PCR Registration number

Version NUMBER, PUBLICATION DATE

valid until 20XX-YY-ZZ

*Note: This document is a PCR template to be used in pcr development. It is not a PCR**.*

A cover image of the PCR will be added by the Secretariat.

The PCR Committee may propose a cover image by submitting it to the Secretariat. The image shall be representative for the scope of the PCR, be of high resolution, and its use as cover image shall be approved by the copyright holder.

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how to use the PCR template

*This section is intended as instructions for the PCR Moderator and PCR Committee and shall be deleted when preparing a PCR.*

This document is a template for developing Product Category Rules (PCR) in the International EPD® System.

The text in this PCR template includes:

1. Headings and text which are common for all PCRs regardless of product category, e.g. the “General introduction” section. These should be kept as they are, but exceptions are possible, as is further described in this document and in the General Programme Instructions (GPI).
2. Instructions written *in italics.* They shall be decided upon during the PCR development and be replaced by specific requirements (or deleted as appropriate) in the PCR. When indicated, this is also used to indicate administrative information that will be added by the Secretariat before publication.

The GPI includes further requirements on and guidance for developing PCRs.

Previous GPI versions used PCR Basic Modules as the basis for PCR development, instead of this PCR template. In addition to the guidance in this template, the PCR Basic Modules included requirements which are common for all products that belong to the specified product group on UN CPC code two-digit level. As this PCR template is more generic, it has become even more important to carefully consider other PCRs of similar or related product categories in the development of the PCR. This consideration is essential to harmonize PCRs. If there is a lack of PCRs on similar or related product categories, the old PCR Basic Modules may still be used as a reference in the development process to facilitate harmonization – the PCR Moderator may contact the Secretariat to get a copy of the PCR Basic Module that corresponds to the product category of concern.

version history of pcr template

*This section shall be deleted when preparing a PCR.*

Version 2021-03-29

Original version of this PCR template, compliant with Version 4.0 of the GPI.

Version 2021-06-21

Updated version of this PCR template, with minor editorial changes.

Version 2022-04-20

Updated version of this PCR template, with minor editorial changes.

Version 2022-07-08

Updated version of this PCR template, with new and clarified rules on EPDs of multiple products (which will be implemented in the next version of the GPI but are valid already now) and minor editorial changes.

Version 2022-09-22

Updated version of this PCR template, with minor editorial changes.

Version 2022-11-01

Updated version of this PCR template, with minor editorial changes, new rules on how to define the electricity market (which will be implemented in the next version of the GPI but are valid already now with a 6-month transition period), a clarification that the environmental performance section may include additional indicators, if justified, and a clarification that the additional environmental information shall, as default, not include LCA results, but that there are exceptions.

Version 2022-11-04

Updated version of this PCR template, with minor editorial changes.

Version 2023-01-03

Updated version of this PCR template, with minor editorial changes and clarified rules on electricity modelling.

Version 2023-01-25

Updated version of this PCR template, with updated rules on modelling of infrastructure and capital goods.

Version 2023-03-23

Updated version of this PCR template, with updated rules on modelling of infrastructure and capital goods.

1. Introduction

This document constitutes Product Category Rules (PCR) developed in the framework of the International EPD® System: a programme for type III environmental declarations[[1]](#footnote-2) according to ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and product-specific standards such as EN 15804 and ISO 21930 for construction products. Environmental Product Declarations (EPD) are voluntary documents for a company or organisation to present transparent, consistent and verifiable information about the environmental performance of their products (goods or services).

The rules for the overall administration and operation of the programme are the General Programme Instructions (GPI), publicly available at [www.environdec.com](http://www.environdec.com). A PCR complements the GPI and the normative standards by providing specific rules, requirements and guidelines for developing an EPD for one or more specific product categories (see Figure 1). A PCR should enable different practitioners using the PCR to generate consistent results when assessing products of the same product category.

Figure 1 The hierarchy between PCRs, standards and other documents. EN 15804 and ISO 21930 are normative standards for construction products only.

*For PCRs of non-construction products, the fifth level in Figure 1 (“(EN 15804 / ISO 21930)”) may be deleted, and the figure caption shall be adapted accordingly.*

Within the present PCR, the following terminology is adopted:

* The term “shall” is used to indicate what is obligatory, i.e. a requirement.
* The term “should” is used to indicate a recommendation, rather than a requirement. Any deviation from a “should” requirement shall be justified in the PCR development process.
* The terms “may” or “can” is used to indicate an option that is permissible.

For definitions of further terms used in the document, see the normative standards.

A PCR is valid for a pre-determined period of time to ensure that it is updated at regular intervals. The latest version of the PCR is available at [www.environdec.com](http://www.environdec.com).Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.

Any references to this document shall include the PCR registration number, name and version.

The programme operator maintains the copyright of the document to ensure that it is possible to publish, update, and make it available to all organisations to develop and register EPDs. Stakeholders participating in PCR development should be acknowledged in the final document and on the website.

