



# General Programme Instructions (GPI) – Circular Ecology EPD Programme

Version 1.0

Date: December 2025

## Version Control

| Version Reference | Date     | Description of Changes  |
|-------------------|----------|---|
| <b>V1.0 Draft</b> | Sep 2025 | Initial iteration of General Programme Instructions for public consultation |
| <b>V1.0</b>       | Dec 2025 | First published version, updated to reflect consultation feedback           |

# Definitions

*See also the definitions within the applicable core PCRs, EN 15804:2012+A2:2019 and ISO 21930:2017.*

## **Biogenic carbon**

Carbon that is absorbed, stored, emitted, or released by materials of biological origin within their life cycle. Examples include carbon contained in wood, natural fibres, agricultural residues, or other bio-based products.

## **Capital goods**

Physical assets used in the production of other goods and services, such as buildings, infrastructure, machinery and equipment.

## **Carbon offsetting**

Mechanism for compensation for all or part of the carbon footprint through the prevention, reduction or removal of an amount of greenhouse gas emissions in a process outside of the product system under study. [adapted from ISO 14050:2020]

## **Complementary PCR (c-PCR)**

A specific set of rules that complements a core PCR by providing additional methodological requirements for a defined category of products or materials (e.g. cement, asphalt, insulation).

## **Core calculation method**

The core LCA calculation method that is applied as the base LCA method. Examples include EN15804:2012+A2:2019, ISO 21930:2017.

## **Cut off rule**

Criteria for excluding inputs and outputs from the system boundary.

## **Declared unit**

Quantity of a product for use as a reference unit in an EPD, based on one or more information modules.

## **Functional unit**

Quantified performance of a product system for use as a reference unit. May only be applied in cradle to grave EPDs.

## **Fugitive emissions**

Unintentional releases of gases (e.g. refrigerants, dust, methane leaks) not captured in controlled processes.

## **Gross GWP**

The total global warming potential of a product system, including all greenhouse gas emissions. [See CEN/TR 16970:2016; 6.2.2 and Table 2]

## **Net GWP**

Global warming potential excluding the emissions from the incineration of waste. [See CEN/TR 16970:2016; 6.2.2 and Table 2]

## **Primary data**

Data specific to the processes and activities within an organisation (e.g. site specific energy use).

**Secondary data**

Data that does not meet the requirements for primary data. For example, generic or average data from databases or literature (e.g. ecoinvent).

**System boundary**

The set of processes and life cycle stages included in the assessment. Note that Module D is considered as beyond the system boundary.

## Abbreviated Terms

**B2B** – Business to Business

**B2C** – Business to Consumer

**CFP** – Carbon Footprint of a Product

**CO<sub>2</sub>e** – Carbon Dioxide Equivalent

**c-PCR** – Complementary Product Category Rules

**DQI** – Data Quality Indicator

**EF** – Environmental Footprint

**EPD** – Environmental Product Declaration

**FU** – Functional Unit

**GPI** – General Programme Instructions

**GWP** – Global Warming Potential

**LCA** – Life Cycle Assessment

**LCIA** – Life Cycle Impact Assessment

**NDA** – Non-Disclosure Agreement

**PCR** – Product Category Rules

**PEF** – Product Environmental Footprint

**PI** – Professional Indemnity

**RSL** – Reference Service Life

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# 1 Introduction

Circular Ecology are an independent environmental company, specialising in the development of carbon data, carbon footprint assessments and full Life Cycle Assessment (LCA). They offer a range of wider resource efficiency services, including product, building and organisational carbon footprinting, water footprinting, circular economy assessments and e-learning training courses.

This document sets out how the Circular Ecology EPD Programme will be developed and operated, in compliance with ISO 14025. The programme also intends to meet the requirements of the ECO Platform for EPD programme operators.

This document provides the underlying rules and requirements for all EPDs developed under the programme, regardless of the PCR used as a basis.

The document details the operating procedures programme, the process for developing EPDs, the independent review and verification of EPDs, the independence and competencies of verifiers and other rules related to ensuring the high-quality and independence of EPD, in line with the requirements of ISO 14025.

This document is expected to be developed further as the Circular Ecology EPD Programme evolves and matures.

Circular Ecology is both the operator of and secretariat for the Circular Ecology EPD Programme.

## 2 Scope and Objectives of the Programme

### 2.1 Scope

The Circular Ecology EPD Programme is not limited to any single sector. Neither is the programme limited by product types or groups of products.

### 2.2 Objectives

The primary objectives of the programme are:

- Improve the transparency of published EPD information.
- Improve the use of primary data in EPDs.
- Produce higher quality LCAs.
- Implement a robust verification process with increased focus on the review of the LCA results.
- Comply with relevant international standards, e.g. ISO 14025, ISO 14040, ISO 14044.
- Encourage manufacturers and suppliers to publicise their environmental declarations and reduce the environmental impacts of their products.
- Encourage clients, buyers, specifiers, and other interested parties to use environmental declarations.

### 2.3 Programme Operator

The programme operator is Circular Ecology, a limited company registered in the United Kingdom with company number 08573120. Circular Ecology are self-funding the programme development and operation activities. The cost for programme maintenance is expected to come from EPD programme fees.

In its role as EPD Programme Operator, Circular Ecology will:

- Develop, communicate, review, and update the GPI, and ensure adherence at all times.
- Establish quality assurance procedures (including for staff and subcontractors) to ensure consistency and conformity in programme management.
- Always maintain impartiality and avoid conflicts of interest.
- Invite interested parties to consultations, maintain records of participating organisations, and safeguard sensitive data.
- Develop, review, and manage Product Category Rules (PCRs), including appointment of third-party panel reviews.
- Ensure the consistency and quality of EPD verification, appoint independent and competent verifiers, provide a standard EPD template, and exercise judgement on EPD publication.
- Publish ISO 14025 compliant EPDs, ensuring sufficient methodological information is available for competent LCA professionals to assess comparability (system boundaries, calculation methods, data quality, etc.).

- Establish and manage fees for EPD publication and maintain the programme website.
- Liaise with external organisations to improve Type III label quality and comparability.
- Establish procedures to avoid misuse of ISO 14025, programme references, EPDs, and logos.
- Proactively monitor changes in procedures and requirements to update processes as needed.

## 2.4 Impartiality

Circular Ecology are experienced with the requirements of impartiality and independence, particularly through their hosting and maintenance of The Inventory of Carbon & Energy (ICE) Database, which is a free embodied carbon database for materials. The database needs to ensure it is free from bias, impartial, and independent.

Circular Ecology, as the Programme Operator, will act with both neutrality and transparency in all activities related to the development, verification, and publication of EPDs. All decisions regarding PCR development, PCR and EPD verification, and EPD publication shall be made without favour or bias toward any specific company, product, or technology, including Circular Ecology itself.

Circular Ecology shall require the verifier to declare their independence and relationships. They shall be asked to declare their relationship to the EPD owner and any of their competitors:

- There is no financial ownership of the EPD owner or competitors, direct or indirect.
- There has been no involvement in top management selection and structure.
- Declare any existing relationships with the EPD owner and competitors (commercial and non-commercial).
  - Previous LCA or EPD verifications undertaken for either the EPD owner or their competitors are not considered a conflict of interest.
- Declare any provision of any other consultancy to the EPD owner and competitors, declaring if there is a conflict of interest.
- Declare any advocacy activities relevant to the EPD under development, declaring if there is a conflict of interest.

A technical oversight group will be set up and meet periodically to ensure that the programme's processes remain fair, credible, and free from conflicts of interest and bias. The technical oversight group will:

- Provide independent oversight and expert guidance on Product Category Rules (PCRs) and programme procedures.
- Ensure consistency, transparency, and scientific robustness in verification and EPD publication processes.
- Safeguard programme impartiality and integrity by identifying conflicts of interest and supporting continuous improvement.

Circular Ecology also act in accordance with their core values, namely:

- Impactful

- Community
- Quality
- Ethical
- Continuous Improvement

More information can be found here: [circularecology.com/about.html](https://circularecology.com/about.html)

## 2.5 Intended Audience

The intended audience of the Circular Ecology EPD Programme is to produce Type III environmental labels (EPDs) for Business-to-Business (B2B) communication. The programme does not intend to produce Business-to-Consumer (B2C) EPDs. Should there be an intention to publish B2C EPDs in the future, this GPI and other associated documentation would be updated accordingly.

## 2.6 Interested Parties

The requirements of this EPD programme have been developed by Circular Ecology.

In October 2025, an open consultation was completed for the establishment of the EPD programme, the GPI, the PCR, EPD templates and verification checklists. The draft documents for comment were hosted on Circular Ecology's website. Interested parties were invited to review the documentation and provide feedback.

A third-party panel of experienced LCA specialists undertook a detailed review of the building and construction sector PCR from October to December 2025.

Interested parties may provide feedback or comments on the EPD programme at any time by [contacting Circular Ecology](#).

## 2.7 Legal Liability

The company that commissioned the EPD remains the sole owner of the EPD (herein known as "EPD owner") and remains fully liable and responsible for the EPD, all statements made, and all data contained within it. The verification of an EPD and publication via this programme does not supersede this.

## 2.8 Review and Updates

Review and subsequent updates to this GPI document are to be undertaken periodically, but no less than every 2 years, as well as in response to any updates or developments relating to internationally recognised standards with regard to LCAs and EPDs, including applicable ECO Platform documentation updates.

