General Program Instructions

for Smart EPD®

Version 2.0
March 2025

Version	Amendments	Date Issued
1.0	Initial publication	**November 8, 2022**
2.0	• Updated normative references and abbreviations • Updated responsibilities for Advisory board, CEO, PM, PCR and EPD PMs under Section 4.2 • Updated responsibilities for PCR PM, EPD PM, EPD Owners and Independent Verifiers under Sections 4.3-4.5 • Addressed prospective EPDs in Section 6.4 • Addressed pre-verified tools in Section 6.12 • Added Annex on Mass Balance/Chain of Custody Approaches	**March 11, 2025**

CONTENTS

1. Introduction 5
   1.1. Overview of Environmental Product Declarations (EPDs) 5
   1.2. Smart EPD Program Objectives 5
   1.3. Referencing, Copyright, and Usage Rights 5
2. References and Definitions 6
   2.1. Normative References 6
   2.2. Normative Definitions 7
   2.3. Additional Definitions 7
   2.4. Symbols and Abbreviations 9
3. Smart EPD Program Objectives and Scope 10
   3.1. Program Scope 10
   3.2. Program Audience 11
   3.3. Normative Standards Hierarchy 11
4. Program Organization 12
   4.1. Advisory Board 12
   4.2. Program Operator Administration 12
   4.3. PCR Administration 15
      4.3.1. PCR Project Manager 15
      4.3.2. PCR Interested Parties 16
      4.3.3. PCR Committee 16
      4.3.4. PCR Review Panel 17
   4.4. EPD Administration 17
      4.4.1. EPD Project Manager 17
      4.4.2. EPD Owners 18
   4.5. Independent Verifiers 19
   4.6. Funding for Program Development 21
   4.7. Review of the Program 21
   4.8. Procedures to Avoid Misuse of References to the Program and Its Logo 21
   4.9. Mutual Recognition of Program Operators 22
   4.10. Dispute Resolution Procedures 22
5. Product Category Rules Procedures 23
   5.1. Listing of Published PCRs 23
   5.2. De-listing of PCRs 23
   5.3. Definition of Product Categories 24
   5.4. North American Building and Construction Industry 24
   5.5. Content of PCR Document 25
   5.6. Overview of PCR Processes 25
      5.6.1. PCR Development Process 26
      5.6.2. Creation of a New PCR 27
      5.6.3. Modification of an Existing PCR 27
      5.6.4. Finalization of a PCR Draft 28

5.6.5. Renewal of Expired PCR 28
5.6.6. PCR Updates 28
5.7. PCR Harmonization 28
5.8. PCR Hierarchy 30
5.9. PCR Availability 31
5.10. Monitoring Changes in Related EPD Programs 31
6. Environmental Product Declaration Procedures 31
6.1. EPD Development Process 31
6.2. EPD Content and Format 33
6.2.1. Cover Page 34
6.2.2. Further Information 34
6.3. Third Party Independent Verification 34
6.3.1. LCA Report and Supporting Data 34
6.3.2. EPD Content 35
6.4. Prospective EPDs 35
6.5. Listing of Registered EPDs 36
6.6. Sharing Registered EPD Data with Partners 36
6.7. Registering and Updating Verified EPDs 36
6.8. Non-Conformance and Potential Deregistration of EPDs 37
6.9. Management of Data and Documentation 38
6.10. Data Confidentiality Management 38
6.11. Additional Requirements for Business-to-Consumer Communication 39
6.12. Pre-Verified EPD Tools 39
6.12.1. Platform Pre-Verification 39
6.12.2. EPD Tool Pre-Verification 40
6.12.3. Representative EPD Verification 41
6.12.4. Subsequent EPD Verification 42
6.12.5. Handling Non-Conformities 42
6.12.6. Application for EPD Tool Verification 42
6.12.7. EPD Tool Validity and PCR Coverage 43
6.12.8. EPD Tool Registration 43
6.12.8. Tool Updates 43
6.12.9. Public API 45
Annex 47
A.1 Mass Balance Approaches 47

1. Introduction

This document constitutes the General Program Instructions of the Smart EPD Program. This document serves as the main governance document of the Smart EPD Program and forms the basis of the administration and operation of a Type III environmental declaration program according to International Organization for Standardization (ISO) 14025[1].

1.1. Overview of Environmental Product Declarations (EPDs)

Environmental Product Declarations (EPDs), also known as Type III environmental declarations, provide detailed information about the potential environmental impacts of products, services, and systems from a life cycle perspective. The primary objective of an EPD is to deliver relevant, verified, and comparable data grounded in life cycle assessment (LCA) science. These declarations offer transparent insights that enable informed decision-making and facilitate comparisons between products, services, or systems with similar functions. Unlike ISO Type I third-party certified ecolabels[2] and ISO Type II self-declared single-attribute environmental claims[3], EPDs provide comprehensive, standardized, and third party verified environmental disclosures.

1.2. Smart EPD Program Objectives

The Smart EPD program aims to support organizations in transparently and credibly communicating the environmental performance of their products, services, and systems. With a strong focus on digital tools, Smart EPD enables the creation, verification, and large-scale exchange of EPD information to facilitate informed decision-making. All EPDs and product footprints generated through this program are digitized and based on LCAs aligned with ISO standards (14025, 14040, 14044, 14046, 14067) and relevant Product Category Rules (PCRs). Smart EPD is committed to driving market-driven environmental improvements through these efforts.

1.3. Referencing, Copyright, and Usage Rights

References to this document shall be provided as follows:
Smart EPD (2025) General Program Instructions. Version 2.0. www.smartepd.com.

[1] ISO 14025:2006 - Environmental labels and declarations — Type III environmental declarations — Principles and procedures
[2] ISO 14024:2018 - Environmental labels and declarations — Type I environmental labelling — Principles and procedures
[3] ISO 14021:2016 - Environmental labels and declarations — Self-declared environmental claims

2. References and Definitions

2.1. Normative References

Bhat, C.G., Adhikari T, Mellentine J, Feraldi R, Lasso A, Swack T, Mukherjee A, Dylla H, Rangelov M. 2022 ACLCA PCR Guidance: Process and Methods Toolkit. Version May 2022. American Centre for Life Cycle Assessment. https://aclca.org/pcr/

EN 15804+A2:2019/AC:2021 Sustainability of construction works: Environmental product declarations: Core rules for the product category of construction products

ISO 14020:2022 Environmental statements and programmes for products — Principles and general requirements

ISO 14025:2006 Environmental labels and declarations: Type III environmental declarations: principles and procedures

ISO/TS 14027:2017 Environmental labels and declarations — Development of product category rules

ISO 14029:2022 Environmental statements and programmes for products — Mutual recognition of environmental product declarations (EPDs) and footprint communication programmes

ISO 14040:2006/Amd1:2020 Environmental management: Life cycle assessment: Principles and framework

ISO 14044:2006/Amd1:2017/Amd2:2020 Environmental management: Life cycle assessment: Requirements and guidelines

ISO 14046:2014 Environmental management: Water footprint: Principles, requirements and guidelines

ISO 14067:2018 Greenhouse Gases: Carbon Footprint of Products: Requirements and guidelines for quantification

ISO 14071:2024 Environmental management — Life cycle assessment — Critical review processes and reviewer competencies

ISO 21930:2017 Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services

US Environmental Protection Agency (EPA) Criteria for Product Category Rules (PCR) to Support the Label Program for Low Embodied Carbon Construction Materials (EPA's PCR Criteria). Version 1. Office of Chemical Safety and Pollution Prevention. EPA-740-R-24-009. August 2024.

2.2. Normative Definitions

For the purposes of this document, the terms and definitions given in the following standards apply: ISO 14040:2006/Amd1:2020, ISO 14044:2006/Amd1:2017/Amd2:2020, ISO 14046:2014, ISO 14025:2006, ISO 14027/TS:2017, ISO 14029:2022, ISO 14067:2018, ISO 14071:2014, ISO 21930:2017, and EN 15804+A2:2019/AC:2021.

2.3. Additional Definitions

Part A PCR

A Part A PCR provides the foundational rules and requirements for conducting an LCA and developing EPDs across a broad category of products or services. It sets the overarching framework that applies to multiple product categories, ensuring consistency and standardization in the methodology used for LCA and EPA creation. Key features of Part A PCR include:

1. **General Calculation Rules:** Part A PCRs define the general principles and methodological approaches, such as declared/functional units, system boundaries, allocation rules, and impact categories, that must be applied across different product categories.
2. **Modularity**: Part A PCRs are often paired with Part B PCRs, which provide product category specific rules. This modular approach allows Part A PCRs to serve as a common platform while Part B PCRs address the unique aspects of individual product categories.
3. **Applicability**: Part A PCRs are applicable across a wide range of products and services within a particular industry or sector, such as building and construction works, ensuring that LCAs and EPDs developed under different Part B PCRs are more comparable and consistent.

LCA Project Report

An LCA Project Report, or EPD Project Report, is a comprehensive document that details the methodology, data, and results of an LCA conducted for a product or service, particularly in the context of developing an EPD according to a PCR. An LCA Project Report is the supporting LCA study report that conforms to ISO 14040, 14044, 14025, 21930 and the applicable PCR and provides the necessary documentation to verify the Life Cycle Inventory (LCI), Life Cycle Inventory Analysis (LCIA) and additional environmental information reported in an EPD.

To comply with the requirements of ISO 14044, Clause 5.2 regarding third-party reports, organizations publishing EPDs are encouraged to make these reports available to recipients of the EPD. However, any confidential information from the LCA Project Report should be excluded

from the shared version, for example, by placing sensitive details in a confidential annex that is removed before distribution.

Part B PCR/Sub-category PCR

A Part B PCR is a product category specific document that complements a Part A PCR. It provides detailed, product category specific rules and requirements for conducting LCAs and developing EPDs for a particular product or service category. While the Part A PCR establishes general guidelines applicable across various product categories, the Part B PCR tailors these guidelines to the unique characteristics of a specific product category. Key features of a Part B PCR include the following:

1. **Product Category Specific Requirements**: Part B PCRs address the specific aspects of a product category, such as its functional unit, life cycle stages, data collection methods, and relevant environmental impact categories.
2. **Detailed Methodology**: Part B PCRs include detailed methodologies, specifying how system boundaries and functional units are tailored to sector-specific needs. For example, construction product LCAs often consider a 50-year lifespan, while consumer goods may focus on single-use cycles.
3. **Alignment with Part A PCR**: Part B PCRs are designed to work in conjunction with the Part A PCR. They ensure that the specific requirements for a product category align with the general rules set out in the Part A PCR, ensuring consistency and comparability across different product categories.
4. **Transparency and Comparability**: By providing product category specific guidance, Part B PCRs facilitate the creation of EPDs that are transparent, consistent, and comparable within the same product category.

EPD Tool

An EPD Tool is an application used to generate EPDs efficiently and at scale while ensuring compliance with ISO standards, PCRs, and data integrity requirements. These tools incorporate configurable parameters that allow users to input product-specific data while maintaining a fixed underlying model structure and pre-approved background datasets.