1. General information
   1. Administrative information

|  |  |
| --- | --- |
| Name: | *Name of the PCR* |
| Registration number and version: | *To be added by the Secretariat* |
| Programme: | The International EPD® System |
| Programme operator: | EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden.  Website: [www.environdec.com](http://www.environdec.com)  E-mail: [info@environdec.com](mailto:info@environdec.com) |
| PCR Moderator: | *Name, organisation and e-mail address of the appointed PCR Moderator* |
| PCR Committee: | *Names of organisations participating in the preparation of the PCR* |
| Date of publication and last revision: | *To be added by the Secretariat* |
| Valid until: | *To be added by the Secretariat* |
| Schedule for renewal: | A PCR is valid for a pre-determined time period to ensure that it is updated at regular intervals. When the PCR is about to expire, the PCR Moderator shall initiate a discussion with the Secretariat how to proceed with updating the PCR and renewing its validity.  A PCR may be also be updated without prolonging its period of validity, provided significant and well-justified proposals for changes or amendments are presented.  See [www.environdec.com](http://www.environdec.com) for the latest version of the PCR.  When there has been an update of the PCR, the new version should be used to develop EPDs. The old version may however be used for 90 days after the publication date of the new version, as long as the old version has not expired. |
| Standards and documents conformance: | General Programme Instructions of the International EPD® System, version 4.0, based on ISO 14025 and ISO 14040/14044  *List all other standards and documents to which the PCR conforms, e.g. EN 15804 and ISO 21930 for construction products.* |
| PCR language(s): | At the time of publication, this PCR was available in English *and (add other languages the PCR has been translated to)*. If the PCR is available in several languages, these are available at [www.environdec.com](http://www.environdec.com). In case of translated versions, the English version takes precedence in case of any discrepancies. |

* 1. Scope of PCR
     1. Product category definition and description

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of *name of product category* and the declaration of this performance by an EPD*.* The product category corresponds to UN CPC XXX *Name of CPC classification(s)*.

*Provide a detailed description of the products included in the product category. Examples of products included and excluded from the scope of the PCR should be given. Synonyms to the name of the product category and its included products should be listed.*

*The UN CPC classification hierarchy shall be presented, as well as a link to https://unstats.un.org/unsd/classifications/Family/Detail/1074 for additional information. Other relevant classification schemes may also be included.*

*The product category covered by a PCR shall, as far as possible, relate to the function of the product, i.e. that the same functional unit may be applied to products within its scope. If justified, a PCR may, however, allow different functional units for different products within the product category.* *The product category definition should be made so that the development of the PCR is practical and feasible accounting for existing PCRs, the market situation, industry structure, potential EPD applications, and the size of the stakeholder group affected. The scope should be decided during PCR development in a discussion between the PCR Moderator, the PCR Committee, the Secretariat, and the Technical Committee, with the aim to reach consensus, as far as possible. The scope of the product category of a PCR may be reconsidered during PCR development (e.g. as a response to comments made during the open consultation), when PCRs are updated, or when new PCRs are proposed, to adapt to market developments.*

* + 1. Geographical scope

This PCR may be used globally.

*PCR documents developed in the International EPD® System should have a global scope, e.g. to be as applicable as possible and to avoid creating unnecessary trade barriers.*

*The geographical scope of the PCR may, however, be more limited when relevant. In such cases, the above sentence shall be replaced by a list of the geographical region(s) for which the PCR is valid. The geographical scope stated shall match the scope of the guidance given in the PCR, e.g., scenarios for the use phase and end-of-life, production processes, examples of databases to use for generic data, references to standards, impact categories, etc. Any other scope than a global one must be clearly justified in the PCR development process and is subject to approval by the Secretariat.*

* + 1. EPD validity

An EPD based on this PCR shall be valid for a 5-year period starting from the date of the verification report (“approval date”), or until the EPD has been de-registered from the International EPD® System.

An EPD shall be updated and re-verified during its validity if changes in technology or other circumstances have led to:

* an increase of 10% or more of any of the declared indicators of environmental impact,
* errors in the declared information, or
* significant changes to the declared product information, content declaration, or additional environmental, social or economic information.

If such changes have occurred, but the EPD is not updated, the EPD owner shall contact the Secretariat to de-register the EPD.

1. PCR review and background information

This PCR was developed in accordance with the PCR development process described in the GPI of the International EPD® System, including open consultation and review.

* 1. Open consultation
     1. Version 1.0

This PCR was available for open consultation from *date* until *date*, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

*Add information about any physical or web-based meetings held during the open consultation phase, if applicable.*

Stakeholders were invited via e-mail or other means to take part in the open consultation and were encouraged to forward the invitation to other relevant stakeholders. The following stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and at [www.environdec.com](http://www.environdec.com).

* *List of stakeholder names and affiliation (to be added after the open consultation).*

*In case of multiple major revisions of the PCR (1.0, 2.0, etc.), information about each open consultation should be added as sub-sections (3.2.1, 3.2.2, etc.).*

* 1. PCR review
     1. Version 1.0

|  |  |
| --- | --- |
| PCR review panel: | The Technical Committee of the International EPD® System. A full list of members is available at [www.environdec.com](http://www.environdec.com). The review panel may be contacted via [info@environdec.com](mailto:info@environdec.com).  Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review. |
| Chair of the PCR review: | *To be added by the Secretariat* |
| Review dates: | *To be added by the Secretariat* |

*In case of multiple major revisions of the PCR (1.0, 2.0, etc.), information about each review should be added as sub-sections (3.1.1, 3.1.2, etc.).*

* 1. Existing PCRs for the product category

As part of the development of this PCR, existing PCRs and other internationally standardized methods that could potentially act as PCRs were considered to avoid unnecessary overlaps in scope and to ensure harmonisation with established methods of relevance for the product category. The existence of such documents was checked among the following EPD programmes and international standardisation bodies:

* International EPD® System. [www.environdec.com](http://www.environdec.com).
* *List of other EPD programmes and international standardisation bodies that have potentially issued methods that could act as PCRs, including link to website. Guidance is available at* [*www.environdec.com*](http://www.environdec.com) *on where to search for existing PCRs.*

Table 1 lists the identified PCRs and other standardized methods.

