists of products that compete for/deliver the SAME function. Product group definitions use a functional performance requirement(s) that impacts/drives the potential environmental performance of the products as codified or specified in standards.

For PCRs that cover more than one product group, define groups and complete one addendum request per group.

When complete email to TAB@sustainableminds.com.

Initiated by name/title	
Organization	
Email/telephone	
Other co(s) & org(s) involved	
Party responsible for collecting and averaging data Organization, contact info	

Corresponding Part B / PCR

Part B / PCR name		
Program operator		Expiration date

Product group definition

When using a Sustainable Minds Part B, copy this section. When using a PCR from another program, create new.

Name		CSI MasterFormat® #(s) or UNCPC(s)	
Description Define the types of products included in this product group			
Existing PCRs, EPDs, TRs, or LCAs This information will be used to identify additional rules for comparability	Explain relevance and provide URL or document(s).		
Relevant literature and published material			

Rule creation

Minimum participation	Example: The minimum required level of market participation is 50% of the North American market, measured by annual production volume.
Retroactive pathway requirements	Example: A manufacturer who did not participate in the original industry-wide EPD submits their product-specific LCA primary data, under NDA, to the party responsible for collecting and averaging data for the industry-wide EPD. The data must follow the Part B Benchmarking Addendum for the product group and be reviewed to make sure it can be used in the next update of the industry-wide EPD. The manufacturers who submitted data

	<p>may compare their product-specific EPDs to the industry-wide EPD no sooner than 12 months after the industry-wide EPD publication date. After a specified number or percentage of new participants submits data, an early update is forced, which is paid for by the new participants. The original participants may choose whether or not to update their data early. The party responsible for collecting and averaging data for the industry-wide EPD shall maintain an ongoing list of manufacturers who submitted data to publicly contribute to the next update of the industry-wide EPD.</p>
<p>Required impact categories</p>	<p>Example: Global warming, acidification, eutrophication, ozone depletion, smog</p>
<p>Required or preferred background LCI data sets Include data set name and intended application</p>	<p>Example: Use of 'RER: steel production, low-alloyed, hot rolled' required to represent hot rolled low-alloyed steel</p>
<p>LCIA method & version #</p>	<p>Example: TRACI v2.1</p>
<p>Threshold of performance improvement or reduction for each impact category Based on quantitative uncertainty of industry-wide EPD results</p>	<p>Example: +6% / -5% Global warming +13% / -15% Acidification +22% / -21% Eutrophication +35% / -42% Ozone depletion +10% / -9% Smog</p>