Updates to the GPI will be recorded in Version Control, where the version reference, date of version publication, and an overview of the significant changes since the previous version will be detailed.

Users should always check the Circular Ecology website to ensure that they are accessing the most recent version of any programme documentation.

Information regarding updates will be made available on the Circular Ecology website. In addition, it will be disseminated through an email list, sent to programme verifiers, EPD owners and LCA practitioners.

## 2.9 Key References

The following standards and guidance documents are relevant to this GPI. For undated references, the latest edition, including any amendments, shall apply.

- **EN 15804:2012+A2:2019**  
*Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.*
- **EN 15942:2021**  
*Sustainability of construction works – Environmental product declarations – Communication format business-to-business.*
- **EN 15978:2011**  
*Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method.*
- **ISO 21930:2017**  
*Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.*
- **EN ISO 14025:2010**  
*Environmental labels and declarations – Type III environmental declarations – Principles and procedures.*
- **EN ISO 14040:2006+A1:2020** and **EN ISO 14044:2006+A2:2020**  
*Environmental management – Life cycle assessment – Principles, framework, requirements, and guidelines.*
- **EN ISO 14067:2018**  
*Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication.*
- **CEN/TR 16970:2016**  
*Sustainability of construction works – Guidance for the implementation of EN 15804.*
- **EN 15941:2024**  
*Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data.*
- **ECO PLATFORM (2024a)**  
*ECO Platform – LCA Calculation Rules and Specifications for EPDs, Version 2.0 (December 2024). Available from: [www.eco-platform.org/our-documents.html](http://www.eco-platform.org/our-documents.html).*  
Future versions of this document shall also apply once published, unless otherwise specified.
- **ECO PLATFORM (2024b)**  
*ECO Platform – Verification Guidelines for ECO EPD Programme Operators, Version 8.0 (December 2024). Available from: [www.eco-platform.org/our-documents.html](http://www.eco-platform.org/our-documents.html).*  
Future versions of this document shall also apply once published, unless otherwise specified.

### 3 Overview of the EPD Process

The approach for developing an EPD is outlined below:

1. Identification of the relevant approved and adopted PCR(s) for the product in question. See Section 4.3.1.
  - A PCR shall be developed accordingly if no valid PCR is available.
2. The EPD owner undertakes (by commission of an LCA expert or through sufficient internal expertise) the LCA study in accordance with the applicable PCR(s) and all other applicable national and international standards.
3. Preparation of the LCA report and draft EPD (using the Circular Ecology EPD Template).
4. Selection of a Circular Ecology approved verifier, following the verifier approval procedure set out in Appendix A.1, and completion of their declaration of independence in line with Appendix A.10.
5. Verification of the LCA report and draft EPD. The verification report shall be prepared according to the programme template and consider any additional requirements from the PCR that are not fully covered within the Circular Ecology Verification Template.
6. The project LCA report, draft EPD and verification report shall be submitted to Circular Ecology, where final completion checks will be made before approval to publish. At this stage, the EPD shall be assigned a unique declaration ID.
7. The EPD shall be registered and published on the Circular Ecology EPD website. Where necessary, the published EPD may be updated and revised in accordance with Sections 8.3 (maintenance) and 8.4 (renewals). An EPD would normally remain published until it expires or is deregistered.

These are covered in more detail in the following sections.

## 4 Method

### 4.1 Standards

The LCA shall be generated using the principles, framework, methodologies and practices within ISO 14040 and ISO 14044. In addition, the LCA shall be calculated in line with relevant and recognised product LCA standards. These include, but are not limited to:

- **EN 15804:2012+A2:2019** – *Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products [hereinafter referred to as EN 15804]*.
- **ISO 21930:2017** – *Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services [hereinafter referred to as ISO 21930]*.
- **ISO 14067:2018** – *Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication [hereinafter referred to as ISO 14067]*.

### 4.2 Product Categories

The Circular Ecology EPD Programme defines product categories based on the availability or development of Product Category Rules (PCRs).

Any product may be considered for inclusion in the programme, provided that a relevant PCR exists or is developed, either internally by the Programme Operator or externally by recognised bodies.

The definition of product categories follows the principle that all products within a category share comparable functions and life cycle characteristics, enabling meaningful comparisons.

The Circular Ecology EPD Programme will maintain a record of all recognised product categories and all associated PCRs.

### 4.3 Product Category Rules (PCR)

#### 4.3.1 Selection of PCRs

PCRs under the Circular Ecology EPD programme are defined into the following types:

- **Core PCR:** These PCRs are ISO or CEN standards for product LCA, giving them high authority. EN 15804 and ISO 21930 are both considered as core PCRs. For example, EN 15804 is titled “Sustainability of construction works – Environmental product declarations - Core rules for the product category of construction products”.
- **Circular Ecology EPD Programme Main PCR:** These are PCRs developed specifically for the Circular Ecology EPD Programme for a recognised sector of products.
  - o The only Main PCR currently under this category is the “Product Category Rules for Construction & Building Sector – A Circular Ecology EPD Programme Main PCR”, which is designed to only be applied in combination with the respective core PCR.
- **Complementary PCR (c-PCR):** These are designed to only be applied in addition to other PCRs above. They cannot be applied in isolation. They represent more specific sub-product types of a Main PCR or Core PCR, for example, a c-PCR could be developed for asphalt, aggregates, etc.

In this document, the language PCR refers collectively to any type of main PCR, core PCR or complementary PCR (CEN and non-CEN).

Efforts will be made to align with other credible PCRs in the spirit of harmonisation.

Only PCRs approved or adopted by the Circular Ecology EPD Programme shall be applied. See the list of adopted PCRs in Section 4.4.

Where a valid Main PCR has been developed for the Circular Ecology EPD Programme, it shall be selected for products within its remit, unless there is a valid justification and approval from Circular Ecology. The justification shall be stated in the project LCA report and EPD.

If a suitable core PCR published by CEN or ISO exists for a sector that doesn't have a Circular Ecology Main PCR, it may be used in isolation for products within its remit. It would need to be adopted before being applied to an EPD.

If no suitable Main or Core PCR exists, Circular Ecology shall first consider if a valid PCR is available from another operator to adopt within the Circular Ecology EPD programme. Otherwise, if no valid PCR exists, a PCR would need to be developed. This may either be a Circular Ecology Programme PCR or developed collaboratively.

Complementary PCRs (c-PCRs) developed by Circular Ecology or other operators may also be applied for a more specific product or material type. However, only those approved and adopted by Circular Ecology may be used (currently, no c-PCRs have been adopted). As part of the approval process, c-PCRs from other operators would be screened for conflicts with applicable Core PCRs and Main PCRs before being adopted. See the screening process below.

#### **Screening of c-PCRs:**

- All new c-PCRs would need to be screened for suitability and for any conflicts of rules and requirements with a Circular Ecology Main PCR and applicable Core PCRs.
- CEN c-PCRs will also be screened before being adopted for any conflicts.
- The outcome of the screening will determine if a c-PCR can be applied in combination with the Circular Ecology Main PCR and applicable Core PCR(s), how conflicts should be handled (giving consideration to the hierarchy below) and if any actions may be needed to overcome conflicts (such as any recommendations to update the Circular Ecology PCR). Such details will be published by Circular Ecology for any adopted c-PCRs along with a summary of any conflicts and actions.
- Only c-PCRs approved and adopted by Circular Ecology shall be used.
- Approved c-PCRs will be added to the list of adopted c-PCRs. This will be before the point where the first Circular Ecology EPD Programme EPDs are approved to use them.

In the event of a conflict between PCRs, the following hierarchy shall be applied, with "shall" requirements in PCRs at the top of this hierarchy taking precedence over any requirements in PCRs further below in the hierarchy:

1. Core PCRs that have been adopted by the Circular Ecology EPD programme, published by CEN or ISO, e.g. EN 15804, ISO 21930, take precedence over all other PCR types. As formal standards, these are given the highest precedence in the event of a conflict.
2. For European declarations, any c-PCRs according to EN 15804 published as EN standards by CEN, which are relevant to the product category of the EPD under study and adopted by the Circular Ecology EPD programme, shall take next precedence.

3. Main PCRs developed for the Circular Ecology EPD Programme take the next precedence.
  - The “Product Category Rules for Construction & Building Sector – A Circular Ecology EPD Programme Main PCR” has been built upon the core PCRs, EN 15804 and ISO 21930, where adherence to at least one of these core PCRs is mandatory. Care has been taken to avoid conflicts with these, but in the event of a conflict, the requirements of the core PCRs, which appear at the top of the hierarchy, shall take precedence over it. Any conflicts should be reported to Circular Ecology.
  - The “Product Category Rules for Construction & Building Sector – A Circular Ecology EPD Programme Main PCR” also allows climate declaration in accordance with either of the core PCRs. However, a climate declaration may optionally choose to adhere to the additional requirements of ISO 14067 (e.g. ISO 14067 may not be applied in isolation).
    - ISO 14067 is lower in the hierarchy than the Core PCR, but shall also take precedence over the “Product Category Rules for Construction & Building Sector – A Circular Ecology EPD Programme Main PCR”. Any conflicts should be reported to Circular Ecology.
4. Non-CEN complementary PCRs, which are relevant to the product category of the EPD under study and adopted by the Circular Ecology EPD programme, are at the bottom of the hierarchy.