Table 1 Existing PCRs and other internationally standardized methods that were considered to avoid overlap in scope and to ensure harmonisation with established methods.

|  |  |  |  |
| --- | --- | --- | --- |
| NAME OF PCR/STANDARD | PROGRAMME/  STANDARDISATION BODY | REGISTRATION NUMBER, VERSION NUMBER/DATE OF PUBLICATION | SCOPE |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

*Full references to existing PCRs shall be given in Section 7.*

*The adoption of an existing PCR shall be preferred over developing a new PCR. If existing PCRs are identified but not used, this shall be justified. Existing PCRs that cover a part of the life cycle of the product in question, e.g. agricultural products for processed food items, should be referenced for harmonisation across product categories and in supply chains.*

*Existing PCRs available in other programmes shall also be considered, including PCRs that are under development. The International EPD® System may recognise and adopt PCRs prepared by other programme operators operating in accordance with ISO 14025 if they fulfil the requirements of the GPI. If a PCR with a relevant scope is identified in another programme, the Secretariat shall be contacted to plan the next step.*

*If other internationally standardized methods exist that act as PCRs or give guidance on PCR development for certain product categories, and the guidelines are widely accepted and used by the market, it may be possible to develop and certify EPDs according to such a standard or guideline even though it is not fully compliant with the International EPD® System. The decision to adopt such documents shall be made by the Secretariat.*

*If existing PCRs and/or relevant internationally standardized methods were identified but not adopted, the reason for why the present PCR was developed shall be described in Section 3.4. Also, any attempts made to harmonize or align this PCR with existing PCRs and/or internationally standardized methods shall be described.*

*If no existing PCRs or relevant internationally standardized methods were identified, the above table may be replaced by the statement: “No existing PCRs or other relevant internationally standardized methods with overlapping scope were identified.”*

* 1. Reasoning for development of PCR

This PCR was developed to enable publication of EPDs for this product category based on ISO 14025, ISO 14040/14044 and *(add other relevant standards on which the PCR is based*). The PCR enables different practitioners to generate consistent results when assessing the environmental impact of products of the same product category, and thereby it supports comparability of products within a product category.

*Add any other justification for development of the PCR, if relevant, and any limitations in the intended target audience of EPDs based on this PCR.*

* 1. Underlying studies used for PCR development

The methodological choices made during the development of this PCR (declared/functional unit, system boundary, allocation methods, impact categories, data quality rules, etc.) were primarily based on the following underlying studies:

* *List the underlying life cycle assessments (LCAs) conducted in accordance with ISO 14044, scientific papers and other relevant studies, including any supporting studies performed in parallel to the PCR development. Full references to the underlying studies shall also be given in Section 7. If the PCR is an update of a previously published PCR, the underlying studies of the previous versions of the PCR shall also be listed.*

*Note that the GPI requires PCRs to be based on one or more LCAs representing the full product life cycle conducted in accordance with ISO 14044 and other relevant LCA-based footprint studies, including any supporting studies performed in parallel to the PCR development.*

1. Goal and scope, life cycle inventory and life cycle impact assessment

The goal of this section is to provide specific rules, requirements and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

* 1. Declared/functional unit

*The functional/declared unit(s) and reference flow(s) to use in the EPD shall be specified in the PCR.*

*Example of text if a declared unit is required/recommended: “The declared unit shall be defined as 1 kg of product and its packaging (the weight of the packaging is not included in this 1 kg). The reference flow in the LCA shall be defined at the point where the product arrives at the customer gate, i.e. any losses occurring before then must be taken into account.”*

*If a declared unit is required/recommended, the following text should be added (but it is encouraged to adopt the text to the specific product category): “This PCR uses a declared unit instead of a functional unit. This is because not all relevant functional aspects are possible to capture in one or a few predefined functional units. All relevant functional aspects shall, however, be taken into consideration when comparing EPDs based on this PCR.”*

*The PCR may allow several declared/functional units, for different subcategories of products. The PCR may also allow the declaration of results for two different declared/functional units in the same EPD, although this is not recommended; this must be justified in the PCR development process.*

*Make sure to harmonise the guidance on declared/functional unit with other similar or related PCRs.*

*If a declared unit is used, any reference to functional unit should be removed from the document, and vice-versa.*

*The PCR may define qualitative or performance-related aspects to declare in the EPD that are outside of the declared/functional unit.*

*Further guidance to help define the declared/functional unit, taken from the GPI:*

*The declared or functional unit is the reference unit to which the environmental performance of the product is related. Functional unit is defined as a quantified performance of a product and a declared unit is defined as a quantity of a product. The declared/functional unit to use for a specific product category shall be specified in the PCR.*