EPD Tools must be reviewed in tandem with one or more representative EPDs as part of the pre-verification process, which includes validation, testing, and methodological review. The verification process evaluates calculation accuracy, data quality, and adherence to ISO and PCR requirements, ensuring the tool's ability to produce reliable EPD results across different product configurations. Once pre-verified, the EPD tool may be used to generate product specific EPDs on demand without requiring full re-verification for each declaration, reducing time and cost while maintaining conformity with the Smart EPD Program requirements.

2.4. Symbols and Abbreviations

ACLCA	American Center for Life Cycle Assessment
API	Application Programming Interface
B2B	Business-to-business
B2C	Business-to-consumer
CEO	Chief Executive Officer
CSC	Constructions Specifications Canadian
CSI	Construction Specifications Institute
CV	Curriculum Vitae
EN	European Standard
EPA	US Environmental Protection Agency
EPD	Environmental Product Declaration
GPI	General Program Instructions
IEC	International Electrochemical Commission
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
LCACP	Life Cycle Assessment Certified Professional
LCAR	Life Cycle Assessment Reviewer
LCI	Life Cycle Inventory
LCIA	Life Cycle Impact Assessment
MRA	Mutual Recognition Agreement
NGO	Non-Governmental Organization
PCR	Product Category Rule
SKU	Stock Keeping Unit
UNCPC	United Nations Central Product Classification
UNSPSC	United Nations Standard Products and Services Code

3. Smart EPD Program Objectives and Scope

The objectives of the Smart EPD program are to support organizations in communicating comprehensive environmental performance data for products and services in a credible, streamlined, and easily understood way. The goal of this program is to stimulate market demand for products that cause less stress on the environment through both business-to-business (B2B) and business-to-consumer (B2C) communications.

Although focused on the North American market, Smart EPD's program is structured for global application, providing a harmonized approach rooted in global relevance. The Smart EPD program strives to establish formal relationships with other Program Operators to harmonize consistency of approach with EPD and PCR development and expand the visibility and adoption of EPDs in other markets through mutual recognition. The Smart EPD program offers generally accepted program requirements based on common and recognized life cycle assessment (LCA) calculation rules and a uniform project report format.

Smart EPD works to:

- **Provide a Comprehensive EPD Program**: Offer a robust EPD program for Type III environmental declarations, in compliance with ISO 14025, ISO 14027, ISO 14040, ISO 14044, ISO 21930, and other relevant standards.
- **Facilitate Stakeholder Engagement**: Lead thorough stakeholder processes for the development, publication, and maintenance of PCRs, with a focus on the North American market.
- **Ensure Rigorous Verification**: Verify supporting data, LCA project reports, EPD calculation tools, EPDs, and Product Footprints to maintain accuracy and reliability.
- **Drive Innovation in EPD Reporting**: Enhance and streamline EPD reporting processes with an emphasis on digital transformation and efficiency.
- **Forge Strategic Partnerships**: Build collaborations with organizations that can accelerate the adoption of EPDs by creating market demand drivers.
- **Promote Recognition, Consistency and Transparency**: Strive for consistency, transparency, and comparability in environmental communication through the mutual recognition of EPDs and footprint programs, aligned with ISO/TS 14029 and initiatives like ECO Platform.
- **Engage in International Standards**: Actively participate in the development of international standards and policy-related initiatives to shape the future of environmental declarations.

3.1. Program Scope

The Smart EPD program encompasses all products and services offered by any organization in markets that require quantified environmental performance information. Smart EPD is committed to innovation in its products and services and acknowledges that not every offering may be detailed in these General Program Instructions (GPIs). However, the GPIs are designed to ensure transparent processes and credible third-party-verified communications, even if a specific offering is not explicitly addressed in this document.

An EPD published in the Smart EPD program may represent one or multiple products from a single organization, including products from one or multiple manufacturing sites, or it may reflect an average product from companies within a specific industry and geographic region. Smart EPD recognizes that LCA and footprinting methodologies often involve the use of data averaging methods. To ensure transparency and support more informed decision-making, Smart EPD encourages reporting the most granular feasible results while maintaining methodological rigor.

All PCRs and EPDs published under the Smart EPD program shall be in English but may be translated into other languages upon request.

3.2. Program Audience

The Smart EPD program actively engages a diverse range of stakeholders, e.g. manufacturers, trade associations, government groups, suppliers, specifiers, procurers, designers, and architects, throughout the PCR development process. We recognize that robust stakeholder involvement is crucial to ensuring that the resulting standards and PCRs effectively address the evolving market demands and applications of EPDs. EPDs published under the Smart EPD program cater to both B2B and B2C communication needs.

3.3. Normative Standards Hierarchy

Figure 1 illustrates the normative standards hierarchy that govern the Smart EPD Program and are referenced in Section 2.1.

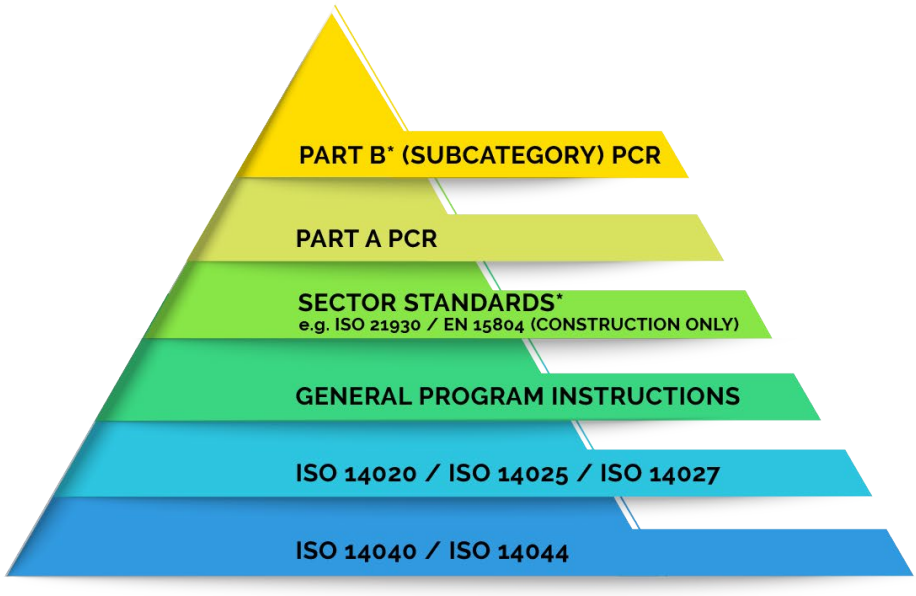

Figure 1. Normative standards hierarchy. *Note that certain hierarchical levels may not be relevant and/or available, depending on the product category

4. Program Organization

The Smart EPD Program Operator oversees the development of PCRs and the creation of EPDs. The program is open to all interested parties, allowing access to its EPDs, participation in PCR development, and contributions to the program's growth. The organizational structure is divided into five key areas:

- Advisory Board (4.1)
- Program Administration (Section 4.2)
- PCR Development (Section 4.3)
- EPD Development (Section 4.4)
- Verification Activities (Section 4.5)

4.1. Advisory Board

The Smart EPD Advisory Board is composed of volunteer members representing a diverse range of stakeholders, including businesses, consultancies, trade organizations, industry professionals, government agencies, non-governmental organizations (NGOs), and academic institutions. The Advisory Board serves the following purposes:

- Offer input on the program's products and services.
- Provide technical expertise and strategic guidance.
- Suggest improvements and advocate for program development based on feedback from engagement with regulatory bodies.
- Safeguard the confidentiality and impartiality of the program.
- Participate in PCR and EPD reviews, when feasible.
- Promote the Smart EPD program within their respective networks and communities, supporting outreach efforts to raise awareness and encourage participation.

4.2. Program Operator Administration

Internal Administrative Roles within the Smart EPD Program Operator consist of a Chief Executive Officer (CEO), Program Manager, PCR Project Managers, and EPD Project Managers (see Figure 2).

External Roles in the PCR development process include PCR Interested Parties, with a designated subset forming the PCR Development Committee. Additionally, each PCR development effort involves a PCR Review Panel, whose members are selected based on their industry-specific expertise and availability.

For the EPD development process, external roles include the EPD Owner Organization (typically a company or industry consortium), an LCA/EPD consultant if needed, and an Independent Verifier to ensure compliance and transparency.

SMART EPD PROGRAM

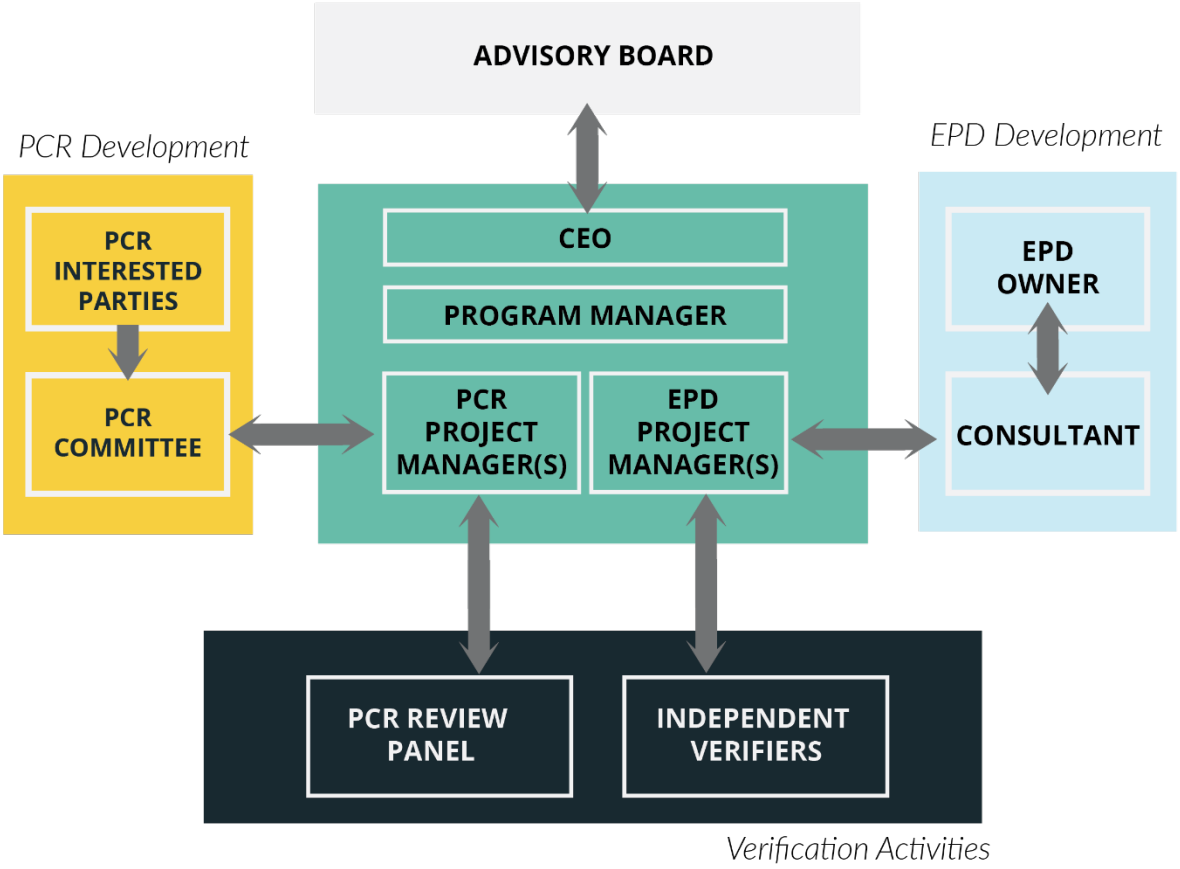

Figure 2. Smart EPD Program Structure

The Smart EPD CEO oversees the overall strategic planning, administration, and management of the program. Key responsibilities include:

- Defining the program's industry focus and guiding product development.
- Ensuring the quality and accuracy of the platform, methodologies, and reporting standards.
- Engaging with the Advisory Board.
- Collaborating with the Program Manager and Project Managers.
- Ensuring program updates or changes align with ISO Standards.
- Establishing partnerships with other Program Operators and relevant entities.