If there are cases of conflict between PCR rules, the PCR higher in the above hierarchy shall prevail. Any conflicts and choices shall be disclosed in the project LCA report, a sensitivity analysis included in the project LCA report and the conflict summarised on the EPD. All conflicts should be reported to Circular Ecology.

#### 4.3.2 Development and Maintenance of PCRs

Development of new PCRs can be requested by any party looking to publish an EPD under the programme; however, they must, in consultation with the programme, first look to harmonise with any existing credible PCRs (both developed within and outside of this programme), and provide suitable justification as to why development of a new PCR is needed.

PCR development seeks to integrate the views of all stakeholders on a consensus basis.

The procedure for developing and maintaining Product Category Rules is documented in Appendix B. It covers:

- Details of all content required to be set out within the PCR.
- Period of validity of the PCR.
- Maintenance, review and update requirements of the PCR.
- Selection procedure for any specified or predetermined parameters.

Circular Ecology shall review the suitability of PCRs approved under this EPD Programme at least every 5 years. In the interim, Circular Ecology has a responsibility to monitor the landscape for

developments that would require a Circular Ecology PCR to be updated outside of this frequency. Examples include newer versions of ISO standards, ECO Platform rules, and CEN c-PCRs.

## 4.4 Approved and Adopted Product Category Rules (PCRs)

The following PCRs have been approved for use under this programme.

### Circular Ecology EPD Programme Main PCRs:

1. Product Category Rules for Construction & Building Sector – A Circular Ecology EPD Programme Main PCR, Version 1.0, Circular Ecology, Dec 25.
  - This PCR requires a core PCR to be selected from:
    - **[core PCR] EN 15804:2012+A2:2019** – *Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products; or*
    - **[core PCR] ISO 21930:2017** – *Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.*
  - Climate declarations are permitted in accordance with the above core PCRs.
    - They may also apply the additional requirements of :
      - **ISO 14067:2018** - *Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication.*
      - *[Note: adherence to a core PCR is still mandatory].*
  - Care has been taken in the development of the Circular Ecology PCR to avoid conflicts with the core PCRs. However, in any instances of conflict, the requirements in the core PCR will take precedence.

### Complementary Product Category Rules:

Complementary PCRs (c-PCRs) published by CEN will be adopted in the future. These will be screened for any conflicts with the Circular Ecology PCR before being applied to the first EPDs.

There are currently no other approved c-PCRs.

## 5 Requirements of all LCA

### 5.1 General Principles

This section outlines the overarching rules that shall apply to all EPDs developed under this EPD programme. These principles shall be adhered to in all cases, including when a c-PCR (e.g. for asphalt, cement, timber, or insulation) is also applied. They ensure that results are transparent, consistent, and can be applied reliably across the EPD programme.

### 5.2 Project LCA Report

A project LCA report shall be prepared in accordance with the requirements of the core calculation method, applicable PCRs and the requirements within this GPI. It shall be made available to the verifier and Circular Ecology, but it does not need to be disclosed in public.

### 5.3 Transparency Requirements

To aid comparability between declarations, it is important to ensure transparency of the LCA and EPD. All data, assumptions, and methodological choices used in the preparation of an EPD shall be fully documented in the project LCA report and available for verification. This includes:

- Evidence supporting the composition of products, including mass balance of constituent materials.
- Documentation of scenarios (e.g. transport, installation, end of life).
- Justification for the use of default values or secondary datasets.
- Disclosure of the version and source of any background databases used.
- All assumptions and exclusions.
- Any applicable limitations or value choices.

Where secondary datasets are applied, they shall be recognised and up to date (e.g. ecoinvent, Sphera MLC (formerly GaBi), other equivalent sources). Their use shall be justified and clearly distinguished from primary data.

### 5.4 Comparability

EPDs developed under this programme provide environmental information but shall not be used for direct product comparisons unless the requirements of ISO 14025:2010, Section 5.6, are fully satisfied. For example:

- They are based on the same product category definition and description.
- They apply an identical functional unit and equivalent system boundaries.
- They use equivalent data quality requirements, including coverage, precision, completeness, representativeness, and uncertainty.
- The methods of data collection are equivalent.
- The criteria for the inclusion of inputs and outputs are identical.
- They follow equivalent allocation methods and calculation procedures.

- They report results using the same impact categories, indicators, and units.
- They have the same period of validity.
- They apply the same background database and version.

See ISO 14025:2010 Section 6.7.2 for the comprehensive list. Core PCRs may have their own criteria for comparison of EPDs.

## 5.5 Product Averages and Product Families

EPDs may represent different levels of aggregation depending on the type of product and intended application. The following rules apply to different types of EPDs.

*Note: The rules on EPD types will keep an eye on developments from the European Construction Products Regulation (CPR) and update to align if necessary.*

### 5.5.1 Specific Product EPDs

- A specific product EPD represents one specific product from one brand.
- It may be manufactured at one or more sites.
- An EPD may be published for each individual site, or an average across all sites of production.
  - Where production at multiple sites is represented, weighted averages by production volume or mass shall be used. The project LCA report and EPD shall state both the high (+%) and low (-%) deviation of GWP total A1-3 as a percentage from the weighted average.
- The product composition and manufacturing processes shall be consistent across the declared system boundaries.
  - Minor variations may be expected, such as colour variations, that only have a minor influence on results.
  - Any declaration on recycled content of the product shall be maintained by the EPD owner as a minimum over the period of validity of the EPD.
    - The recycled content may differ between production locations. It shall be calculated based on the weighted average production mix when based on data from more than one site.
  - Variations in sources of raw materials from suppliers may still be expected, reflecting how many organisations source their raw materials from a range of suppliers over time, e.g. buying sheet metal from an open marketplace, buying aggregates from a wide variety of sources over the year. In these instances, the most representative data should be used, and it shall be justified in the project LCA report. For example, if only procuring primary (virgin) materials, then data for a virgin material should be applied; if procured from an open marketplace from a variety of sources over time, market average data should be applied.

## 5.5.2 Product Range EPDs

- A product range EPD may represent a family of similar products from one manufacturer or one brand that share the same base of constituent materials, core manufacturing processes and function but differ in composition within the product range.
  - An example includes a manufacturer of precast concrete kerbs of different shapes, sizes, colours and with small deviations in the mixture used between the products in the range. See the expected deviations below for acceptable levels of variation.
- They may also represent products from a single supplier or brand that are constituent mix based and have expected variations in the actual mixture supplied to construction projects. Examples include ready-mix concrete and asphalt. Such materials are often supplied with moderate variations in material composition, in accordance with the specification needs of a specific construction project. In these cases, the product shall be adequately defined, for example, a 32/40 MPa concrete mixture provides an indication of a suitable specification.
- They may be manufactured at one or more sites.
- The average composition shall be based on one of the following methods:
  1. Calculated using a weighted average by production volume (considering products within the range and manufacturing locations).
  2. Select the most representative product, taking care to ensure that the deviation of environmental impacts is justified, within expectations and is conservative. An example of a representative product selection may be based on the highest sales volume within the product range, taking care to ensure it has an expected environmental impact that is representative or conservative.
  3. Select a worst-case product with the expected highest environmental impact within the range.
- All assumptions on the method of deriving the average, representative or worst-case product shall be declared in the project LCA report. The EPD shall state the type of selection (weighted average, representative or worst case) and justification for the choice. This shall be documented in accordance with the requirements of ISO 21930, Clause 5.3.
- Scaling factors may be published for products within the range, using A1-3 GWP total as the basis. If published, these factors shall be clearly documented in the EPD and supporting project LCA report and may not be extended to other impact categories.
  - Scaling factors convert the LCA results from the declared unit, or functional unit, to 1 item of a specific product within the range. For example, if a declared unit was per tonne of steel sections, a scaling factor could be published to convert the results to sections of specific sizes within the range.
- **Expected deviations:** Care should be taken in the grouping of products with similar expected environmental impacts. The following shall be followed:
  - Variations in results between the products across the A1-3 GWP total indicator should be minimised. If a product has a variation in material composition of 10% on any ingredient, it is likely to need a separate EPD. However, if any ingredient is

expected to have a high impact per unit mass, even a small difference in quantities of such ingredients may result in needing a separate EPD.

- The project LCA report and EPD shall state both the high (+%) and low (-%) deviation of GWP total A1-3 as a percentage.
- Declarations based on a representative product shall include a sensitivity analysis in the project LCA report to show expected deviations in results between products within the range. The output of this should be considered in the selection of the representative product.
- For declarations claiming adherence to ISO 21930, variations in the environmental impacts of the products across all impact categories shall be within **±10%** per declared or functional unit.
  - If differences in indicators vary by more than **±10%**, separate EPDs shall be produced.
    - Larger variations between production sites may be permitted when they can be justified. For example, if a customer cannot select to buy the product from a specific site, the grouping on a single EPD is justified.