*The declared/functional unit shall be clearly defined and measurable. In practice, the declared/functional unit consists of a qualitatively defined function or property (e.g. for paint, a surface covered with a certain level of brightness, or other quality) and its quantification via one or several units (e.g. 1 m2 covered for 10 years). The declared/functional unit should be expressed in SI units (kg, J, meters, etc.), however, other units may be used if they are considered more relevant to address the information (e.g. kW for power and kWh for energy). Conversion factors shall be provided to convert from declared/functional unit to one unit of product, where relevant.*

*If the function of the product in the use phase is known and can be clearly defined, a functional unit shall be used. Examples of functional units are:*

* *for transportation modes or services: transportation of a given number of passengers over a given distance, e.g. transport of 1 passenger for 1 km,*
* *for cleaning items or services: cleaning of a given item or area for a given time, e.g. 1 m2 building area kept cleaned for a period of 1 year,*
* *for products applied on surfaces: coverage of given surface area over a given time. e.g. 1 m2 wall surface covered for 10 years, and*
* *for energy products: provision of a certain type and quantity of energy, e.g. 1 kWh of electricity delivered to the customer.*

*If the function of the product in the use phase is unknown, if the product can be used for several different functions, or if the function cannot be clearly defined, a declared unit may be used. A declared unit may, for example, be suitable for intermediate products which can be further processed, or combined with other products, into different end products. Although a declared unit is defined as a quantity of the product rather than its quantified performance, the definition of declared unit shall be relevant in relation to the typical applications the product. Examples of declared units are:*

* *an item or an assemblage of items, e.g. 1 brick, 1 mobile phone,*
* *mass of a product, e.g. 1 kg of cement, and*
* *volume of a product, e.g. 1 litre of water, 1 m3 of ready-mixed concrete.*

*Note that the use of a declared unit may reduce comparability between EPDs. To increase comparability between EPDs based on a declared unit, it is therefore important to specify technical properties of relevance for the application/use of the product.*

* 1. Technical specification, lifespan and reference service life (RSL)

*If relevant, the PCR may require or recommend a technical specification of the product, for example in a separate section (this section) or as part of describing its function. The technical specification shall include sufficient information for a user of the EPD to assess the technical performance and usefulness of the product in a given context.*

*The technical specification may include a technical lifespan of the product, i.e. the average time for which the product has been designed or proven to last, and/or an actual lifespan, i.e. the average time for which the product has been shown to be in use. Lifespans shall be expressed in relevant units such as years, operating hours, or kilometres travelled. Note that the technical lifespan is not identical or related to guarantee time whether legally binding or offered voluntary. If relevant, the PCR may include requirements or guidance on how to estimate product lifespans. Requirements or guidance of lifespan is particularly relevant if the PCR requires or allows the use stage to be included.*

*Note that a technical or actual lifespan of a product is not necessarily the same as the reference service life (RSL) of the product category to which the product belongs. The RSL of a product category is the reference time to which the performance of all products of a product category shall be related. As such, the RSL may be an integral part for relating the performance of a product to the functional unit. For example, a PCR may specify the RSL of a product category to be 10 years (e.g. because that is a typical technical lifespan for the product category) and then specify the functional unit to be the fulfilment of a certain function over that RSL. If a product then has a (proven) technical lifespan of 5 years, two such products (or a replacement product or refurbishment of the product, depending on product) are needed to fulfil the functional unit. Likewise, if a product has a (proven) technical lifespan of 20 years, only half such a product may be needed to fulfil the functional unit.*

*If relevant, the PCR may specify the RSL for a product category. The RSL shall refer to the declared technical and functional performance of the product, be specified under defined reference in-use conditions, and be justified and verifiable.*

*RSL is particularly relevant to define if a functional unit is used. If a declared unit is used, it is not relevant to define a RSL.*

*For further guidance on RSL of construction products, see EN 15804.*

* 1. System boundary

The scope of this PCR and EPDs based on it is *insert the scope of the PCR (e.g. cradle-to-gate, cradle-to-gate plus end-of-life, cradle-to-grave, or several if several options are permitted)*.

*The system boundary of the product life cycle determines the processes to be included or excluded in the LCA. Which system boundary that shall, should or may be applied for a specific product category shall be set in the PCR. See the GPI for further guidance on setting system boundaries.*

*All environmentally relevant processes from “cradle to grave” should be included, so that at minimum 99% of the total energy use, mass of product content, and environmental impact is accounted for (see Section 4.5).*

*For intermediate products or other products for which further processing and/or the end use is unknown, the system boundary may be limited to “cradle to gate”. If end-of-life treatment is excluded, the following criteria shall be fulfilled (the first three criteria are adapted from EN 15804, and the fourth criteria is adapted from ISO 14025):*

* *the product is physically integrated with other products in subsequent life-cycle process (e.g. during installation in a building) so they cannot be physically separated from them at end of life,*
* *the product or material is no longer identifiable at end-of-life as a result of a physical or chemical transformation process,*
* *the product or material does not contain biogenic carbon, and*
* *the EPD shall not be used for business-to-consumer communication.*

*If deviations from a “cradle to grave” system boundary are allowed for a product category, and if deviations from the above criteria for excluding end-of-lite treatment are made, these shall be described in the PCR and justified in the PCR development process.*

* + 1. Life-cycle stages

For the purpose of different data quality rules and for the presentation of results, the life cycle of the product is divided into three life cycle stages:

* Upstream processes (from cradle-to-gate)
* Core processes (from gate-to-gate)
* Downstream processes (from gate-to-grave)

In the EPD, the environmental performance associated with each of the three life-cycle stages above shall be reported separately and in aggregated form. The processes included in the scope of the PCR and belonging to each life cycle stage are described in Sections 4.3.1.1–4.3.1.3.