- Supporting the development of educational resources, training, and capacity-building initiatives to enhance stakeholders' understanding of the Smart EPD digital platform.
- Participating in external initiatives that could shape the program's future, such as international standards development, data repositories, and impact assessment methodologies.
- Integrating ethical considerations, including social responsibility, equity, and transparency, into program activities and decision-making.
- Managing the program's budget, finances, and resources to ensure sustainability and long-term success.
- Identifying risks to the program's reputation, credibility, or operations, and recommending mitigation strategies.

The Program Manager works under the guidance of the CEO and directs program implementation activities of the PCR Project Manager and provides support to the EPD Project Manager. Support functions include input on technical matters, such as the development and modification of these GPIs, approval of PCR Reviewers, and identification of qualified Independent Verifiers. The Program Manager is responsible for the overall management of the Smart EPD Program activities.

The Smart EPD Program Manager is responsible for (ISO 14025, Sec. 6.3):

- Preparing, maintaining and communicating general program instructions;
- Ensuring that the general program instructions are followed;
- Publishing the names of the organizations involved as interested parties in the program development;
- Ensuring Type III environmental declaration requirements are followed;
- Establishing a procedure to safeguard the consistency of data within the program;
- Publishing PCR documents and Type III environmental declarations within the program;
- Manage and maintain program website;
- Maintaining publicly available lists and records of PCR documents and Type III environmental declarations within the program;
- Monitoring changes in procedures and documents of related Type III environmental declaration programs and revising procedures and documents when necessary;
- Ensuring the selection of competent independent verifiers and PCR review panel members;
- On a needed basis, providing training and support to program participants, including manufacturers, verifiers, and reviewers, to enhance their understanding of Smart EPD platforms and increase efficiency of review process;
- Establishing a transparent procedure for PCR review, including the scope of the review, details of the review and how the PCR review panel is constituted;
- Facilitate harmonization when developing PCRs;

- Establishing procedures to avoid misuse of references to ISO 14025, the Smart EPD program, environmental declarations developed under the program, and where relevant, the Smart EPD logo;
- Establish and maintain mutual recognition agreements between Smart EPD and other Program Operators;
- Monitoring the performance and impact of the program, including the number and quality of EPDs issued, and stakeholder satisfaction;
- Communicating regularly with stakeholders to provide updates on program activities, achievements, and promoting awareness of the program's importance; and
- Representing the program externally in relevant forums, conferences, and events, to enhance the program's visibility and reputation.

4.3. PCR Administration

4.3.1. PCR Project Manager

Under the CEO's direction, the PCR Project Manager is responsible for both business development and technical aspects of the program. Business development duties include identifying and responding to opportunities for PCR development, either independently or in collaboration with other Program Operators. The technical responsibilities involve ensuring compliance with applicable laws, standards, guidance documents, and the GPIs. As Co-Chair of the PCR Committee, the PCR Project Manager oversees the PCR development process and its participants. Key responsibilities include:

- Drafting PCR development proposals;
- Identifying and recruiting PCR Interested Parties;
- Inviting industry experts to serve on the PCR Development Committee and lead PCR drafting;
- Determining relevant industry and trade publications for announcing PCR developments;
- Managing PCR Committee applications and seating committee members;
- Developing and maintaining an internal Standard Operating Procedure for PCR development;
- Leading the selection of a PCR Committee Co-Chair;
- Providing overall guidance throughout the PCR development process;
- Submitting a project plan to all participants and communicating updates to the timeline as needed;
- Scheduling PCR Committee calls and managing responses to committee feedback;
- Soliciting and collecting public comments during a 30-day public review period for the draft PCR, ensuring it is posted online and circulated for feedback;

- Managing and responding to all comments received during the public review period;
- Recruiting independent verifiers to the PCR Review Panel;
- Ensuring a balanced mix of perspectives and competencies on the PCR Review Panel;
- Collecting and managing responses to PCR Review Panel comments;
- Revising the PCR document based on comments, providing a rationale for included or rejected feedback, and publishing updated versions as needed.
- Drafting the final PCR for publication;
- Ensuring conformance with criteria such as the 2022 American Center for Life Cycle Assessment (ACLCA) PCR Guidance and U.S. EPA Criteria for PCRs;
- Issuing conformance statements and supporting documentation for PCRs;
- Notifying stakeholders of the final outcome of the PCR development process;
- Managing the final publication of the PCR on the Smart EPD website and informing interested parties;
- Serving as the contact person for all PCR-related inquiries, including suggestions for improvement, complaints, appeals, and non-conformance issues during the PCR's validity period; and
- Alerting the PCR Committee of approaching expiration dates for existing PCRs.

4.3.2. PCR Interested Parties

Smart EPD actively involves interested parties by issuing open calls for participation during the formation of PCR committees and through an open consultation process for reviewing draft PCRs. This ensures broad stakeholder engagement in the development of PCRs. These stakeholders may include material suppliers, manufacturers, trade associations, purchasers, designers, specifiers, construction engineers, end users, consumers, NGOs, public agencies, data providers, practitioners, and, when appropriate, independent parties and certification bodies. They are invited to offer feedback to the PCR Committee on the draft PCR during its development.

4.3.3. PCR Committee

The PCR Committee is a formal group of PCR Interested Parties tasked with developing the content for a specific PCR. Committee members typically include EPD owners, LCA and EPD specialists, as well as relevant industry experts. A key responsibility of the PCR Committee is to offer product category specific expertise and ensure the inclusion of appropriate information in the EPD. To promote transparency and impartiality, all PCR Committee members must submit an application and complete a conflict-of-interest form before participating.

4.3.4. PCR Review Panel

A PCR review is conducted by an independent third-party panel consisting of at least three external experts. These experts must be independent, meaning they are not employed (full-time or part-time) by Smart EPD. The chair of the PCR review panel must also be independent of the industries producing or supplying the products covered by the product category, as well as their suppliers.

The collective expertise of the PCR review panel should encompass knowledge and proficiency in the following areas:

- Environmental aspects of products within the relevant sector;
- LCA methodology and practice;
- Applicable standards related to environmental declarations and LCA (e.g., ISO 14025:2006, ISO/TS 14027:2017, ISO 14040:2006, ISO 14044:2006, ISO/TS 14071:2014, and ISO 21930:2017);
- The regulatory framework relevant to the scope of the PCR; and
- The Smart EPD program requirements and processes.

Each member of the PCR review panel must complete a signed self-declaration of independence and demonstrate their competencies as required by the Smart EPD program.

4.4. EPD Administration

4.4.1. EPD Project Manager

The EPD Project Manager oversees the EPD creation process, which is typically carried out by EPD Owners such as manufacturers and industry consortia. Although it is not required, EPDs and the supporting LCA project reports are often prepared by an external consultant hired by the EPD Owner Organization. The EPD Project Manager facilitates the verification of the LCA study's conformance and the validity of the data through an independent verifier.

Key responsibilities of the EPD Project Manager include:

- Managing business contracts and relationships with EPD Owners;
- Acting as the technical lead for EPD creation requirements;
- Serving as a liaison to external consultants hired to conduct the LCA study and create the EPD (when applicable);
- EPD-related duties:

- Selecting and assigning an Independent Verifier to ensure the Project LCA conforms to standards and validates the data;
- Coordinating the review process between the Independent Verifier and the EPD Owner Organization/Consultant, managing comments and responses;
- Facilitating the verification of Type III environmental declarations (which may involve the Independent Verifier).

- Overseeing the collection, storage, and management of data related to PCRs, ensuring accuracy, reliability, and confidentiality;
- Cataloguing final EPDs and publishing them on the Smart EPD website;
- Distributing digitized EPD information to partner organizations;
- Tracking the progress of EPD projects and ensuring timely completion;
- Managing the annual attestation of published EPDs;
- Monitoring the validity period of published EPDs and managing de-listing when necessary; and
- Developing and maintaining an internal Standard Operating Procedure for EPD development.

4.4.2. EPD Owners

EPD Owners are organizations, such as manufacturers or industry groups, that create and publish EPDs. Their key responsibilities include:

- Taking full ownership of the EPD, including liability and responsibility for its content;
- Providing accurate, complete, and reliable data for the preparation and review of the EPD;
- Supplying all required documentation, such as the Project LCA report and any additional environmental information to be included in the EPD;
- Addressing any comments or changes requested by the Independent Verifier regarding the LCA Project report;
- Responding to feedback or requests from the EPD Project Manager throughout the EPD development process;
- Providing correct invoicing details and ensuring timely payment for the EPD project;

- Notifying the EPD Project Manager when necessary to de-list EPDs registered with Smart EPD;
- Establishing and maintaining procedures to manage the EPD during its validity period, as defined during verification;
- Properly applying the Smart EPD logo in accordance with usage guidelines and relevant legal and standard requirements;
- Ensuring ongoing compliance with standards, regulations, and guidelines related to EPDs, environmental labeling, and advertising claims; and
- Renewing the EPD as needed to maintain its validity.

4.5. Independent Verifiers

The Smart EPD Independent Verifier is responsible for conducting an independent review of the LCA project report, supporting environmental information[4], and EPDs in accordance with relevant ISO standards and applicable PCRs. Independent Verifiers may be external to Smart EPD and are independent of the EPD Owner, having no involvement in the execution of the LCA or the creation of the EPD. They must also have no conflicts of interest with either the EPD Owner or the LCA consultant associated with the development of the LCA and/or EPD, if applicable. To prevent potential conflicts of interest that may arise from EPD Owners selecting their own Independent Verifiers, the Smart EPD Project Manager is responsible for assigning Independent Verifiers to review specific LCA reports and EPDs.

Those interested in becoming Independent Verifiers for the Smart EPD Program can apply via the following form: https://forms.office.com/r/K6c8cj2Xqj. The EPD Program Manager evaluates applicants' competencies and independence, while also overseeing their activities. A list of approved Independent Verifiers under the Smart EPD Program is available at https://smartepd.com/resources#independent_verifiers.