### 5.5.3 Product System EPDs

- A product system would be provided by one supplier and composed of several products required for a typical installation. For example, a combination of fence panels, posts, and foundations, as necessary to provide a fully installed system.
- Primary data shall be collected for products and processes that the EPD owner operates, controls or influences (e.g. if they designed the product or own the product IP, primary data shall be collected for manufacturing operations even if made by a 1<sup>st</sup> tier supplier).
- For off the shelf components, e.g. generic materials or components purchased from a range of suppliers or wholesalers rather than from a single brand, that are not manufactured or designed by the EPD owner, representative data may be used. This shall consider if only primary materials are procured, or if market average data is representative. Any such assumptions shall be documented and justified in the project LCA report and summarised in the EPD.
- A typical system installation should be assumed. Along with A1-3 GWP total scaling factors for common variations.
- Modules A4 and A5 shall be included in product system EPDs.

### 5.5.4 Industry Sector EPDs

- These EPDs represent products from multiple manufacturers or across an entire sector (e.g. cement, asphalt, timber, steel, etc.).
- They shall be clearly identified as sector EPDs and shall not be used to represent any single manufacturer's product.

- Data shall be collected from a representative share of the market (e.g. minimum number of companies, production volume threshold or industry association dataset), and this shall be made available for verification and documented in the project report.
- The geographic and market coverage (e.g. region, country, sector organisation) shall be clearly described in the project report and the EPD.
- Variability in underlying data shall be reported, and sensitivity analyses are recommended.
- The scope, assumptions and representativeness of the data shall be documented in the project LCA report and EPD.

### 5.5.5 New Product EPDs

- EPDs may be produced for new products, following the principles below.
- To meet the primary data requirements, all other EPD types are required to have 12 months of data specific to the production processes within foreground data. However, new products that don't yet have 12 months of data specific to the production processes within foreground data may use data from a shorter production period.
- The production data shall be extrapolated to a 12 month period using a conservative approach, taking into account any expected variations in seasonality.
- The EPD shall clearly state on the front page that it is a new product with a limitation that the data may have a higher uncertainty and a date by which the EPD shall be required to be updated with specific production data.
- The EPD shall be updated once there are 12 months of production data. There is a permitted period of 9 months for the LCA to be updated and the re-verification to be completed, although it is encouraged to update as soon as possible.
  - EPDs of this type should therefore build into the fees the costs of updating the LCA and re-appointing the verifier.
  - EPDs shall be de-registered if not updated within this permitted period.
- Once re-verified, the EPD can be published with updated publication date and version number. The validity period of the updated EPD shall remain as being 5 years from the date of publication of the original EPD for new products.

## 5.6 System Boundaries and Modules

All EPDs shall, as a minimum, include Modules A1–A3. EPDs in accordance with EN 15804 shall, at a minimum, include Modules A1-3, C1–C4, and Module D, unless exempt, providing all three conditions of EN 15804 Clause 5.2 are met.

## 5.7 Use of Secondary LCA Data

Secondary LCA datasets are essential for modelling processes outside the primary data requirements of the EPD owner. The use of secondary data shall be consistent, transparent, and compliant with respective core PCRs, such as the requirements in EN 15804 or ISO 21930.

- **Background LCA data:** Background LCA data shall only be sourced from:
  - Recognised and respected LCI databases, such asecoinvent or Sphera MLC (Formerly GaBi) or other equivalent databases. Mixing data from different LCI databases

should be avoided and shall be justified in the project LCA report (e.g. typicallyecoinvent or Sphera MLC are chosen as the main database), or

- From other LCAs and EPDs that meet the data quality requirements set within a PCR and this GPI. See Section 5.9.
- **Recognised sources:** Secondary data should be assessed for data quality and fully referenced.
- **Ecoinvent data:** Where ecoinvent datasets are used, only the cut off system model (100:0 approach) shall be applied.
  - An EN 15804 version of ecoinvent shall be applied, or a corrected version of ecoinvent in line with allocation procedures of EN 15804 (e.g. respects biogenic C as a physical property). Note that ecoinvent v3.8 was the first version to correct biogenic carbon to respect as a physical property. Earlier versions of ecoinvent would therefore only be eligible where biogenic carbon isn't a notable part of the product system, or where the results have been corrected to respect biogenic carbon as a physical and inherent property.
- **Version control:** The most recent version of the background LCA database should be applied. A grace period of up to one year from the release of a new version should be considered normal to allow transition. Use of an older version is permitted where:
  - Is required by a c-PCR; or
  - Is built on a tool that uses an older version of the database, but which the tool provider adequately maintains the LCA data; or
  - There are concerns over the accuracy of data that is applicable to this LCA in the latest version; or
  - Is sufficiently justified in the project report and approved by the verifier.
- **Consistency:** The same database and version shall be applied across all modules of the LCA unless justified otherwise, such as prescriptive factors applied from a c-PCR.
- **Documentation:** The database name, version and system model shall be clearly reported in the project report and the EPD.

All adaptations to background database processes shall be declared fully in the project LCA report. For example, if a unit process in the background database for the production of a raw material was adapted for a different country of electricity, or a different quantity of electricity, this shall be disclosed in the project LCA report and made available as part of the verification process.

## 5.8 Primary Data Requirement

The following data requirements apply:

### Primary data requirements:

- Primary data shall be collected for all processes owned, operated or controlled by the EPD owner. The primary data requirement shall not apply to downstream processes.
  - For EPD owners that outsource the manufacturing or assembly of their specific product, primary data shall be collected from the main 1<sup>st</sup> tier supplier.

- For example, if a company (EPD Owner) outsources the injection moulding of their brand of plastic fittings, it is likely that the impacts of the EPD Owner are minor, such as warehousing. In this case, the primary data collection requirement shall fall to the organisation undertaking the main manufacturing operation (injection moulding).
- Examples of primary data include:
  - Energy consumption specific to the processes in the foreground data.
    - Specific data should be based on recorded consumption, such as fuel utility bills or sub-metering.
    - Care should be taken to avoid estimated meter readings, rather than actual meter readings, over the start and end data of the primary data collection period. However, in cases where estimated meter readings arise, their allocation between the accounting periods shall be transparently documented in the project LCA report and available for the verification process.
  - Process emissions for foreground manufacturing operations.
  - Average transport distances for raw materials.
  - Manufacturing waste quantities.
  - Material composition or raw material consumption.
- Estimated manufacturing energy data, which isn't based on data specific to the processes in the foreground data, shall not be considered as primary data. This shall be classified as secondary or generic data.
- Primary data for transport may be based on specific distances and average vehicle types. Actual fuel consumption, such as litres of diesel, etc., doesn't need to be collected, unless the fleet is owned by the EPD owner.
- Evidence of primary data shall be obtained and made available for verification.
- If there are any gaps in the primary data, the absence shall be justified in the project LCA report, and a conservative approach to addressing the gap shall be applied. Care should be taken to minimise any gaps in primary data and to ensure that the influence on LCA results is small.
- All primary data shall cover the same 12 month continuous period.
  - A period longer than 12 months may be applied if there are concerns that the period does not reflect typical production conditions (for example, COVID-19 caused anomalies in datasets). In these cases, an average of either 2 or 3 years as a continuous period may be permitted, along with justification.
- The data shall be for a period that ended no longer than 18 months from the date of the EPD verification starting. The choice of the period shall be justified in the project LCA report, e.g. for the most recent 12 month period, company finance year, calendar year, etc.

A non-quantitative summary of primary data shall be reported in the LCA report and EPD, presenting a summary of which processes and parts of the life cycle are based on primary data.

The following table summarises primary (specific) and secondary data, which is adapted from EN 15804 Table 1:

| Modules             | Module A1-A3                             |  | A4 and A5                | B1-B7         | C1-C4                 |
|---------------------|--|--|--------------------------|---------------|-----------------------|
|                     | Production of commodities, raw materials | Product manufacture                                | Installation processes   | Use processes | End-of-life processes |
| <b>Process type</b> | Upstream processes                       | Processes that the manufacturer has influence over | Downstream processes     |               |                       |
| <b>Data type</b>    | Generic (secondary) data                 | Manufacturer's average or specific (primary) data  | Generic (secondary) data |               |                       |

#### Other data requirements:

- **Recycled content:** For EPDs that are applying recycled content specific to the product, rather than market averages, the following applies:
  - The declared level of recycled content shall be stated on the EPD, in line with ISO 14021:2016.
    - Pre-consumer material and post-consumer material are both eligible towards recycled content. Differentiation isn't required for the calculation of recycled content or for reporting.
      - Note that for reused materials and products, they are only considered as a post-consumer material when they can no longer be used for its intended purpose.
    - Internal recycling reclaimed within the same process is not eligible for recycled content. For example, rework, regrind, or any material capable of being reclaimed within the same process that generated it.
  - Evidence of the stated recycled content shall be provided for the verification.
  - The declared level of recycled content shall be maintained by the EPD owner as an average for the validity of the EPD; otherwise, the EPD would need to be updated.
    - Circular Ecology reserve the right to ask the EPD Owner for evidence at any point within the EPD validity period.
  - If variations in recycled content are expected, a sensitivity analysis shall be included in the project LCA report and EPD. A weighted average shall be used for the main results in the EPD.
- An EPD that is applying market average recycled content should state this on the EPD. This case is most typical if an organisation purchases raw materials, such as steel, aluminium,

copper, etc., from a range of suppliers or wholesalers, rather than procuring a specific recycled content.

## 5.9 Data Quality

Data quality information shall be included in all EPDs developed under this EPD Programme, in accordance with EN 15941:2024. The published EPD shall provide a summary addressing representativeness, completeness, coverage, precision, consistency, uncertainty, reproducibility and the sources used. More detailed data quality evaluation, including documentation of foreground and background data sources and their versions, shall be provided in the project report.