*Based on market needs, a PCR may require division into other life-cycle stages than those above, which will require modifications of the above text. For example, for construction products, the division into life cycle stages and information modules outlined in EN 15804 shall be applied (i.e. life cycle stages A-D subdivided into information modules A1-A3, A4-A5, B1-B5, B6-B7, C1-C4, and D). It may be relevant to use the division into life-cycle stages and information modules of EN 15804 also for other product categories for which it can be valuable for the market to align with the EPD practices of construction products. The PCR shall specify which life cycle stage division to use, and if the division is not into upstream, downstream and core processes, this shall be justified in the PCR development process. If the PCR allows the declaration of life-cycle stages or modules based on consequential LCA modelling, such as module D of EN 15804, the PCR shall specify that the results of those life-cycle stages/modules shall be separately declared and not included in the total results figure.*

*A PCR may require or recommend results for use/operation of the product and other downstream processes (e.g. end-of-life treatment) to be separately declared, instead of being declared in aggregated form, if relevant for the product category. This will require modification of the above text.*

*Below subsections specify typical processes of each life-cycle stage. These subsections need to be adjusted to the scope of the PCR by listing processes which are typical for the product category – please consider lists of processes in similar or related PCRs, for harmonization purposes. Furthermore, for PCRs of services, the guidance in the below subsections may not apply and needs to be adjusted. For example, production/execution of the service shall be regarded as a core process, and manufacturing of items or consumables used in the production/execution of the service shall be regarded as upstream processes. Also, a service will typically not have a downstream process (e.g., management of generated waste is a core process).*

* + - 1. Upstream processes

The following unit processes are part of the product system and shall be classified as upstream processes: *(This list shall be adjusted to the scope of the PCR)*

* extraction and processing of raw materials,
* recycling processes of secondary materials from other product life cycles,
* production of input components,
* relevant services, such as transport of raw materials and components along the upstream supply chain to a distribution point (e.g. a stockroom or warehouse),
* production of distribution and consumer packaging, and *(If part of the production of the consumer packaging (see ISO 21067-1:2016, Section 2.2.7) is part of the manufacturing process, it may be more relevant to include it as part of the core processes. This should be defined in more detail in the PCR.)*
* generation of electricity and production of fuels, steam and other energy carriers used in upstream processes.

Upstream processes not listed may also be included. All elementary flows at resource extraction shall be included, except for the flows that fall under the general cut-off rule in Section 4.5.

For modelling of infrastructure and capital goods, see Section 4.3.2.

*Included and excluded upstream processes should be further specified and defined in the PCR. Any exclusion of life-cycle stages and unit processes shall be justified in the PCR development process.*

* + - 1. Core processes

The following unit processes are part of the product system and shall be classified as core processes: *(This list shall be adjusted to the scope of the PCR, and be aligned with the below list of excluded processes)*

* transportation of materials and components to the manufacturing of the product under study,
* manufacturing of the product under study,
* end-of-life treatment of manufacturing waste, even if carried out by third parties, including transportation, and
* generation of electricity and production of fuels, steam and other energy carriers used in core processes.

Core processes not listed may also be included. Manufacturing of a minimum of 99% of the total weight of the declared product including packaging shall be included.

The following processes shall not be included: *(This list shall be adjusted to the scope of the PCR, and be aligned with the above list of included processes)*

* business travel of personnel,
* travel to and from work by personnel, and
* research and development activities.

For modelling of infrastructure and capital goods, see Section 4.3.2.

*Included and excluded core processes should be further specified and defined in the PCR. Any exclusion of life-cycle stages and unit processes shall be justified in the PCR development process.*

* + - 1. Downstream processes

The following unit processes are part of the product system and shall be classified as downstream processes: *(This list shall be adjusted to the scope of the PCR)*

* transportation of the product to retailer/consumer,
* product use, e.g. use of electricity or water, use activities causing direct emissions, maintenance activities,
* end-of-life treatment of the used product and its packaging, including transportation, and
* generation of electricity and production of fuels, steam and other energy carriers used in downstream processes.

For modelling of infrastructure and capital goods, see Section 4.3.2.

*Included and excluded downstream processes should be further specified and defined in the PCR. Any exclusion of life-cycle stages and unit processes shall be justified in the PCR development process.*

* + 1. Infrastructure and capital goods

*Below are the general the rules on modelling of infrastructure and capital goods. The below text may be adapted to better suit the specific product category of the PCR. Such adaptions shall be justified in the PCR development process.*

In general, the production and end-of-life processes of infrastructure or capital goods[[2]](#footnote-3) used in the product system should not be included within the system boundaries. They may be included when infrastructure and capital goods are known to be relevant in terms of their environmental impact, or when a generic LCI dataset includes infrastructure/capital goods, and it is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from this dataset. If an infrastructure/capital good is produced with the intention to be used one or a few times only (e.g., a manufacturing plant or machinery constructed to produce only one product), this infrastructure/capital good shall be included.