To meet the requirements of ISO 14025:2006, clause 8.2.2 and ISO 14071, clause 5, Independent Verifiers must demonstrate competency and eligibility by fulfilling one of the following criteria:

- Be certified as an:
    - Life Cycle Assessment Certified Professional (LCACP) through the ACLCA;
    - Life Cycle Assessment Reviewer (LCAR) through the ACLCA; or

[4] Examples of supporting environmental information include documentation that substantiates reported data, such as environmental management system certifications, product test results, take-back program details, and regulatory compliance documentation, particularly for information disclosed under additional environmental information.

- A comparable certification program.

OR

- Have critically reviewed at least five (5) LCA studies within the past seven years, as documented in a curriculum vitae (CV) or other supporting materials

In addition, all Independent Verifiers must:

- Provide two letters of reference.
- Have at least five (5) years of experience conducting multi-attribute LCAs.
- Possess expertise in the relevant sector, product category, processes, and product-related environmental aspects.
- Be knowledgeable of standards including ISO 14020, 14025, 14040, 14044, 14046, 14067, 14071, 21930, and EN 15804 (if applicable).
- Maintain independence and ensure no conflicts of interest in their verification role.
- Demonstrate proficiency in the English language.
- Communicate technical information clearly and effectively to stakeholders, including EPD owners and program managers.
- Participate in periodic competence assessments, as determined by Smart EPD, to maintain qualification and ensure alignment with evolving standards and best practices.

For each project review, all Independent Verifiers must sign a self-declaration of independence and competence according to ISO/TS 14071, as required by Smart EPD.

An Independent Verifier must recuse themselves from an EPD verification project if a conflict of interest is present. Any perceived or actual conflicts of interest should be disclosed to the Smart EPD Program Manager before accepting a verification assignment. The following are examples of potential conflicts of interest, though this list is not exhaustive:

- Involvement in the LCA Study: The verifier was directly involved in conducting, modeling, or preparing the LCA study or EPD they are reviewing.
- Consulting on the LCA or EPD: The verifier has provided paid or unpaid consulting services to the company regarding the LCA study, data collection, impact assessment, or EPD development.
- Employment or Financial Ties: The verifier is currently employed by or has a financial stake (e.g., stock ownership, board membership) in the company whose EPD is under review.
- Close Personal or Professional Relationships: The verifier has a close relationship (family member, business partner, or former employer within a recent timeframe) with key personnel involved in the LCA/EPD project.

- Competing Interests: The verifier works for a competitor of the company seeking verification and could have a vested interest in the outcome.
- Previous Verification of the Same EPD Without Rotation: If the verifier has repeatedly verified the same company's EPDs without an independent review rotation, which may compromise impartiality.
- Bias Due to Prior Disputes: The verifier has been involved in legal disputes, regulatory challenges, or conflicts with the company in the past that could impact objectivity.
- Financial Dependence on the Client: If a substantial portion of the verifier's income comes from the company whose EPD is being verified, leading to a dependency that could affect impartiality.
- Providing Verification Under External Pressure: If the verifier is under pressure from the client, a trade association, or another entity to approve the EPD despite concerns about compliance or quality.

4.6. Funding for Program Development

The Smart EPD program was developed using general program funds, without reliance on a specific sponsor. The creation of PCRs is typically funded by the EPD Owners interested in producing declarations, typically at the industry association level, along with contributions from other entities. The program is funded by fees for PCR development, as well as the verification and publication of EPDs. These fees are determined on a case-by-case basis.

4.7. Review of the Program

The Smart EPD program is reviewed every two (2) years or as-needed. Review processes are initiated if there are changes in:

- National and international standards, laws or policies;
- Related PCRs, Core PCRs, and/or relevant sector standards;
- GPIs of partner Program Operators;
- Smart EPD internal policies.

All relevant changes that result from the review process will be incorporated into the new GPIs and all necessary notifications will be made regarding the changes. Changes will be posted on the Smart EPD website.

4.8. Procedures to Avoid Misuse of References to the Program and Its Logo

All applicable legal requirements for intellectual property protection are strictly enforced. Any misuse of program references or improper use of the logo (as shown in Figure 2) will be pursued and prosecuted to the fullest extent of the law.

Figure 3. Smart EPD Program Logo

4.9. Mutual Recognition of Program Operators

The Smart EPD program may support mutual recognition of program activities of other Program Operators through Memorandums of Understanding as established in ISO 14029. The mutual recognition agreements (MRA) shall establish at a minimum:

- Scope of the mutual recognition;
  - Product categories included;
  - Geographical region covered; and
  - Period of agreement.
- Licensing fee structures;
- Procedures for harmonized PCR development and publication;
- Procedures for Project LCA report conformance review and data verification; and
- Procedures for EPD verification, recognition, and/or registration and listing.

MRAs with other Program Operators are additional requirements to the rules contained in this General Program Instruction document.

At the time of publication of these GPIs, Smart EPD has an MRA with the following program(s):

- Institut Bauen und Umwelt e.V. (IBU) Environmental Product Declaration (EPD) Program

4.10. Dispute Resolution Procedures

In the event that an appeal, complaint, or dispute is submitted by an identified interested party concerning a published PCR or a registered EPD, the responsibility for addressing and resolving the issue lies with the Smart EPD Program Manager. The Program Manager will take the lead in managing the situation, ensuring that all concerns are properly evaluated and addressed in accordance with the program's guidelines and legal frameworks.

In cases where additional expertise or insight is required, the PCR Project Manager, EPD Project Manager, and the Advisory Board may be called upon to provide their support and technical guidance. This ensures a thorough and balanced approach to resolving any issues that arise, with input from key stakeholders within the program's structure.

To ensure transparency and accountability, any appeal, complaint, or dispute must be submitted to admin@smartepd.com and be accompanied by the name and affiliation of the party submitting the issue. This information is essential for establishing the legitimacy of the claim and facilitating effective communication throughout the resolution process.

Upon receiving an appeal, complaint, or dispute, the Smart EPD Program Manager will acknowledge the submission and respond within fourteen (14) days. This timely response is designed to ensure that concerns are addressed promptly and fairly, while providing clarity and resolution for all parties involved.

5. Product Category Rules Procedures

PCRs are developed through an open, transparent, and collaborative process, similar to the creation of industry standards. This ensures broad stakeholder engagement and the inclusion of diverse perspectives. Interested parties are invited to actively participate in the development process in two ways: first, through an open call for participation, where Smart EPD invites applications to serve on a PCR committee; and second, through an open consultation, which provides an opportunity to review draft PCRs, raise questions, and submit comments electronically. This open consultation promotes constructive feedback that enhances the accuracy and relevance of the final, published PCR.

The development process is overseen and facilitated by the PCR Project Manager, who acts as the independent Program Operator. Their role is to ensure that the consultation remains impartial, organized, and in alignment with established standards, while also ensuring that all contributions are thoughtfully considered and integrated where appropriate. This approach guarantees that PCR development is both rigorous and inclusive, ensuring that the final output meets the highest standards of transparency and collaboration.

5.1. Listing of Published PCRs

Smart EPD publishes all approved PCRs, along with those under review, open for consultation, drafts in progress, and calls for participation, on its website: www.smartepd.com/pcr-library.

5.2. De-listing of PCRs

Published PCRs will be de-listed under the following circumstances:

- The PCR has expired.

- The PCR is deemed unfit for registration, including (but not limited to) cases where a new PCR has been published that supersedes the existing one.

The EPD Program Administrator is responsible for managing the de-listing of PCRs.

5.3. Definition of Product Categories

The scope of the product category is determined by the PCR Committee. The product categories are defined using recognized international product category code naming conventions, the United Nations Central Product Classification (UNCPC[5]), the United Nations Standard Products and Services Code (UNSPSC) (http://www.unspsc.org/) or GS1 (http://www.gs1us.org/). When applicable, regional and industry specific classifications will be applied to the extent practicable.

While these classification systems provide a structured approach for defining product categories, they primarily categorize products based on material composition or industry sector rather than functional equivalence. This limitation can be particularly relevant for end-use products such as coatings, building elements, and insulation, where performance characteristics and application context play a critical role in defining functional equivalence. In cases where standard classification systems do not adequately reflect product function, the PCR Committee may establish additional criteria to ensure alignment with the ISO 14025 and ISO 21930 definitions of product category. This may include grouping products based on intended use, performance attributes, or application context to ensure that comparisons within the category remain meaningful and relevant.

Product classifications required for a specific industry and region are noted in the following subsection(s). Currently, this includes only the building and construction industry. Additional specific industry product classification will be added as necessary.

5.4. North American Building and Construction Industry

For the North American building and construction industry, the appropriate Construction Specifications Institute (CSI) / Constructions Specifications Canadian (CSC) classification shall be identified for the product category covered by the PCR.

https://crmservice.csinet.org/widgets/masterformat/numbersandtitles.aspx[6]

For products outside the building and construction industry, UNSPSC code(s) shall be used to identify the product category covered by the PCR.

---

[5] https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf

[6] Accessed February 13, 2025

PCRs developed for building and construction products under this program shall use the latest version of ISO 21930.

5.5. Content of PCR Document

In accordance with ISO 14025, ISO 14027, ISO 14040, ISO 14044, ISO 14020, the requirements of these GPIs, and any other applicable national and international standards, the PCR shall be developed in consideration of LCA based information and other relevant studies to identify requirements for additional environmental information.

5.6. Overview of PCR Processes

Typically, a PCR development process will begin under one of the following scenarios:

1) Creation of a new PCR,
2) Modification of an existing PCR for regional considerations and applicability; or
3) Finalization of a PCR draft;
4) Renewal of expired PCR

While other scenarios may exist, these are the most common and will be further explained for clarity below. Figure 4 outlines the decision the PCR committee needs to consider before developing a new or adapting an existing PCR.