## 5.10 Data Confidentiality

Confidential data arising from manufacturers and suppliers shall be respected and are not required to be reported on the EPD. Examples of such confidential data include:

- Proprietary information covered by intellectual property rights
- Information which has legal restrictions

However, all data necessary for the completion of a sufficiently robust LCA and EPD verification shall be provided to the appointed verifier.

The use of non-disclosure agreements (NDAs) is encouraged between the parties providing the data, and with access to the data.

There may also be instances where the LCA practitioners are asked to sign an NDA with a first-tier supplier. This is often to prevent the data from being passed to the EPD owner, which may be considered sensitive information. This data may also be considered confidential.

All parties with access to confidential data shall keep the data secure and only provide access to employees on an as-needed basis. The coverage of this confidentiality clause also applies to any external verifiers.

As part of the sign-off process of the EPD, the EPD owner will be asked to confirm that there is no confidential data included before approving publication of the final EPD.

Typically, the main data that may be considered sensitive to disclose for some products is the exact material composition. This will be necessary for the background LCA and review process. However, the exact material composition can be protected as confidential data if deemed necessary by the EPD owner.

However, the EPD will need to make a declaration on ingredients, but may obscure the exact recipe with rounding and grouping together of materials, when justified. If this has occurred, it shall be declared on the EPD, with justification and explanation.

## 5.11 Document Control

All documents relating to programme operation will apply a consistent naming convention, for example:

CE-GPI-00-V1.0

CE-PCR-01-V1.0

CE-VTP-01-V1.0

### **[Operator Name]-[Document Abbreviation]-[Document Index Number]-[Version]**

Documents will be considered “issued” when a live link to the document is available on the relevant webpage. All documents on the webpage will be tagged with a status identifier, e.g., “Live”, “In Review”, or “Withdrawn”.

Final documents will be approved by a suitably qualified representative of Circular Ecology.

## **5.12 Pre-verified Tools**

Pre-verified tools are eligible for EPDs so long as they satisfy the conditions within this section. Tools that require verification are to follow the process set out in Appendix A.

Tools which have been verified within Europe by an ECO Platform member programme will be considered acceptable for use on a case-by-case basis. The tool will need to be checked for alignment with the relevant PCRs adopted by the Circular Ecology EPD Programme. Proof of verification would also need to be provided. It would need to be clear what aspects of the tool have been verified, and the limitations of the tool pre-verification, e.g. is it only pre-verified for a specific version ofecoinvent. A copy of the tool pre-verification report would be needed to determine this.

Intention to use a pre-verified tool should be communicated to the programme in advance.

Use of a pre-verified tool does not exclude the EPD from being subject to verification; however, fees related to verification of EPDs produced using such tools can be moderated upon discussion with the programme.

## **5.13 Data Consistency**

Circular Ecology shall maintain a log of common assumptions, made available to any LCA practitioner or verifier working on EPDs for the Circular Ecology EPD programme. The log shall not contain primary data or specific data to protect confidentiality. Instead, it would log assumed data when unknown, such as EOL fate of wastes (e.g. percent to recycling, energy recovery, landfill), transport distances, energy consumption for processes not covered by primary data or in the background LCA databases, etc. It will consider whether some data is geographically applicable.

Consistency of data shall further be safeguarded through the use of standardised templates, independent verification, and periodic reviews, to ensure alignment with applicable standards and programme requirements. Common rules are stated regarding data quality, background datasets, calculation methods and reporting formats across all PCRs and EPDs.

## 6 EPD Content

This section defines the information that shall be included in Environmental Product Declarations (EPDs) developed under this PCR. It covers the requirements for general information, life cycle impact assessment, indicators to be reported, additional programme specific rules, and period of validity.

All EPDs under the Circular Ecology EPD Programme shall be required to use a Circular Ecology EPD template for the relevant PCR.

### 6.1 Declaration of General Information

Each EPD developed under this PCR shall include a declaration of general information in accordance with:

- EPDs with EN 15804 as the core PCR shall declare in line with EN 15804 Section 7.1.
- EPDs with ISO 21930 as the core PCR shall declare in line with ISO 21930 Section 9.2.

The general information section shall include, at a minimum:

- Name and contact details of the programme operator.
- Reference to the PCR, its version, and the applicable General Programme Instructions (GPI).
- Name and contact details of the manufacturer or EPD owner.
- Product identification (including product code or standard classification).
- Description of the product's function, technical performance, and intended use, consistent with relevant standards or sector guidance.
- The main components and composition breakdown required to understand the type of product concerned.
  - For product range, industry average, or sector EPDs, a qualitative description of the averages used and the ranges for the composition of the product in question shall be stated.
- For bio-based products (e.g., wood based materials), the moisture content shall be declared in relation to the product's dry weight.
- Background LCA database including version numbers (e.g. ecoinvent, Sphera MLC).
- Characterisation factors applied, including version numbers (e.g. EF 3.1).
- Declared unit or functional unit, and for functional units, the reference service life (RSL) with reference to in-use conditions in accordance with EN 15804 Annexe A or ISO 21930 Annexe A.
- Scope of the EPD (e.g. cradle to gate with end of life, cradle to gate with options, cradle to grave), including declaration of Modules included or excluded.
  - For EPDs in accordance with the Circular Ecology PCR on Building and Construction Sector Products, see section 2.4 in that PCR.
- Geographical validity and reference year of data.

- The location of all manufacturing sites for which the EPD is representative shall be listed at least at the country and city level.
- Period of validity of the EPD, publication date and “valid to” date.
- LCA Tool. If it is a pre-verified tool, this shall be described along with the EPD Programme and the verifier.
- Information on independent verification, in line with ISO 14025:2010, being:
  - Name of verifier.
  - Independent verification of the declaration and data, according to EN ISO 14025:2010:
    - Tick box: Internal or external.
- Reference to standards applied (e.g. EN 15804, ISO 21930, and any c-PCRs).

## 6.2 Life Cycle Impact Assessment Method and Impact Indicators

The life cycle impact assessment (LCIA) method and environmental indicators shall use those stated in the core calculation method selected. For example, when applying **EN 15804**, the LCIA and characterisation factors defined in that standard shall be used. The required indicators are those listed in Sections 7.2.3 and 7.2.4 of EN 15804 and include the core environmental indicators, resource use, waste flows, and output categories. For example, the EN 15804 method has been aligned with work from PEF, which currently uses the EF 3.1 characterisation factors and environmental indicators.

In addition to the core environmental indicators stated in the core calculation methods, the EPD may present results to the latest version of the TRACI method, for North American audiences, or any other comparable and recognised regional LCA methods.

This GPI does not introduce a separate indicator list but requires that the full set of indicators specified by the selected core PCR shall always be reported in the EPD, and keep the original impact indicator units.

This programme also permits the publication of climate declarations, as described in the “Product Category Rules for Construction & Building Sector – A Circular Ecology EPD Programme Main PCR” Section 5.22. Where a climate declaration is issued, this shall clearly be identified as such, with the scope of reporting limited to climate change indicators. Climate declarations should not claim full adherence to ISO 14025, which would require coverage of a wider set of environmental indicators to adhere to. They shall instead state that the calculations are in line with the applicable PCR(s) for a carbon only assessment.

### 6.2.1 Updates to Characterisation Factors

When new characterisation factors are released (e.g. updated EF sets), they shall take precedence once formally adopted by this programme.

- A transition period of up to one year is permitted following the release of updated characterisation factors, to allow for implementation in LCA tools and datasets.

- Earlier versions of characterisation factors may be used as inputs where results are demonstrated to be identical or conservative compared to the updated version (e.g. EF 3.0 inputs in EF 3.1 based EPDs).
- For the indicators of eco toxicity (freshwater), human toxicity (cancer), and human toxicity (non-cancer), EF 3.0 results are not considered identical or conservative relative to EF 3.1. EF 3.0 results shall not be declared in EPDs based on EF 3.1, but they may be documented in the project report.

## 6.3 Additional LCA & Reporting Requirements

The following programme specific requirements shall apply:

### 1. Background Data, Use of EPDs and Adaptations to Data:

- The background LCA database, including version numbers, shall be fully referenced in the project LCA report and EPD. Any adaptations to the background database shall be disclosed transparently in the project LCA report.
- The exact process name from the background database shall be reported in the project LCA report for all inputs and outputs.
- All background data shall be fully referenced in the project LCA report. Any adaptations to the background data shall be disclosed transparently in the project LCA report.
- For any EPDs used in the LCA, the project LCA report shall summarise any known differences between the LCA method (e.g. market based or location based electricity, Net GWP or Gross GWP, etc.), and the requirements of the applicable PCRs. Any adaptations to the EPD results shall be disclosed transparently in the project LCA report. See EN 15941 Section 8.4.4.2 Selecting data – EPD data, which covers adaptations of EPD data.

### 2. Environmental Indicator Results:

- The environmental indicator results should where possible be reported separately for A1, A2, and A3, as well as aggregated as A1–A3 total in the project LCA report and EPD. If the separate reporting of A1, A2 and A3 isn't possible, this shall be justified.
- For declarations adhering to both EN 15804 and ISO 21930, A1-3 results shall be aggregated. This is due to different rules on which sub-module to place impacts, such as electricity, which are resolved when presented as an aggregate A1-3.