The inclusion or exclusion of infrastructure/capital goods shall be transparently described for upstream, core and downstream processes in the LCA report and in the EPD.

If infrastructure/capital goods are included, the following disclaimer shall be included in the results sections of the LCA report and in the EPD (land use and toxicity indicators shall only be mentioned if declared in the EPD):

*The results of the impact categories abiotic depletion of minerals and metals, land use, human toxicity (cancer), human toxicity, non-cancer and ecotoxicity (freshwater) may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used to quantify these indicators in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.*

* + 1. Other boundary setting

*Below subsections may need to be adjusted to the scope of the PCR, and additional boundary settings may be added, if relevant.*

* + - 1. Boundary towards nature

Boundaries to nature are defined as where the flows of material and energy resources leave nature and enter the technical system (i.e. the product system). Emissions cross the system boundary to nature when they are emitted to air, soil or water.

* + - 1. Boundary towards other technical systems

Boundaries towards other technical systems define the flow of materials and components to/from the product system under study and from/to other product systems. If there is an inflow of recycled material to the product system in the production/manufacturing stage, the transport from the scrapyard/collection site to the recycling plant, the recycling process, and the transportation from the recycling plant to the site where the material is being used shall be included. If there is an outflow of material or component to recycling, the transportation of the material to the scrapyard/collection site shall be included. The material or component going to recycling is then an outflow from the product system.

See Section 4.6 for further guidance.

* + - 1. Temporal boundary

The temporal boundary defines the time period for which the life cycle inventory data is recorded, e.g. for how long emissions from waste deposits are accounted. As default, the time period over which inputs to and outputs from the product system is accounted for shall be 100 years from the year that the LCA model best represents, considering the representativeness of the inventory data. This year shall, as far as possible, represent the year of the publication of the EPD.

* + - 1. Geographical boundary

The geographical boundary defines the geographical coverage of the LCA. This shall reflect the physical reality of the product under study, accounting for the representativeness of technology, input materials and input energy.

* 1. System diagram

*Insert a system diagram illustrating the processes that are included in the product system, divided into upstream, core and downstream processes.*

Figure 2 *System diagram illustrating the processes that shall be included in the product system, divided into upstream, core and downstream processes.* *The illustration of processes to include may not be exhaustive.*

*The system diagram should indicate important omissions of life-cycle stages and processes. The division can be into other life-cycle stages than upstream, core and downstream; see guidance in Section 4.3.*

* 1. Cut-off rules

A cut-off rule of 1% shall be applied. In other words, the included inventory data (not including inventory data of processes that are explicitly outside the system boundary as described in Section 4.3) shall together give rise to at least 99% of the results of any of the environmental impact categories. Also, 99% of the mass of the product content and 99% of the energy use of the product life cycle shall be accounted for. The cut-off of inventory data should, however, be avoided, and all available inventory data shall be used.

*Deviations to the cut-off rule of 1% may be set in the PCR and shall be justified in the PCR development process.*

The cut-off of inventory data, based on the above cut-off rule, should be an output of a sensitivity analysis, alone or in combination with expert judgment based on experience of similar product systems. Furthermore, the cut-off shall be possible to be verify in the verification process, hence the exclusion of inventory data based on the cut-off rule shall be documented in the LCA report, and the EPD developer shall provide the information the verifier considers necessary to verify the cut-off.

* 1. Allocation rules

Allocation can be divided into allocation of co-products, i.e. allocation of unit processes that generate several products, and allocation of waste, i.e. allocation of unit processes that generate materials that are, for example, landfilled recovered, recycled or reused, and which require further processing to cease being waste and become products (see criteria for end-of-waste state in Section 4.6.2).

The principles for allocation of co-products and allocation of waste are described separately in the following subsections

* + 1. Co-product allocation

The following hierarchy of allocation methods shall be followed for co-product allocation:

1. Allocation shall be avoided, if possible, by dividing the process to be allocated into sub-processes and collecting the inventory data for each sub-process.
2. If allocation cannot be avoided, the inventory data should be partitioned between the different co-products in a way that reflects the underlying physical relationships between them, i.e. allocation should reflect the way in which the inventory data changes if the quantities of delivered co-products change.
3. If a physical relationship between the inventory data and the delivery of co-products cannot be established, the inventory data should be allocated between the co-products in a way that reflects other relationships between them. For example, inventory data might be allocated between co-products in proportion to their economic values. If economic allocation is used, a sensitivity analysis exploring the influence of the choice of the economic value shall be included in the LCA report.

*The PCR shall specify the allocation method to use in each key process where an allocation problem may be expected, for example in the below Table 2 (if the table is not used, it shall be deleted). This* *guidance should follow above hierarchy; deviations shall be justified in the PCR development process. If economic allocation is allowed by the PCR, it shall explain the reference values that shall be used.*

For key processes in the product system, Table 2 provides specific allocation guidance.

|  |  |  |
| --- | --- | --- |
| PROCESS | MAIN PRODUCT AND CO-PRODUCTS | ALLOCATION METHOD |
|  |  |  |
|  |  |  |
|  |  |  |

Table 2 Allocation method for key processes in the product system

* + 1. Allocation of waste treatment processes

Allocation of waste shall follow the polluter pays principle and its interpretation in EN 15804: “processes of waste processing shall be assigned to the product system that generates the waste until the end-of-waste state is reached.” The end-of-waste state is reached when all the following criteria for the end-of-waste state are fulfilled (adapted from EN 15804):

* the recovered material, component or product is commonly used for specific purposes;
* a market or demand, identified e.g. by a positive economic value, exists for such a recovered material, component or product;
* the recovered material, component or product fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and
* the use of the recovered material, product or construction element will not lead to overall adverse environmental or human health impacts.