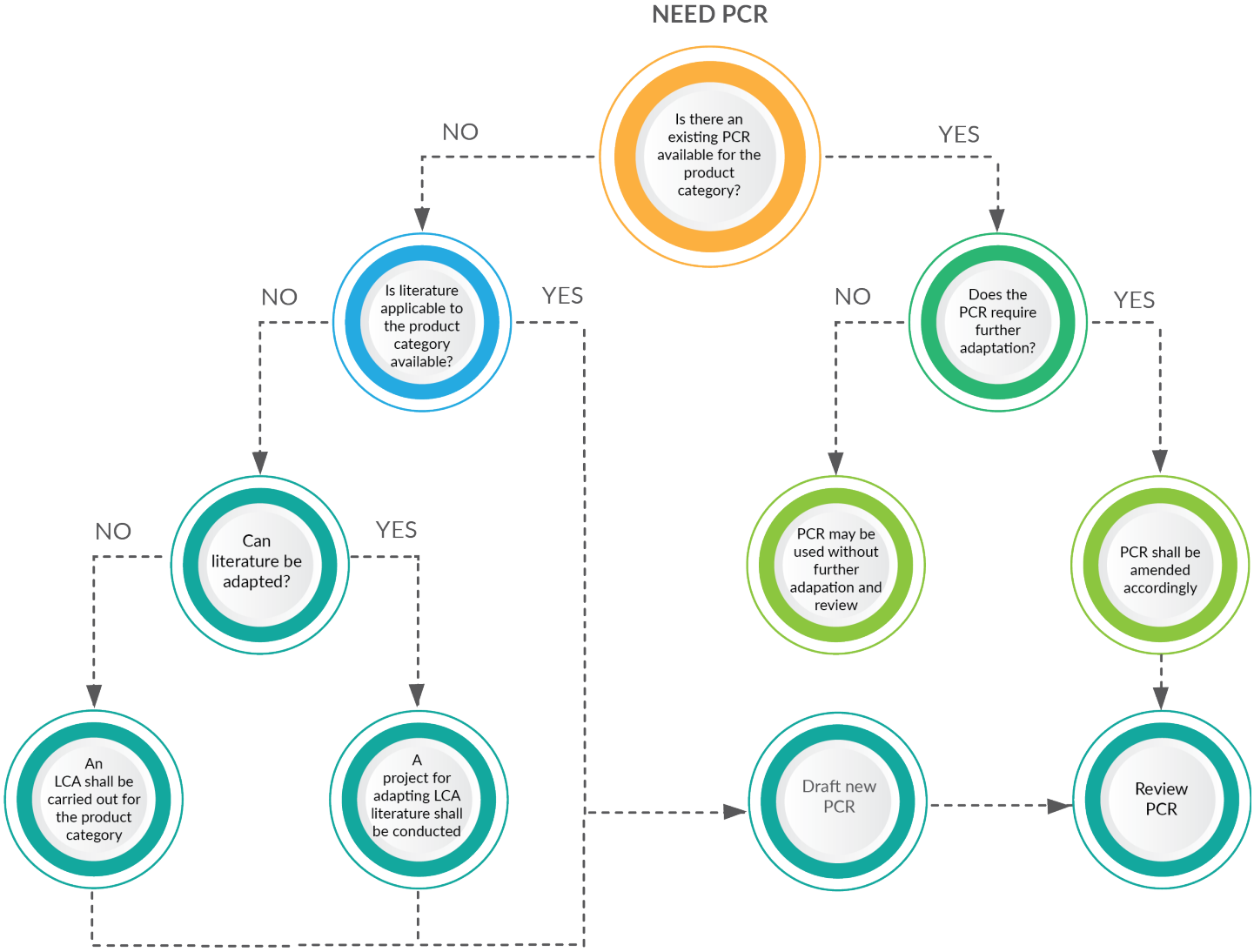

Figure 4. Flow chart to determine PCR drafting needs (adapted from Figure 1, ISO 14027)

5.6.1. PCR Development Process

The PCR development process generally involves the seven steps shown in Figure 5.

These seven steps represent a general description of the PCR development process. The Smart EPD PCR Committee Guidelines outline the development steps in detail and provide information on key topics, including the PCR committee application process,

membership structure and balance, consensus and voting procedures, the code of ethics for committee members, and the PCR consultation process (Smart EPD 2022). Although the PCR Committee Guidelines are prescriptive to the extent practicable, most PCR processes require customization in both process and content in order to meet the ever-changing needs of the marketplace.

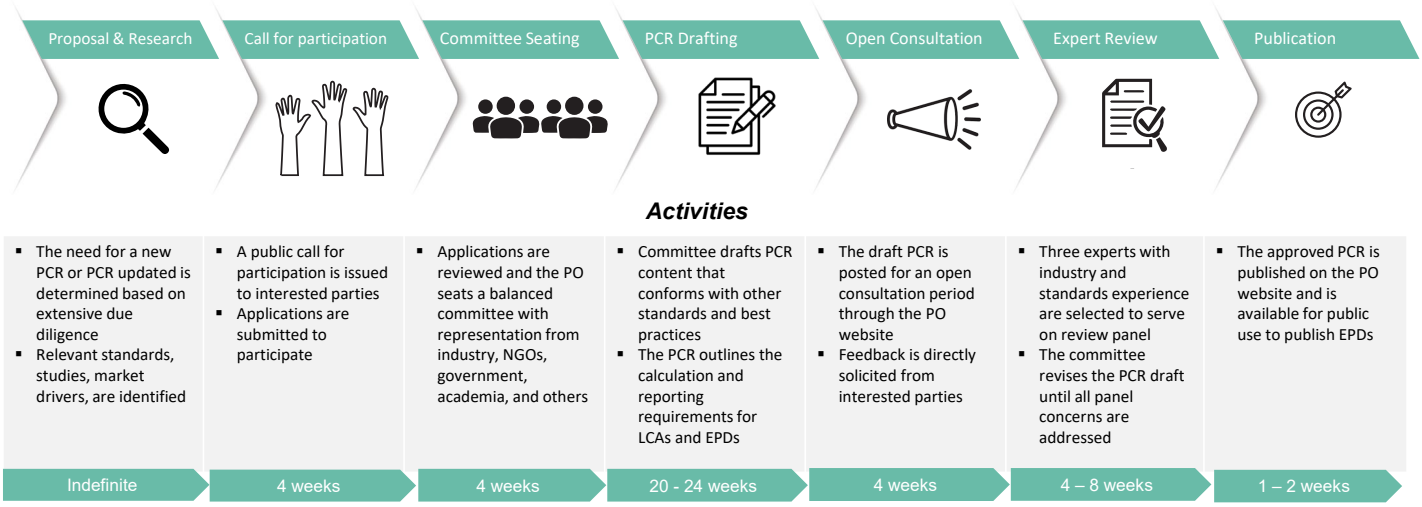

Figure 5. Basic PCR development steps

5.6.2. Creation of a New PCR

In cases where a PCR does not exist for a specific product category, Smart EPD will work closely with the client(s) to initiate a PCR development process tailored to the particular product category and situation. The development of a new PCR or the updating of an existing one under the Smart EPD Program requires one or more reference Life Cycle Assessment(s) (LCAs) that align(s) with the scope of the intended PCR. This LCA serves as a foundational element for ensuring the PCR is comprehensive and relevant.

5.6.3. Modification of an Existing PCR

EPD programs operate worldwide, and ISO 14025 and ISO 14027 encourage collaboration between these programs, particularly in leveraging existing PCRs whenever possible. Smart EPD aims to utilize existing PCRs when they are directly applicable to the specific product category. However, when regional or category differences prevent direct application, Smart EPD will collaborate with relevant parties to either modify the original PCR in cooperation with the originating Program Operator or make necessary adjustments, ensuring these modifications are publicly available in compliance with ISO 14025.

In most instances, the existing PCR remains valid under the original Program Operator for use in a different region. When regional differences drive the need for edits, Smart

EPD may either publish modifications addressing those differences or work with the original Program Operator to develop a more internationally applicable PCR, either jointly or within one specific program.

5.6.4. Finalization of a PCR Draft

In some instances, an existing working group may need support to finalize a draft PCR and formally register it under an EPD Program. In such cases, Smart EPD, as the Program Operator, will collaborate with the committee to evaluate the current status of the PCR. This assessment will include reviewing the stage of the PCR process, identifying the parties involved, assessing any overlaps with existing PCRs, and determining the outstanding requirements needed to complete and finalize the document.

5.6.5. Renewal of Expired PCR

As the Program Operator, Smart EPD will work closely with the PCR sponsor and the former PCR committee to assess the current status of the PCR. When renewing an expired PCR within the Smart EPD Program, several key steps are undertaken. First, the responsible body or committee reviews the current PCR to evaluate its continued relevance, accuracy, and alignment with the latest standards and guidelines. Smart EPD will then collaborate with the committee to implement any necessary updates or revisions, ensuring they reflect changes in industry practices, regulatory requirements, and advancements in environmental assessment methodologies.

5.6.6. PCR Updates

Each PCR developed by Smart EPD is valid for five (5) years. When a PCR expires, it will be posted on www.smartepd.com for a 30-day public comment period to gather feedback and decide on the necessity for revision. After the public comment period, the PCR Project Manager will review and synthesize the feedback, then consult with the original PCR review panel, PCR committee chair, and potentially the Smart EPD Advisory Board to evaluate any significant methodological or technical changes within the product category since the last version. If substantial changes are identified, the PCR will undergo redevelopment in accordance with the procedures outlined in Section 5.

However, updates to align the PCR with the latest General Program Instructions or address minor editorial issues will not require a new review by an independent third-party panel.

5.7. PCR Harmonization

The Smart EPD Program facilitates harmonization when developing a PCR for a product category by considering the adoption of readily available PCR documents in the same product category across all markets. While Smart EPD recognizes differing levels of content and consistency among various global Program Operators, every effort is made to regionalize and harmonize PCRs based

on the content of the existing PCR documents according to ISO 14027. Discrepancies between regional and international standards are managed by prioritizing alignment with ISO frameworks while integrating targeted modifications to accommodate regional differences. For instance, region-specific emission factors are incorporated where relevant.

PCRs developed by Program Operators other than Smart EPD may be recognized by this program for the purposes of registration of EPDs if the following minimum requirements are met:

- The Program Operator has in place valid GPIs that meet the requirements of ISO 14025 and do not contradict or conflict with Smart EPD's GPIs;
- The applicable PCR has been determined to conform to ISO 14025 per the development and review requirements of ISO 14025, ISO 14027, ISO 14044 and ISO 14071, as well as other relevant sector-specific standards (e.g., International Electrotechnical Commissions (IEC)) or guidelines (e.g., U.S. EPA Guidance on Low Embodied Carbon Construction Materials))

Process for Recognition of External PCRs

- **Initiation of Review**: Recognition of an external PCR may be initiated by an EPD Owner seeking to use an external PCR, a Program Operator requesting recognition of their PCR, or Smart EPD itself as part of efforts to harmonize PCRs across markets.
- **Preliminary Evaluation**: Smart EPD conducts an initial review to assess whether the external PCR aligns with Smart EPD's GPIs, ISO 14025, and other relevant standards. This includes evaluating the PCR development process, stakeholder involvement, and methodological consistency.
- **Technical Review**: An assessment is performed by Smart EPD technical experts, considering alignment with ISO 14027 and ISO 14029 principles for PCR development and conformity assessment. This may include evaluating life cycle stages covered, data quality requirements, and impact assessment methodologies.
- **Stakeholder Consultation**: Where necessary, Smart EPD may engage relevant stakeholders, including industry experts and LCA practitioners, to verify that the external PCR meets best practices and sectoral needs.
- **Decision**: Based on the evaluation, Smart EPD makes a decision on whether to formally recognize the external PCR.
- **Ongoing Monitoring**: Recognized PCRs may be subject to periodic review to ensure continued alignment with evolving standards and best practices. If a recognized PCR is updated or revised, Smart EPD may require re-evaluation before continued recognition.