### 3. Gross GWP and Net GWP Accounting:

- The EPD may report the main A1-3 GWP results applying either Net GWP or Gross GWP accounting, but shall state on the EPD which has been applied.
  - *There isn't an agreed consensus between EPD programmes, and we will keep an eye on any developments from the European Construction Products Regulation (CPR).*

- The alternative approach should be reported in the project LCA report and EPD as supplementary information, where relevant and possible.
- If reporting the results of the alternative approach as supplementary information, a descriptive summary of the waste materials shall be summarised on the EPD.
- Module D: Substitutions are not allowed within Modules A-C. Any potential substitution benefits shall only be reported in Module D, and never used to adjust results in Modules A–C.

#### **4. Electricity and Biogas:**

- The EPD shall use a market-based method for electricity (e.g. contractual instruments mixture or residual mixtures).
  - Electricity modelling shall follow the requirements of the ECO Platform LCA Calculation Rules and Specifications for EPDs (ECO Platform, Version 2.0, 2024), Clause 2.5.1 - electricity rules for a market-based approach. See their Table 2 and Table 3 to aid with interpretation on where to apply actual mix, consumption mix, residual mix, within foreground and background data sources.
- The EPD shall report according to the requirements of EN 15941 Section E.2.8.2:
  - The use of any contractual instruments (e.g. Guarantees of origin for electricity).
  - Any use of on-site generation or directly connected energy supply that is used to model renewable energy.
  - The approach of modelling of electricity, gas and other energy (e.g. residual or consumption mix) for foreground data, background data, upstream and downstream processes.
  - If electricity accounts for more than 30% of the total energy use in A1-3, the EPD shall report the GWP of the electricity mix in kgCO<sub>2</sub>e per kWh for foreground manufacturing processes.
- The EPD may optionally report as supplementary information GWP results for a location-based method.

#### **5. Biogenic Carbon Content:**

- Biogenic carbon content within A1-3 shall be reported separately, in the units of kg C and kg CO<sub>2</sub>e, for the declared or functional unit, for both the carbon content in the product and the carbon content in accompanying packaging. The biogenic carbon content in the product shall also be reported as kgCO<sub>2</sub>e per kg of product.
- Where the mass of biogenic carbon content in the product is above 5%, the conversion factor to kg CO<sub>2</sub>e shall be provided.
  - Uptake and release of biogenic carbon shall be declared in the relevant life cycle modules where they occur, except for declarations where A5

isn't within the boundary of the study, which may "release the biogenic carbon of packaging in Module A3.

- The EPD shall make it clear which module the biogenic carbon was released back to nature or transferred to another product system.

#### **6. Process Emissions:**

- The EPD shall clearly state if there are any process emissions in foreground processes, or if none were added to the product system. This requirement does not need to quantify the process emissions on the EPD, but they shall be quantified in the project LCA report.

#### **7. Capital Goods:**

- The EPD shall state whether the impacts of capital goods are included or excluded in the LCA results.
- They should be included in the main results where data is available.

#### **8. EPDs based on Product Averages or Product Families:**

- The project LCA report and EPD shall state both the high (+%) and low (-%) deviation of GWP total A1-3 as percentages.
- Scaling factors may be made available for GWP total A1-3 indicators.
- These factors shall be clearly documented in the EPD and supporting project report and should not be extended to other impact categories.

## **6.4 Presentation of Results**

Results shall be presented in a transparent and consistent manner. The following apply to both the project LCA report and the EPD, unless stated otherwise.

- Results for A1-3 shall be presented broken down by inputs and foreground processes in the project LCA report. This breakdown is not required in the EPD, although a breakdown may be included.
- Results should, where possible, be reported separately for A1, A2, and A3 and aggregated as an A1–A3 total in the EPD and project LCA report. If reporting separate A1, A2, and A3 wasn't possible, it shall be noted in the project LCA report.
- Results shall be reported per module for the declared or functional unit.
- Results for each declared indicator shall be provided in a structured table format.
- Modules shall be presented separately and not combined, except where an aggregated A1–A3 total is additionally required.
- Indicators shall be reported with the correct units of measurement as defined by the selected base method.
- Where scenario-based modules are reported (e.g. A4, A5, B, C, D), the underlying assumptions shall be described, referenced and justified, in both the project report and in the EPD, as per EN 15942:2021.

- Any scaling factors, normalisation, or averaging procedures applied (e.g. for product ranges) shall be clearly documented in the EPD and project report.
- Results shall be reported to 3 significant figures, avoiding overprecision.

## 6.5 Period of Validity

The period of validity for EPDs issued under this programme is **five years** from the date of publication.

- The validity period assumes that no significant changes occur in the product, manufacturing processes, or supply chain.
  - An expected change of +/- 10% of A1-3 GWP total should be reported by the EPD Owner to Circular Ecology.
    - Any moderate expected change in results for other environmental indicators should also be reported to Circular Ecology.
  - An expected increase in the A1-3 GWP total of more than 10% would require an update to the EPD.
    - Circular Ecology reserves the right to de-register any EPDs that are not updated accordingly.
- The programme operator reserves the right to request any evidence needed to confirm the applicability of the EPD to the latest production conditions and to confirm that declared values remain accurate and representative throughout the validity period. This includes but is not limited to:
  - Recycled content.
  - Procurement of renewable electricity.
  - Procurement of materials from specific suppliers.
  - Any other evidence that would influence the LCA results beyond expected changes.
- Renewal procedures, including re-verification requirements, are defined in Section 8.4.

## 7 Verification Process

The verification process includes verification processes and requirements for:

- **Verification of the LCA:** The core LCA model and environmental indicator results. Sufficient LCA expertise and experience are required to verify the LCA results.
- **Verification of the EPD:** The EPD itself. This task follows on from the verification of the LCA.
- **Verification of PCRs:** Product Category Rule (PCR) verification process.

The process includes minimum requirements for the competence of verifiers, including:

- Expected competence of reviewers.
- Expected levels of relevant knowledge and expertise.
- Expected knowledge of LCA methodology and standards.
- Expected knowledge of Type III environmental declarations.

The overall process for verification, with links to verification templates and procedures, is covered in more detail in Appendix A (LCA & EPD) and Appendix B (PCR).

## 8 EPD Publication Process

### 8.1 Approval of final EPD

An EPD may be published if all the following conditions are satisfied:

- LCA results approved by the verifier.
- EPD approved by the verifier.
- PDF and digital versions of the EPD provided to Circular Ecology.
- EPD owner confirms there is no confidential data within the EPD.
- EPD programme fees paid and received.
- Final completion checks are undertaken by the Circular Ecology EPD Programme.

### 8.2 EPD Programme Fees

Costs to undertake and publish an EPD include the following fees:

- **Life Cycle Assessment (LCA):** Fees incurred for an LCA practitioner to undertake the LCA and engage with the EPD verification process. These are fees to the LCA consultant when using an external LCA consultant or absorbed internally when undertaking the LCA in-house.
- **Independent LCA & EPD Verification:** Verification of the LCA and EPD by a suitably qualified professional. Only verifiers approved by Circular Ecology shall be used.
  - o Verification fees are set by the verifier, ensuring they can resource sufficient time to complete the verification process. Giving consideration to the PCRs being followed, the requirements in this GPI and the level of complexity of the product(s).
- **EPD Programme Publishing Fees:** Fees to Circular Ecology, for the publication of the EPD and towards the programme operating costs over the 5 year validity period. There are no annual fees in the Circular Ecology EPD Programme, so this cost is paid upfront.

EPD programme fees are published on the Circular Ecology website, [www.circularecology.com](http://www.circularecology.com).

### 8.3 EPD Maintenance, Errors and Complaints

Potential errors in an EPD may be reported by interested parties, such as users of the EPD, competitors, and any other interested parties. The process for dealing with potential errors is as follows:

1. Potential error identified and reported in the Circular Ecology EPD Programme, with supporting evidence provided.
2. Circular Ecology EPD Programme undertake a review, in collaboration with the original LCA Practitioner and EPD Owner. If an error is confirmed, the impact of the error is classified in accordance with the following definitions:

**Minor** – no material impact is expected on the interpretation of the EPD or LCA results.

**Moderate** – a moderate impact is expected on the interpretation of the EPD or LCA results.

**Major** – a significant impact is expected on the interpretation of the EPD or LCA results.

3. Minor errors may be corrected without re-verification, having no material impact on the interpretation of the LCA or EPD.
4. In the case of Moderate or Major errors, both parties agree on a plan to either update the LCA or EPD (ideal case) or to withdraw the EPD (temporarily or permanently). Following correction of the error, the LCA and updated draft EPD shall be updated accordingly, with all changes fully documented and ready for re-verification. Once re-verification is completed, the updated verification statement is provided to the EPD Programme Operator.
5. The updated EPD will be issued with version numbers, a summary of details of the error and changes.
6. The EPD Programme Operator publishes the updated EPD with updated version numbers, revision dates and a summary of the revision, all stated in the EPD; the original EPD is permanently withdrawn from use.

**Note:** It is not only errors which could trigger the requirement to update an EPD; other changes, for example, reflecting changes in manufacturer location, could result in EPD updates. As such, steps 4 to 6 of the above should be followed.