The above outlined principle means that the generator of the waste shall carry the full environmental impact until the point in the product life cycle in which the end-of-waste criteria are fulfilled. Waste may have a negative economic market value, and then the end-of-waste stage is typically reached after (part of) the waste processing and further refinement, at the point at which the waste no longer has a negative market value. This allocation method is (in most cases) in line with a waste generator’s juridical and financial responsibilities. See the GPI for further information and examples.

*The PCR may provide further guidance on allocation of specific waste treatment processes of relevance for its scope, for example by adding examples listed in the GPI. This guidance should follow the above general rule of the International EPD® System; deviations shall be justified in the PCR development process.*

* 1. Data quality requirements and selection of data

Life cycle inventory data are classified into specific data and generic data, where the latter can be selected generic data or proxy data. The data categories are defined as follows:

* specific data (also referred to as “primary data” or “site-specific data”):
  + data gathered from the actual manufacturing plant where product-specific processes are carried out;
  + actual data from other parts of the life cycle traced to the product under study, for example site-specific data on the production of materials or generation of electricity provided by contracted suppliers, and transportation data on distances, means of transportation, load factor, fuel consumption, etc., of contracted transportation providers; and
  + LCI data from databases on transportation and energyware that is combined with actual transportation and energy parameters as listed above.
* generic data (sometimes referred to as “secondary data”), divided into:
  + selected generic data: data (e.g. commercial databases and free databases) that fulfil prescribed data quality requirements for precision, completeness, and representativeness (see below Section 4.7.1),
  + proxy data: data (e.g. commercial databases and free databases) that do not fulfil all of the data quality requirements of “selected generic data”.

Specific data shall be used for the core processes. Specific data shall be used for upstream and downstream processes, when available, otherwise generic data may be used. Generic data should be used in cases in which they are representative for the purpose of the EPD, e.g. for bulk and raw materials on a spot market, if there is a lack of specific data on the final product or if a product consists of many components.

*The PCR may set stricter rules for using specific data in selected upstream or downstream processes, e.g. for the production of consumer packaging. Such specifications may make it necessary to adjust above text.*

* + 1. Rules for using generic data

For generic data to be classified as “selected generic data”, the following requirements apply *(which may be further specified in the* *PCR)*:

* datasets shall be based on attributional LCA modelling (e.g., not be based on marginal data and not include credits from system expansion),
* the reference year shall be as current as possible and should be representative for the validity period of the EPD,
* the 1% cut-off rule (as described in Section A.3.3 of the GPI) shall be met on the level of the product system,
* datasets shall represent average values for a specific reference year; however, how data are generated could vary, e.g. over time, and then they should have the form of a representative annual average value for a specified reference period (such deviations shall be justified and declared in the EPD), and
* the representativeness of the data shall be assessed to be better than ±5%, in terms of the environmental impact calculated on the basis of the data, of data that is fully representative for the given temporal, technological and geographical context.

If selected generic data that meets the above data quality requirements are not available, proxy data may be used. The environmental impacts associated with proxy data shall not exceed 10% of the overall environmental impact of the product system.

The EPD may include a data quality declaration to demonstrate the share of specific data, selected generic data and proxy data contributing to the results of the environmental impact indicators.

*Further rules for using generic data and declaring their quality may be provided in the PCR.*

* + 1. Examples of databases for generic data

Table 2 lists examples of databases and datasets to be used for generic data. Please note that a data quality assessment shall be performed also for data listed in the table, and that other data that fulfil the data quality requirements may also be used.

|  |  |  |  |
| --- | --- | --- | --- |
| PROCESS | GEOGRAPHICAL SCOPE | DATASET | DATABASE |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table 3 Examples of databases and datasets to use for generic data.

*The PCR may also list examples of certain databases or datasets to use as selected generic data for specific unit processes.* *Such data shall have been analysed during PCR development to meet the requirements of the International EPD® System for data quality, representativeness, review, scope of documentation, etc. Publicly available and free data of high quality should have priority in any listing of data. The geographical scope of the PCR should also be considered when listing data.*

* + 1. Data quality requirements and other modelling guidance per life-cycle stage

*Below are the default data quality requirement per life-cycle stage. The text in this section may need to be adjusted to the scope of the PCR, e.g. if the product does not consist of main parts or if it does not include packaging. Major specifications or deviations to below rules may be done in the PCR; these shall be justified in the PCR development process. To harmonize across product categories, data quality requirements in PCRs of similar and/or related product categories PCRs shall be considered.*

Below are further data quality requirement per life-cycle stage. Exceptions to the requirements may be accepted, if justified in the EPD; such exceptions are subject to the approval by the verifier on a case-to-case basis.