Recognition of c-PCRs from Other Operators

Complementary PCR (c-PCR), or subcategory PCR, from other Program Operators may also be recognized through a similar process. Given the role of c-PCRs in defining common methodology across multiple product categories, Smart EPD may adapt c-PCRs published under a different program for use with the Smart EPD Part A PCR. This adaptation follows the principles outlined in

ISO/TS 14029:2022, clause 8.3 (PCR harmonization) and ISO/TS 14027:2017, clause 6.4.3 (Adaptation of existing PCR).

5.8. PCR Hierarchy

To promote uniformity in the development of PCRs for EPDs, a Part A PCR may be developed or leveraged for a given product sector that provides general rules and guidance across a range of products. For example, ISO 21930:2017 establishes uniform core requirements for building and construction products that shall be further clarified by a Part A PCR and sub-category Part B PCRs. Elements of a Part A PCR considered to remain constant are:

1. The methodological framework:
    - definition of system boundaries (e.g. assignment of processes to modules);
    - requirements for averaging
    - additional technical information (as basis for scenarios);
    - allocation methods
    - criteria for cut off;
    - selection of data;
    - data quality requirements;
    - units (functional and declared);
    - requirements for comparability.
2. Inventory analysis:
    - data collection requirements;
    - inventory calculation rules (i.e. allocation of flows to processes);
    - treatment of biogenic carbon;
    - data quality requirements.
3. Impact assessment:
    - definition and specification of characterization factors and impact assessment methods.
4. Content of EPD:
    - demonstration of verification;
    - declaration of general information;
    - declaration of the methodological framework by reference to the international standards used;
    - declaration of product specifications, material composition;
    - declaration of software, data sources, and data quality;
    - declaration of scenarios;
    - declaration of environmental parameters derived from LCA;
        - declaration of LCA results from life cycle impact assessment;
        - declaration of LCA results from life cycle inventory.
    - declaration of environmental information not derived from LCA;
    - declaration of additional information.

5. Communication formats: e.g. OpenEPD ;
6. Exclusions and Limitations of the PCR ;
7. Content of LCA Project Report;
8. Verification procedures.

5.9. PCR Availability

Once approved by the review panel, Smart EPD publishes the final PCR as per described in Section 4.6. The comments and recommendations gathered through open consultation are to be made publicly available upon request.

Each Smart EPD developed PCR shall, at a maximum, have a validity time of five (5) years to allow to provide market stability. Within four (4) months of the expiration of the period of validity, Smart EPD will initiate a discussion with interested parties on how to extend the period of validity and/or update the applicable PCR.

5.10. Monitoring Changes in Related EPD Programs

Smart EPD keeps updated information about Product PCRs and is harmonized with related EPD programs. The intention is to ensure that EPDs of the same product category from different programs are comparable and consistent. PCRs from the same product category but different programs are considered to be aligned when it improves comparability and consistency without compromising the quality of the EPD. Smart EPD encourages exchanges with other Program Operators to align and harmonize common elements between PCRs from different product categories.

6. Environmental Product Declaration Procedures

6.1. EPD Development Process

The process of creating and registering an EPD involves several steps, facilitated by Smart EPD through its web platform at www.smartepd.com. As shown in Figure 6, the process begins with a search for an applicable PCR, which is confirmed by the EPD Project Manager. If no relevant PCR is found, it is recommended that a new PCR be developed and reviewed by an expert panel, in accordance with ISO 14025:2006, clause 5.6.1. The Smart EPD web platform provides a guided workflow, enabling users to connect to pre-verified LCA/EPD tools, create EPD projects, upload and verify LCA Project Reports, generate digital EPDs, verify them, and proceed to publication and digital distribution.

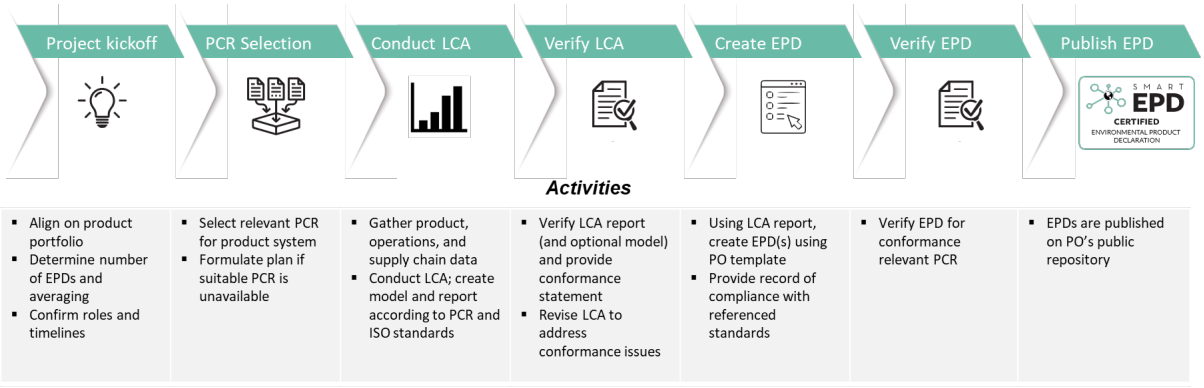

Figure 6. EPD Registration and Publication Process

Once an applicable PCR has been identified, or a new PCR is developed if necessary, the EPD Owner must conduct or commission an LCA Project Report. This must be in accordance with the relevant PCR, ISO 14025, ISO 14040, ISO 14044, and any applicable regional, national, or international standards. At any stage during the LCA process, the EPD Owner may create an EPD project on the Smart EPD platform and select the corresponding PCR. If the necessary PCR is unavailable, the EPD Owner or their consultant should contact Smart EPD at support@smartepd.com to initiate the development of a PCR-specific EPD template.

All LCA and EPD verification, as well as EPD publication activities, must be conducted through the Smart EPD web platform.

Once the LCA project report and supporting documentation[7] are completed, the EPD Owner or their consultant must upload these materials to the Smart EPD platform. The Program Operator will assign an Independent Verifier to review the LCA, Life Cycle Inventory (LCI) modules, and additional environmental information in accordance with ISO 14025:2006, clause 8.1.3. The assigned verifier will communicate with the EPD Owner and/or their consultant, providing feedback and comments directly on the Smart EPD platform. It is the responsibility of the EPD Owner and/or consultant to monitor and respond to communications through the platform.

Integration of LCA models with the Smart EPD platform is available, allowing access to and verification of the LCA model or tool used to generate EPD results. Refer to Section 6.12 for more details.

Before LCA deliverables are verified, users can access the PCR-specific digital EPD template via the Smart EPD platform to create draft EPDs for each project. Draft EPDs can only be submitted for verification after the Independent Verifier has marked the LCA deliverables as verified.

[7] See footnote 4.

The Independent Verifier or EPD Project Manager will then review the draft EPD(s), including any additional environmental claims, as per ISO 14025:2006, clause 8.1.4. Once the EPD verification is complete, the EPD will be registered and published under the Smart EPD Program. EPDs can also be shared digitally with other tools that utilize EPD data.

If the EPD is to be recognized or registered with a program outside of the Smart EPD Program, it must comply with the mutually agreed requirements outlined in Section 4.9 of these GPIs.

6.2. EPD Content and Format

The content required for an EPD is determined by the applicable Product Category Rule (PCR) and these GPIs. EPD Owners must use the Smart EPD platform's PCR-specific EPD template, which complies with both the reference PCR and these GPIs. If the template includes additional fields not specified in the PCR, data must still be provided unless a reasonable justification is offered.

An EPD may cover a single product or a group of products, provided that each product is uniquely identified and the impact results between product variations do not differ by more than 10% for the global warming potential (GWP) impact category. Smart EPD, with its digital interface, encourages the creation of high volumes of unique EPDs within a product family. For example, a base model carpet tile available in different yarn weights should have separate EPDs for each variation.

EPD Owners may also develop an industry average EPD, which reflects the environmental performance of multiple products within the same industry sector. The method used to determine the representative product system must be clearly described in both the LCA project report and the EPD. Additionally, the supporting LCA project report must include descriptive statistics — i.e. sample size, mean, median, standard deviation, quintile distribution, level of confidence (including margin of error), and confidence interval for the declared LCIA environmental impact indicator results (calculated on the basis of individual plants), or other statistical methods, such as Monte Carlo Uncertainty Analysis based on [min max] range data. Additionally, EPD results and statistics shall be calculated based on a weighted average according to production volumes of the included products.

An EPD shall contain the following information:

- Cover Page (See Section 6.2.1)
- General Information
    - EPD Owner Name and Contact Information
    - Product Name
    - Product Image
    - Declared Scope of EPD
    - Markets of Applicability
- PCR and Reference Standards

- Verification Information
- Limitations, Liability, and Ownership
- Organization Information
- Product Information and Methodological Framework
    - Declared or Functional Unit
    - Reference Service Life
    - Product Specifications
    - Product Material and Component Information
- EPD Representativeness
- Manufacturing Information
- Software, Data Sources and Data Quality
- Technical Information and Scenarios (if relevant)
- Declared LCIA and LCI Results
- Interpretation
- Additional Environmental Information
- Further Information (see Section 6.2.2)
- References

6.2.1. Cover Page

The EPD may optionally include a custom designed cover page to replace the cover page generated by the Smart EPD Platform. If a custom design is included, it shall contain the following:

- The following text: “Environmental Product Declaration in accordance with [relevant standards]”
- Product name and product image
- EPD owner name and logo
- EPD Program Name: Smart EPD® Program
- Smart EPD logo (provided upon request through admin@smartepd.com)
- Statement: Refer to the EPD Library at www.smartepd.com for the latest EPD listing information.

6.2.2. Further Information

This section may contain information on topics such as EPD Optimization, covered under the LEED Materials and Resources (MR) category, Option 2: Multi-Attribute Optimization.

6.3. Third Party Independent Verification

6.3.1. LCA Report and Supporting Data

The procedure for third party independent verification of the data from the project LCA, LCI, information modules and additional environmental information shall be done to confirm at a minimum the requirements outlined in ISO 14025 (Sec. 8.1.3) and ISO 14071

have been met. In the case of carbon and water footprints, the report shall be verified to conform to the requirements of ISO 14067 or 14046, at a minimum.

The verification of data is to be conducted by an Independent Verifier contracted by Smart EPD (see Section 4.5). The independence and competence of the verifier shall meet the minimum requirements outlined in ISO 14025:2006, clauses 8.2.1 and 8.2.2, and not be financially dependent on either the EPD Owner or LCA Consultant completing the LCA. See Section 4.5 of this document for additional reviewer requirements.

See Section 6.11 for additional requirements on pre-verified LCA/EPD Generator Tools.

6.3.2. EPD Content

The independent verification process of an EPD shall be conducted per ISO 14025 (Sec. 8.1.4) and ISO 14071 to determine conformance with:

- ISO 14020 and the relevant requirements of ISO 14025;
- These General Program Instructions; and
- The current and relevant PCR.

The verification of the EPD is to be conducted by a qualified independent verifier (see Section 4.5). The independence and competence of the verifier shall meet the minimum requirements outlined in Section 4.5 of this document as well as ISO 14025, clauses 8.2.1 and 8.2.2.