EPD Owners are required to report to Circular Ecology any changes that could result in an EPD requiring an update, as per Section 6.5. Examples that might trigger an update are changes in manufacturing location (this would be deemed a significant change and would require consideration to become a new product EPD), suppliers, energy supply, constitute mixtures. Circular Ecology reserve the right to de-register any EPDs not updated.

The EPD owner may incur fees from the relevant parties for updating the EPD over the maintenance period. This would need to consider any necessary work from the LCA consultant, verifier and potentially additional programme fees, which will be considered on a case-by-case basis and communicated with the EPD owner.

During the course of programme operation, situations may arise where parties may disagree on actions or outcomes related to the development, publication or updates of EPDs. These GPIs, all PCRs, the verification process, and the template are developed to give maximum clarity on rules and procedures. However, where agreement or consensus cannot be reached, the following procedure should be followed:

1. The party is to communicate the complaint, in writing, to the Circular Ecology EPD Programme.
2. Circular Ecology acknowledge receipt of the complaint and set out a timeline for resolution.
3. Circular Ecology management reviews the complaint, in keeping with the commitment to impartiality as set out in this document.
4. Circular Ecology issues a decision or actions taken following the complaint, to the complainant and any applicable Parties.
5. In the case of disagreement, a Party may request at their own cost to use of a third party independent arbitrator (with the competencies as set out in this document for verifiers and

PCR reviewers, but who has not had any involvement in the EPD or PCR in question, and whose appointment is agreed by all parties) to assist in making an impartial decision.

6. Internal review of processes takes place, where potential improvements can be made.

Error reporting or complaints can be brought forward by any interested party, including but not limited to EPD owners, verifiers, LCA consultants and PCR reviewers.

## 8.4 EPD Renewal

An EPD may be renewed once they are expired.

The process involves:

- Updating the LCA with a full update. All primary data and background databases shall be updated. The newest version of the PCR shall also be applied.
- Independent verification of updated LCA results and EPD, including payment of their fees.
- Payment of EPD renewal fees.
- Publishing of the updated EPD.

It is recommended that EPD owners start planning the update of the EPD at least 12 months before the expiry date of the original EPD. This allows time for the primary data to be collected and the LCA to be updated to reflect any other changes. This can allow for continuation of coverage, with sufficient time for the updated EPD to be produced, verified and published to coincide with the expiration of the original EPD.

## 8.5 Digital Data Format

It is an aspiration for the Circular Ecology EPD Programme to align with the ECO Platform's requirements on digital data format. This GPI (or an appendix of the GPI) will be developed in line with the ECO Platform's requirements in due course.

In addition to the PDF format, the EPD shall be produced in a digital format to be verified and accepted. The preferred format is ILCD+EPD.

## 8.6 Use of Logo & Communication Rules

Only EPDs which have been approved following successful verification are permitted to use the Circular Ecology EPD Programme logo.

The logo shall only be added by Circular Ecology to published EPDs. It shall not be manipulated in any way, including changes to colour, size or dimensions.

Unpublished and draft EPDs shall not be circulated outside of the EPD owner, verifier and Circular Ecology. All unpublished EPDs shall be watermarked with "DRAFT" until approved by the programme. Only Circular Ecology may remove the watermark on the EPD template.

## 9 Feedback from Interested Parties

Circular Ecology would be happy to receive feedback on any part of the EPD programme, including:

- General Programme Instructions,
- Product Category Rules,
- Specific EPDs published under this EPD programme,
- Verification processes, and
- Any other area of this EPD programme.

Interested parties may contact Circular Ecology through the [Circular Ecology website](#).

## Appendix A – EPD Verification Procedure

This appendix sets out the verification procedure to be followed for any EPD seeking publication under the Circular Ecology EPD Programme. All EPDs, the underlying LCA data and additional environmental information will undergo independent verification. This verification procedure covers EPDs, which are intended for Business-to-Business communication only. Should the programme expand to cover Business-to-Consumer declarations, this GPI will be updated accordingly.

The process of EPD review and of PCR review is different. This appendix pertains only to the verification of EPDs. Verifiers who participated in the PCR review may also undertake EPD verification; their participation in the PCR review does not exclude them from undertaking EPD verifications.

Circular Ecology expect verifications to be aligned with the relevant ECO Platform standards.

### A.1 Verifiers

Any person undertaking verification as part of the Circular Ecology EPD Programme shall be independent of the project, in line with ISO 14025 8.2.1, which states “Independent verifiers, whether internal or external to the organisation, shall not have been involved in the execution of the LCA or development of the EPD and shall not have conflicts of interest resulting from their position in the organisation.”

The classification of verifiers as internal or external is aligned with ISO 14025:

- **Internal verifier:** A verifier (person) internal to the EPD owner, e.g. they are an employee of the EPD owner.
- **External verifier:** A verifier (person) external to the EPD owner, e.g. they are not an employee of the EPD owner.

Our definition of third-party verifier is stricter than may be found in ISO 14025, our definition is:

- **Third-party verifier:** A verifier (person) that is both external to the EPD owner and external to the LCA practitioner.

The verifier shall be asked to sign an independence statement in line with Appendix A.10.

Any person undertaking verification as part of the Circular Ecology EPD Programme will have the following competencies, as a minimum:

1. Expertise in LCA and methodology for LCA work.
2. Knowledge of the relevant sector, product and product-related environmental aspects.
3. Process and product knowledge of the product category.
4. Knowledge of relevant standards in the fields of environmental labelling and declarations and LCA.
5. Knowledge of the regulatory framework within which requirements for EPD have been prepared, and knowledge of the EPD programme.

Verifiers will be asked to confirm they have access to copies of all applicable standards and PCRs.

Circular Ecology will review the overall competencies of verifiers as part of the approval process. Applications are encouraged from those with several years or more of (full time equivalent) relevant professional experience.

Anyone wishing to become a verifier on the programme should contact Circular Ecology with an expression of their interest.

Steps for the appointment and registration of a verifier are as follows:

1. Prospective verifier registers their interest, in writing, with Circular Ecology.
2. Prospective verifier provides a copy of their CV, with detailed experience of relevant projects.
3. Circular Ecology provide written details of their decision.

Appointed verifiers are required to keep their CV with experience up to date and provide it upon request. They are required to keep a valid Professional Indemnity insurance policy in place and to provide evidence of the policy to Circular Ecology.

## A.2 Verification of LCA & EPD

Independent verification of data from LCA, LCI and information modules, and of additional environmental information, shall, as a minimum, confirm the following:

- Conformance with the stated PCR.
- Conformance with ISO 14025, ISO 14040, and ISO 14044.
- Conformance with this GPI.
- That data evaluation includes coverage, precision, completeness, representativeness, consistency, reproducibility, sources and uncertainty.
- That LCA data is plausible, accurate and of suitable quality.
- That additional environmental information is accurate and of suitable quality.
- That additional supporting information is accurate and of suitable quality.

The project LCA report shall be available in English.

Circular Ecology require that all LCA verifications shall:

- Provide access to the LCA model to the verifier. The minimum level of access shall be a screen share call with the LCA lead practitioner and the LCA verifier. With a walkthrough of the LCA model. The LCA verifier shall be able to direct the walkthrough to check any part of the LCA model and its results. The LCA verifier may request similar follow up meetings should they require.
- The LCA verifier shall spot check at least 5 emissions factors in the LCA model are within plausible expectations.
  - At least 3 of which shall be hotspots within the A1-3 GWP results.
  - It is encouraged to check over 50% of the A1-3 GWP as part of the verification, where possible.

- Examples of checks include emissions factors for embodied impacts of producing materials, fuel consumption, transport activities, and waste processing.
- The LCA verifier shall undertake reasonably representative spot checks on the primary data.
  - Examples include checking quantities of inputs and outputs in the LCA model match the quantities in the evidence of primary data.

Any identified missing, incomplete or incorrect information identified during the review process shall be addressed prior to the completion of the verification.

The verifier shall populate the Circular Ecology verification templates, which include a copy of the ECO Platform verification checklist, in addition to the verification checks required by Circular Ecology.

The EPD verification will consist of a full review of the EPD document, covering all modules and impact indicators. The EPD shall be checked to ensure that all requirements of the Circular Ecology EPD template are included and appropriately displayed. Any identified missing, incomplete or incorrect information identified during the review process shall be addressed prior to the completion of the verification.

### A.3 Verification Data Management

The following procedure covers how LCA project reports and primary data are managed, retained, and protected by Circular Ecology and the verifier.

For each EPD published, the LCA project report shall be retained by Circular Ecology for the full validity period of the EPD and for a minimum grace period of 3 months following EPD expiry or withdrawal. The report shall be stored securely in a restricted-access environment and made available only to authorised personnel and verifiers involved in verification or audit activities.

Primary data provided by the manufacturer or supplier remains the property of the data owner and shall be treated as confidential business information. Primary data should only be accessed by the verifier and Circular Ecology under a Non-Disclosure Agreement (NDA).

The verifier and Circular Ecology shall both permanently delete all primary data upon the publication of the EPD. A period of 30 days to delete the primary data would be deemed reasonable.

### A.4 Pre-Verification of Tools

In the case of the request of the Programme to pre-verify an LCA tool, with the intention that the tool is used as the basis for EPDs, the tool will require verification in line with the requirements below.

All tools shall have strictly defined product types to avoid the use of the tool with unsuitable products.

Tools shall declare all parameters that accept user input data. The reviewer shall check that all parameters are suitable for users to edit to produce robust and fair LCA results.

A comprehensive list of emissions factors (e.g. exact process names from the ecoinvent or Sphera MLC databases) shall be provided for the verification process, covering all emissions factors used in the tool. It shall include the full references of source, background LCA database version, process names, and all impact indicators results fully quantified.

The reviewer shall check a representative sized sample of the emissions factors. Ensuring that enough of the key materials and products are checked closely.

The tool shall have a process in place to ensure transparency and quality management of user entered emissions factors. For example, can users enter LCA results to use within the tool, and what processes are in place to ensure they are credible or verifiable? All outputs and results shall be transparent on user entered emissions factors, and they shall be made available to EPD verifiers.

Example calculations and results shall be presented for the verification process. All parameters and data needed for these calculations shall be presented in a well formatted Microsoft Excel file (or similar accessible spreadsheet software), for use in the verification process.

The verifier shall complete offline calculation checks to replicate results and determine that key parts of the calculations are being pieced together in the tool adequately.

The tool shall be adequately documented to the same extent as the verification of an EPD.

The appointed verifier of the tool shall be provided with unlimited access to the tool.

Comprehensive checks shall be completed on:

- Emission factors for all inputs, such as embodied impacts of making materials, fuels, transportation activities, and waste processing.
- Methodology.
- Calculations.
- Results.

## A.5 Verification Outputs

A verification report will be produced for each EPD or group of similar products from the same EPD owner that undergoes the review process. The verification will follow the verification procedure set out within this GPI, the Circular Ecology EPD Programme Verification Checklist and the Circular Ecology EPD Programme Verification Report. The verification report shall not contain any confidential data.

A statement will be included in the Verification Report where the verifier will confirm that the EPD accurately reflects the information in the documents on which it is based, as well as a statement to confirm that this information is valid and scientifically sound.

## A.6 Evidence Requirements

The following evidence shall be provided to both the verifier and Circular Ecology for the verification process:

- LCA report in line with the requirements of this GPI, the application PCRs and core calculation method(s).
- Draft EPD in the Circular Ecology EPD Programme template.
- Evidence of primary data, such as energy consumption, raw materials, logistics, etc.
  - NDAs should be used before evidence of primary data is provided.
  - The verifier may request any missing primary data to be provided.

- Primary data is required to be deleted by the verifier and Circular Ecology once the EPD has been published or it is no longer needed, in line with the requirements of the Verification Data Management procedure documented in Appendix A.3.

## A.7 Verification Documentation

All verifiers will use the Circular Ecology verification template. The template includes the requirements of ECO Platform’s “Verification Guidelines for ECO EPD Programme Operators”. A verification report will be produced for each EPD or group of EPDs, which will be issued to the EPD owner. In line with ISO 14025 8.4.2, the verification report will be made available to any person who requests access.

## A.8 EPD Programme Checks

Once the verification report is issued to Circular Ecology, they will check that it is complete. Should there be any gaps in the verification template, they will ask the verifier to complete the missing sections. Once complete and all parties are satisfied, the verification will be closed out.

## A.9 Post-Verification Publication

The Circular Ecology EPD Programme retains the right not to publish an EPD if it deems that, following verification, an error is present. In this instance, the error process in Section 8.3 will be followed.

## A.10 Verifier Declaration of Independence

Each verifier will be asked to sign a declaration of independence for each EPD or group of EPDs. The below template is provided:

*EPD Owner: <enter EPD owner name>*

*I declare that all of the below statements are true:*

- *I have no financial ownership of the EPD owner or competitors, direct or indirect.*
- *I have not been involved in top management selection and structure, of the EPD owner.*
- *I have declared any existing relationships that exist with the EPD owner and competitors (commercial and non-commercial).*
- *I have declared any provision of any other consultancy to the EPD owner and competitors, confirming there is no conflict of interest.*
- *I have declared any advocacy activities relevant to the EPD(s) under development, confirming there is no conflict of interest.*
- *I have not been involved in the execution of the LCA or the development of the declaration.*
- *I am not an employee of the EPD owner. [External and third-party verifiers only]*
- *I am a third-party to the EPD owner and LCA practitioner. [Third-party verifiers only]*

*Name: <enter name>*

*Date: <enter date>*

*Signature:*

# Appendix B – PCR Development Processes

## B.1 PCR Development & Contents

The Circular Ecology EPD Programme acknowledges that there exists a range of reviewed and operational PCR documents available, having been developed and reviewed under EPD Operator Programmes outside of this one.

The Circular Ecology EPD Programme shall only develop additional PCR documents where there is justification to do so, and only when gaps in existing PCRs justify the need to develop new PCRs.

Any PCR developed by the programme will document, in detail, the efforts that have been undertaken to align with existing, available PCR documents, and the reasoning and justification for not simply using these PCR documents.

Any developed PCR will include:

- Product category definition and description (e.g., function, technical performance and use).
- Goal and scope definition for the LCA of the product, according to the ISO 14040 series, including:
  - o Declared unit or functional unit,
  - o System boundary,
  - o Description of data,
  - o Criteria for the inclusion of inputs and outputs,
  - o Data quality requirements.
- Inventory analysis, including:
  - o Data collection,
  - o Calculation procedures,
  - o Allocation of material and energy flows and releases.
- Impact category selection and calculation rules.
- Predetermined parameters for reporting of LCA data (inventory data categories and impact category indicators) (*Predetermined parameters are the parameters on which environmental information about a product is to be supplied as identified in the PCR*).
- Requirements for provision of additional environmental information, including any methodological requirements (e.g. specifications for hazard and risk assessment).
- Materials and substances to be declared (e.g. information about product content, including specification of materials and substances that can adversely affect human health and/or the environment, in all stages of the life cycle).
- Instructions for producing the data required to develop the declaration (LCA, LCI, information modules and additional environmental information).
- Instructions on the content and format of the Type III environmental declaration.

- Information on which stages are not considered, if the declaration is not based on an LCA covering all life cycle stages.
- Period of validity.

The LCAs or other relevant studies used to inform the development of a PCR will be referenced within the PCR. All parties involved in the development of the PCR shall be stated.

## B.2 PCR Review

The core PCR review shall be conducted by a third-party panel, which shall have a minimum of a chair and two members. The PCR document shall include a review statement, either signed by the chair on behalf of all panel members or signed by each individual panel member.

The intent of the PCR review is to demonstrate that:

- The PCR has been developed in accordance with ISO 14025, ISO 14040, and ISO 14044.
- The PCR fulfils the requirements of the GPI (this document).
- The LCA data and additional information, which the PCR describes, provide an accurate description of the products which fall under the PCR.

Circular Ecology are also aligning this EPD programme with the ECO Platform's LCA calculation rules and verification requirements.

## B.3 PCR Panel Selection

The minimum combined competence requirements for the PCR panel are as follows:

- General background knowledge of the relevant sector, product and product-related environmental aspects,
- Expertise in LCA and methodology for LCA work,
- Awareness of relevant standards in the fields of environmental labelling and declarations and LCA,
- Knowledge of the regulatory framework within the scope of the PCR, and
- Knowledge of the programme for Type III environmental declarations.

Individual panel members do not need to cover all points above individually, so long as the combined competence across the panel satisfies the full list above.

The panel should represent a range of perspectives, interests, backgrounds and competencies, to ensure its effectiveness and validity.

## B.4 PCR Review Period

The PCR review panel should be given a reasonable amount of time and resources to undertake a sufficient review of the PCR in development. Access to details and information sources will be provided. A kick-off meeting will be held at the start of the review period to ensure two-way dialogue between the programme operator and the PCR review panel.

Any comments or recommendations received by the PCR review panel as part of the process will be subject to fair consideration and timely response.

## B.5 PCR Updates

The PCRs developed under this programme shall be monitored by Circular Ecology, keeping an eye on new landscape developments that may require PCRs to be updated. Should a PCR be updated, the following process shall be followed:

- The overall level of updates will be categorised by:
  - **Minor updates:** Updates with no significant changes to the core requirements of the PCR or underlying LCAs.
  - **Moderate updates:** Updates that have notable changes to the core requirements of the PCR and will result in notable changes in the LCA results.
  - **Major updates:** Updates that result in significant changes to the core requirements of the PCR and will result in significant changes to the LCA results.

All updated PCRs shall summarise changes in the PCR.

The process for updating the PCR according to these categories is:

**For minor updates:** The PCR may be updated by Circular Ecology. Although all updates shall be reported in the PCR, and justified as a minor or non-material update for transparency.

**Note:** *Updates to referenced versions of standards and methods may be undertaken as a minor update. For example, reference to a newer version of the ECO Platform calculation rules may be updated as a minor update, or an update from the EF 3.1 method to the latest version when published. However, if the requirements of the newer referenced standards and methods are not eligible for a minor update, a moderate or major update will be required.*

**For moderate updates:** For moderate updates, a single third-party may be used to review the changes to the PCR. Only the changes will be within the scope of the review process. Ideally, one of the parties involved in the original PCR review should be invited, prioritising the original chair. But it is appreciated that this might not always be possible. Their review update statement shall be published in the PCR.

**For major updates:** These will require another third-party panel review, composed of a chair and at least two further members. The full PCR shall be within the scope of the review process. The review statement shall be published in the PCR.