6.4. Prospective EPDs

Smart EPD allows for the provisional publication of prospective EPDs, referred to as "Prospective EPDs," under its program. Prospective EPDs are intended for products that are either newly launched or pre-commercial, where full-scale production data (12 months or more) is not yet available. These EPDs provide an early indication of a product's potential environmental impacts based on limited data, such as pilot or lab-scale information, modeled data, or prototype testing. Due to the limited data available, Provisional EPDs require explicit approval, and each request is considered on a case-by-case basis by Smart EPD. Factors such as available pilot or lab-scale data, modeled data, prototype data, and the specific technology are taken into account.

Below are the specific requirements for Prospective EPDs under the Smart EPD program:

- Prospective EPDs are designed for products that are either newly launched or pre-commercial.
- Prospective EPDs apply to products where 12 months of production data is not yet available.
- Prospective EPDs are valid for a maximum of one year and must be reviewed and updated with actual production data within three (3) months of its availability.

- A Prospective EPD must clearly indicate the following:
    - Its status as a “Prospective EPD”
    - The key differences between provisional and standard EPDs to ensure appropriate application.
    - The variability and uncertainty associated with the limited data set used. For example, "Environmental impacts are based on prototype data and are subject to variability of ±20%. Actual impacts may differ due to variations in materials, manufacturing processes, and regional factors. This information is provided for reference only and does not constitute a guarantee of specific environmental performance."
    - Statement that “Prospective EPDs are in accordance with ISO 14025 [and ISO 21930:2017 or European Standard (EN) 15804+A2].”

6.5. Listing of Registered EPDs

Smart EPD provides access to all registered EPDs on its website through its EPD Library: www.smartepd.com

EPDs are stored as digital records but may be exported as a PDF if a downloadable or printable version is needed.

The Smart EPD Library provides search capabilities by Product Category, Manufacturer/Brand, type of EPD, and other parameters.

6.6. Sharing Registered EPD Data with Partners

Once an EPD is published, Smart EPD will only share digital EPD records with its digital partners via API if requested by the client. The EPD library maintained by Smart EPD serves as the origination source for all EPDs that are publicly shared.

6.7. Registering and Updating Verified EPDs

Smart EPD maintains a publicly available list of all verified EPDs published by the organizations within this program. The verified and registered EPDs are accessible per the requirements of Section 6.4 of these GPIs.

The EPD Owner is responsible for notifying Smart EPD of any requested changes to the declaration and providing proper documentation for the verification with the new relevant requirements or when there is a change in the product that results in a greater than 10% change in the LCA study. The EPD Project Manager will publish the updated declaration.

Smart EPD conducts an annual review of all EPDs in its EPD Library by contacting EPD Owners prior to the anniversary of their EPD's publication. This process helps EPD Owners assess any changes

in their operations or supply chain that may lead to material changes in the information declared in their EPDs.

During the annual review process, EPD Owners must confirm via written attestation from a C-level executive that the purchase and allocation of EACs, proportional to production volume, corresponds to the amounts and approach used to allocate the EACs in the published EPD.

6.8. Non-Conformance and Potential Deregistration of EPDs

Smart EPD is committed to maintaining the integrity and credibility of EPDs. If an EPD is found to be non-conforming with the relevant standards, it may be subject to review, corrective action, or deregistration. To ensure transparency and accountability, Smart EPD has established a process for identifying, investigating, and resolving potential non-conformance issues.

Concerns about EPD non-conformance may be raised by any party — industry stakeholders, competitors, third-party verifiers, program operators, LCA practitioners, regulatory bodies, or the general public. Smart EPD provides a dedicated non-conformance reporting mechanism, allowing concerns to be submitted either anonymously or with full disclosure. Reports can be submitted via an online form on the Smart EPD website or email submission to the Smart EPD Administrator at admin@smartepd.com. Reports should include the following:

- EPD name and registration number
- A description of the potential non-conformance
- Supporting evidence (e.g., discrepancies in reported data, inconsistencies with PCR requirements), and
- Whether the submitter wishes to remain anonymous

Upon receiving a report, Smart EPD will conduct a preliminary review within 30 days to determine whether the concern is valid and requires further investigation. If further review is warranted, Smart EPD will notify the EPD Owner and independent verifier of the concern and request clarifications or supporting documentation. The investigation will assess whether the issue stems from calculation errors, misinterpretation of PCR requirements, or intentional misrepresentation.

If a minor discrepancy is identified, such as a clerical error or minor inconsistency, the EPD Owner may be given an opportunity to correct and resubmit the EPD within a defined timeframe (e.g., 60 days). However, if a significant non-conformance is confirmed — such as incorrect LCA assumptions, misrepresentation of environmental impacts, or failure to meet PCR requirements — Smart EPD may suspend the EPD's registration until corrective action is taken. In such cases, Smart EPD may require formal revision and re-verification of the EPD. If non-conformance is not resolved within the designated timeframe, deregistration may proceed.

In the event of deregistration, Smart EPD will issue a formal notice to the EPD Owner and independent verifier, remove the EPD from its database and public listings, and notify relevant

stakeholders. The EPD Owner may submit a formal appeal within 30 days if they believe the decision was made in error. Appeals will be reviewed by an independent panel appointed by Smart EPD.

To promote continuous improvement and transparency, Smart EPD maintains a record of deregistered EPDs and may publish aggregated, anonymized reports on trends in non-conformance to support best practices in PCR compliance. Additionally, periodic audits of published EPDs may be conducted to proactively identify potential non-conformance issues and uphold the program's credibility.

The deregistration of published EPDs will occur under the following conditions:

- The EPD has expired.
- The EPD is deemed unfit for registration, which may include, but is not limited to:
    - The registration of a new EPD that supersedes the existing one;
    - Non-conformance with the relevant published PCR;
    - Issues with data validity related to the registered EPD.

The EPD Project Manager, in coordination with the PCR Project Manager, is responsible for overseeing the deregistration of EPDs.

6.9. Management of Data and Documentation

Smart EPD manages all data and documentation in accordance with its comprehensive document control procedures. These procedures ensure that all records, including EPDs, supporting documentation, and related data, are securely maintained, accurately tracked, and regularly updated. The document control process is designed to ensure compliance with industry standards, including ISO 14025, and includes strict version control, audit trails, and access management. Smart EPD ensures that only authorized personnel can modify or access sensitive information, and all changes to documents are logged and reviewed to maintain data integrity. Additionally, regular audits are conducted to verify that all documentation remains current and reflects any updates or changes made during the EPD lifecycle.

6.10. Data Confidentiality Management

During the development and verification of PCRs and EPDs, all LCA data and LCI information included in supporting project reports is treated as confidential. Any additional data or information provided by EPD Owners or other stakeholders will also be safeguarded under strict confidentiality protocols. The only exceptions to this confidentiality are cases where specific data or information is required to be publicly disclosed within the EPD, as mandated by the applicable PCR. Smart EPD is committed to maintaining the highest standards of data security and privacy, ensuring that sensitive information is protected throughout the verification and publication process.

6.11. Additional Requirements for Business-to-Consumer Communication

EPDs developed for the purpose of B2C communication must meet the requirements of ISO 14025 (Sec. 9). Key requirements include:

- Justification of any omissions of life cycle stages;
- Availability at the point of purchase;
- Involvement of interested parties that include representatives of consumer interests and environmental interests.

6.12. Pre-Verified EPD Tools

Smart EPD facilitates the use of pre-verified EPD Tools, simplifying the process of generating large volumes of EPDs efficiently. Since verifiers do not need to recheck conformance for already verified EPD Tools, the process becomes faster and more consistent. Companies aiming to produce EPDs at scale can work with Smart EPD to pre-verify their EPD Tools. Smart EPD pre-verifies EPD Tools to ensure compliance with ISO standards and PCRs, data integrity, and methodological consistency. This process consists of multiple verification steps, including platform verification, EPD Tool verification, representative EPD verification, and subsequent EPD verification. Figure 7 outlines the required levels of conformity assessment for using EPD Tools to generate and publish EPDs under the Smart EPD Program.

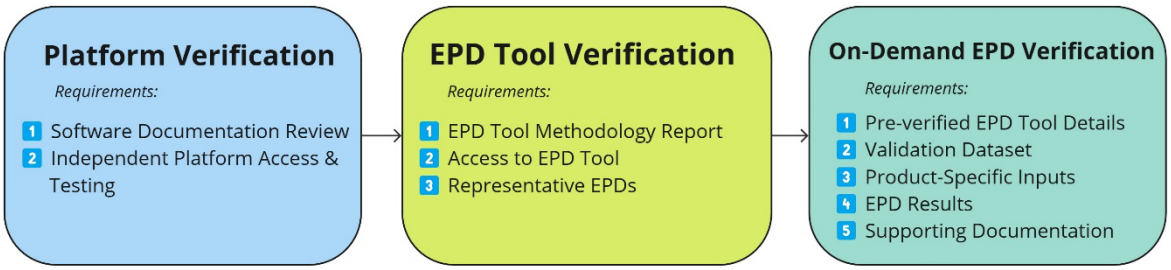

Figure 7. Required elements for publication of EPDs using pre-verified EPD Tools

6.12.1. Platform Pre-Verification

Smart EPD supports the use of pre-verified software tools designed to streamline the EPD creation and verification process while ensuring data integrity and preventing unauthorized modifications. To maintain trust and transparency, these tools undergo verification based on modern software as a service (SaaS) development and include documentation review, direct platform testing, and compliance checks, ensuring adherence to software validation, data security, and LCA methodological standards. Platform pre-verification may be conducted in tandem with EPD Tool verification, which is discussed in Section 6.12.2.

Pre-verification is required for platforms, except for well-established, commercially recognized LCA software such as LCA for Experts (sphera), SimaPro (PRé Sustainability), openLCA (Green Delta), and Umberto (iPoint group). The Smart EPD Program Administrator retains the discretion to independently determine whether the pre-verification step is required for LCA platforms.

Platforms seeking pre-verification must provide and/or demonstrate the following.

- Software testing and Quality Assurance (QA) documentation
    - Release Test Log: A documented record of test results, issues identified, and resolution status for each release.
    - Release Test Plan with UAT and QA Testing: A structured testing approach that includes User Acceptance Testing (UAT) and Quality Assurance (QA) testing to validate functionality and performance.
    - Testing Development Strategy: A detailed plan outlining unit testing methodologies, including specific examples of how key calculations, data imports, and EPD outputs are tested for accuracy.
- Conformance with modern software assurance standards
    - Verification will assess how organizations integrate key software quality attributes from e.g. ISO/IEC 25010 (Software Product Quality), ISO/IEC 27001 (Information Security Management), OWASP Software Assurance Maturity Model (SAMM), and other relevant best practices for software validation and security into their development lifecycle. Full adherence to these standards is not mandatory, but the verification process will evaluate the extent to which these principles are applied to ensure software reliability, security, and maintainability.
    - Implementation of immutable data storage, cryptographic signing, audit logs, and access controls to prevent unauthorized data modification.
- Access to platform for independent testing
    - Smart EPD requires direct access to the platform to conduct independent testing of unit process and elementary flows, data integrity measures, and reporting functionality.
    - Platform testing may include manual and automated verification of data handling, compliance with impact assessment methodologies, and adherence to Smart EPD's GPIs.

6.12.2. EPD Tool Pre-Verification

The purpose of the EPD Tool verification is to ensure the tool works as intended, conforms with underlying ISO standards, and that the model(s) created in the platform 1) meet the requirements specified in the referenced Product Category Rules (more than one may apply), 2) provide consistent and reproduceable calculations, 3) have

correct data parameterization, 4) address data quality considerations, 5) demonstrate methodological consistency, and 6) supporting reporting and export functionalities.

EPD Tools use configurable parameters to select, adjust, and scale background Life Cycle Inventory (LCI) data, representing product-specific attributes such as bills of materials, manufacturing energy inputs, and transportation modes and distances. These parameters allow the tool to generate EPD results tailored to a specific product while maintaining consistency with a predefined model structure and background data. While a user can modify parameter values, the underlying model and background data cannot be changed.

As part of the verification process, an EPD Tool Methodology Report shall be submitted. The report shall describe the model structure, all configurable parameters, flow of input data, calculation methodologies and embedded assumptions, background datasets and sources, data quality assessment procedures, impact categories, and impact assessment methodologies. This generic EPD Tool Methodology Report serves as documentation of the static elements the EPD Tool and how they interact with dynamic user inputs. Additionally, access to the platform in which the EPD Tool was created shall be provided as part of the verification.

When an EPD Tool is submitted for verification, it must be accompanied by one or more representative EPDs, which will be used to test the EPD Tool's model performance and outputs. For additional details, see Section 6.12.3.

Note: An EPD Tool Methodology Report may or may not be client specific.

Note: Evidence must be provided that an EPD Tool may be locked to prevent modifications to the model structure and static elements once verified, while still allowing for dynamic data entry in designated parameterized fields.

Note: A validation dataset containing reference model inputs and outputs must be developed to ensure model integrity and facilitate testing against future EPD results.

6.12.3. Representative EPD Verification

Verification of representative EPD(s) or "pilot" EPDs generated from an EPD Tool involves assessing the dynamic inputs used in the tool as a case study to test the model's functionality, plausibility and representativeness of input foreground data,

fulfilment of other PCR reporting requirements, including additional environmental information

Representative EPDs will be determined with the Smart EPD Program Manager based on e.g. individual plants or product families. It is critical to select representative EPDs to test the edge cases of products that can be created using the EPD tool. Representative product EPDs generated from the EPD tool shall undergo a full verification according to Section 6.3.2.

In addition, the output of this step provides a pre-verified EPD template(s) that delineates between pre-approved static information and information which is dynamically generate by the pre-verified EPD tool upon each EPD iteration.

6.12.4. Subsequent EPD Verification

After completing the verification of a representative EPD, a pre-verified EPD Tool may be used to generate on-demand EPDs. However, each time an EPD is submitted for verification using a pre-verified model, the following documentation must be provided:

1. Name, version number, and validity period of pre-verified EPD Tool
2. A validation dataset of reference LCI inputs LCI/LCIA outputs
3. The specific data entered into the pre-verified EPD tool for the product under verification
4. The final EPD outputs generated from the pre-verified tool.
5. Any other necessary product-specific data, calculations or documentation required to complete the verification process (e.g. plant location).

> **Note**: Smart EPD employs advanced analytical techniques to enhance efficiency and consistency in the EPD verification process, particularly for high-volume verifications.

6.12.5. Handling Non-Conformities

In case of non-conformities, EPD Tool owners must manage the deviations according to internal procedures. Corrective actions are classified as minor or significant, depending on the impact on EPD quality.

6.12.6. Application for EPD Tool Verification

EPD Tool owners must apply for verification and/or the use of pre-verified EPD tools to the Smart EPD Administrator at admin@smartepd.com. Applications to use pre-verified EPD Tools must include the EPD Tool Methodology verification report and at least one representative product EPD verification report.

6.12.7. EPD Tool Validity and PCR Coverage

Pre-verified EPD Tools are generally valid for a single PCR but may cover multiple PCRs, each with a defined version number. The EPD Tool's validity generally aligns with the PCR's validity period, with a maximum duration of five years. If an EPD Tool covers multiple PCRs, it must be re-verified according to the PCR with the latest expiration date. For EPD Tools covering subcategories of products, the scope must be clearly defined using relevant classification systems.

The EPD Tool's validity period shall be provided when used to generate EPDs.

6.12.8. EPD Tool Registration

For registration in the Smart EPD system, tool owners must submit all relevant documentation, including verification reports, to the Smart EPD Administrator.

6.12.8. EPD Tool Updates

Pre-verified EPD Tools may require periodic updates to maintain data accuracy, reflect regulatory changes, or incorporate new operational datasets. EPD Tool Owners are responsible for maintaining a detailed change log and ensuring updates do not compromise the integrity of verified models.

The ability to update an EPD Tool depends on the type of modification:

- Non-material updates (e.g., annual background dataset refreshes, minor operational adjustments) can be made without unlocking the model. These do not require independent review but must be logged.
- Material updates (e.g., changes to allocation methods, new product categories, or background dataset substitutions) require discussion with Smart EPD and may trigger re-verification. These updates require unlocking the model for modification.

To ensure transparency, a structured change log template will be provided to document all updates and prevent unintended consequences.

6.12.8.1. Change Classification

Changes that DO NOT require independent review but MUST be logged:

- Routine operational dataset updates anticipated in the initial model design
- LCI database updates that do not alter the core model structure
- Bill of material (BOM) adjustments that use existing background datasets

- Plant additions or removals (if the original model accounts for variability)
- Impact assessment method updates (if aligned with PCR updates)

Changes that REQUIRE discussion with Smart EPD and MAY trigger re-verification:

- Significant modeling changes (e.g., a new allocation method, fundamental parameterization changes)
- Additional product categories that introduce substantial variability
- PCR updates that significantly impact modeling assumptions
- Major supplier shifts requiring new background datasets or material modelling approaches
- Any changes resulting in a >10% impact variation in a single update OR >15% cumulative impact variation over multiple updates within a 12-month period

Clarification on Impact Change Thresholds: The ">10% impact variation" refers to a change in the reported environmental impacts of EPDs already published using the pre-verified tool. If an update to the model causes an increase or decrease greater than 10% in any impact category for an existing EPD, with the exception of Ozone Depletion Potential, it must be reviewed to ensure the EPD Tool still produces valid, representative results.

- If the EPD Tool update affects how products are modeled at a fundamental level (e.g., a new BOM structure, facility-level changes that impact allocation), reverification of the EPD Tool is required as is republication of existing EPDs using the updated EPD Tool within a 12-month period.

- If the EPD Tool update is part of an expected routine (e.g., new datasets that do not change fundamental modeling logic), it may proceed without re-verification, provided the impact remains below the defined threshold. It is expected that all previously published EPDs will be republished using the new version of the EPD Tool.

All significant changes must be discussed with Smart EPD before implementation. If Smart EPD determines that re-verification is required, the model will be reviewed by the original independent verifier (or a designated replacement).

The scope of re-verification determines the associated costs, which will be quoted accordingly.

6.12.8.2. Change Log Requirements

All changes — regardless of classification — shall be tracked in the Smart EPD Change Log, which must include:

- Type of change(s)
- Detailed description of the change
- Date of implementation (physical and/or model update)
- Impacted product families and SKUs
- Estimated magnitude of percent change (if applicable)
- Model version number

The model owner must update the change log immediately after making modifications and notify Smart EPD within one week of any logged updates. Only verified EPD tool versions may be used for EPD development. Tool versions must be archived for the validity period of the last EPD created using the tool.

6.12.9. Public API

The Smart EPD application programming interface (API) allows for seamless integration between pre-verified LCA tools and the Smart EPD platform, enabling users to streamline the process of generating and publishing EPDs. An API facilitates communication between different software systems, allowing them to exchange data and automate tasks. By using the Smart EPD API, users can efficiently submit data from LCA tools, verify it, and create EPDs without manually entering information into the platform.

To access and use the API, users must have an active account on the Smart EPD platform. The API enables users to generate digital EPDs directly from LCA tools that have been pre-verified, ensuring data integrity and consistency with the applicable PCRs.

A full list of available API endpoints, along with detailed documentation, is available upon request from the Smart EPD Administrator. Each endpoint includes a description of its purpose and a complete object schema outlining the required inputs and outputs.

To obtain an API key for accessing the Smart EPD API, follow these steps:

1. Log in to your Smart EPD platform account.
2. Click on Account Settings in the upper right corner under your name.
3. Navigate to the Development tab.
4. Click the Request API Key button. The generated key will appear in the input field.

The API key is essential for using the public Smart EPD API, as it authenticates your access and ensures secure communication between your LCA tool(s) and the Smart EPD platform.

ANNEX

LIFE CYCLE ASSESSMENT RULES

A.1 MASS BALANCE APPROACHES

Mass balance approaches (MBAs) are occasionally used in Life Cycle Assessment (LCA) to virtually attribute recycled, renewable, biobased, or other content claims to products. However, MBAs operate at the organizational level (e.g., integrated chemical production systems) rather than at the individual product level. These approaches use allocation calculations and mass balance criteria that do not reflect a direct physical relationship between input resources and the final product's composition.

With an MBA, a product may be labeled as recycled, renewable, or biobased even if these raw materials are not physically present in the product itself. Due to this disconnect, the Smart EPD Program currently does not recognize MBAs as compliant with ISO 21930 and related standards, and they shall not be used in EPDs published under Smart EPD.

However, if MBAs are further refined, as in ISO/AWI 14077[8] and ISO/DIS 13662[9] specific exemptions may be permitted in PCR provided they do not violate applicable standards such as ISO 21930. Any such exemption must be justified and formally approved during the PCR development process.

> **Note:** MBA approaches are different than identity-preserved, segregated, and controlled blending models, which are the strictest form of CoC. In identity-preserved, segregated models, certified materials remain completely traceable and unchanged from final source to final product. Each unit of material is sourced, processed, and sold without mixing with non-certified materials.
>
> In controlled blending models, certified materials are blended with non-certified materials, but the exact proportion of certified content is controlled and verified. This allows for partial use of certified inputs and ensures a minimum percentage of certified material in the final product. For example, a paper manufacturer mixes 30% FSC-certified fiber with 70% conventional fiber and shall only claim 30% FSC certification on the product. While this method is less strict than segregated or identity-preserved models, it is more transparent than MBA.

> **Note:** The MBA restrictions apply not only to the main product being assessed but also to materials and products used within the product system.

[8] ISO/AWI 14077 - Environmental management — Life cycle assessment — Requirements and guidelines for application of Chain of Custody (CoC) approaches in Life Cycle Assessment (in development as of February 2025)

[9] ISO/DIS 13662 - Chain of Custody – Mass balance – Requirements and Guidelines (in development as of February 2025)