* + - 1. Upstream processes
* Data referring to processes upstream in a supply chain over which the EPD owner has direct management control shall be specific and collected on site.
* Data referring to processes of a supplier of main parts, packaging, or main auxiliaries should be requested from the supplier as specific data, as well as infrastructure, where relevant.
* Data on transport of main parts and components along the supply chain to a distribution point (e.g. a stockroom or warehouse) where the final delivery to the manufacturer can take place, should be specific and based on the actual transportation mode, distance from the supplier, and vehicle load.
* In case specific data is lacking, selected generic data may be used. If this is also lacking, proxy data may be used (see Section 4.7).
* For upstream processes modelled with specific data, generation of electricity used shall be accounted for in this priority:

1. Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a Guarantee of Origin or similar as provided by the electricity supplier.
2. Residual electricity mix of the electricity supplier on the market.
3. Residual electricity mix on the market[[3]](#footnote-4).
4. Electricity consumption mix on the market[[4]](#footnote-5).

The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total consumption mix.

“The market” in the above hierarchy shall be defined as being the (residual or consumption) grid mix of the country where the electricity is used, with exceptions for specified countries for which a sub-national electricity grid mix shall be used: Australia, Brazil, Canada, China, India, and USA.

The mix of electricity used in upstream processes shall be documented in the EPD, where relevant.

* Packaging: specific data shall be used for production of consumer packaging, if the production is under the direct control of the EPD owner or if the environmental impact of the production is more than 10% of the declared results in any of the environmental performance indicators. In other cases, generic data may be used. When consumer packaging shows the organization's logo, the LCA report should report the exerted/non-exerted direct control on the production of consumer packaging by the organization.

*If relevant, the PCR may list other key assumptions to be made for the modelling of the upstream processes. If a valid PCR already exists in the International EPD® System for part of the upstream processes, a reference to that specific PCR should be made for calculation rules.*

* + - 1. Core processes
* Transport from the final delivery point of raw materials, chemicals, main parts, and components (see above regarding upstream processes) to the manufacturing plant/place of service provision should be based on the actual transportation mode, distance from the supplier, and vehicle load, if available.
* Goods: Specific data shall be used for the assembly of the product and for the manufacture of main parts as well as for on-site generation of steam, heat, electricity, etc., where relevant.
* Services: Specific data shall be used for the consumption of materials, chemicals, steam, heat, electricity, etc., necessary for execution of the service
* For electricity used in the core processes, generation of electricity used shall be accounted for in this priority:

1. Specific electricity mix as generated, or purchased from an electricity supplier, demonstrated by a Guarantee of Origin or similar as provided by the electricity supplier.
2. Residual electricity mix of the electricity supplier on the market.
3. Residual electricity mix on the market[[5]](#footnote-6).
4. Electricity consumption mix on the market[[6]](#footnote-7). This option shall not be used for electricity used in processes over which the manufacturer (EPD owner) has direct control, as long as the composition of the residual grid mix has been publicly disclosed[[7]](#footnote-8).

The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total consumption mix.

“The market” in the above hierarchy shall be defined as being the (residual or consumption) grid mix of the country where the electricity is used, with exceptions for specified countries for which a sub-national electricity grid mix shall be used: Australia, Brazil, Canada, China, India, and USA.

The mix of electricity used in the core processes shall be documented in the EPD, where relevant.

* Waste treatment processes of manufacturing waste should be based on specific data, if available.

*If relevant, the PCR may list other key assumptions to be made for the modelling of the core processes, such as agricultural modelling for PCRs of food products and guidance on creation of usage scenarios for consumer products. In case of extensive modelling guidance, the division into sections may need to be adjusted to increase readability.*

* + - 1. Downstream processes
* Data for the use stage are usually based on scenarios, but specific data should be used when available and relevant.
* Data on the emissions from the use stage should be based on documented tests, verified studies in conjunction with average or typical product use, or recommendations concerning suitable product use. Whenever applicable, test methods shall be internationally recognised.
* The use of electricity in the region/country where the product is used (as specified in the geographical scope of the EPD) shall be accounted for in the following priority:

1. Residual electricity mix on the market[[8]](#footnote-9).
2. Electricity consumption mix on the market[[9]](#footnote-10).

The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total production mix.

“The market” in the above hierarchy shall be defined as being the (residual or consumption) grid mix of the country where the electricity is used, with exceptions for specified countries for which a sub-national electricity grid mix shall be used: Australia, Brazil, Canada, China, India, and USA.

The mix of electricity used in the downstream processes shall be documented in the EPD, where relevant.

* The transport of the product to the customer shall be described in the EPD, where relevant, and be accounted for in this priority:

1. Actual transportation modes and distances to a specific customer or market, representing the geographical scope of the EPD.
2. A weighted average of transportation modes and distances, based on transportation to several customers or markets, representing the geographical scope of the EPD.
3. *A default transportation scenario of relevance to the product category and (for the product category) common markets, as specified in the PCR.*

* Scenarios for the end-of-life stage shall be technically and economically practicable and compliant with current regulations in the relevant geographical region based on the geographical scope of the EPD. Key assumptions regarding the end-of-life stage scenario shall be documented in the LCA report.

*If relevant, the PCR may list other key assumptions to be made for the modelling of the downstream processes.*

* + 1. Data quality declaration

EPDs may include a declaration of the quality of data used in the LCA calculations.

*The PCR may set requirements on such a declaration.*

* 1. Environmental performance indicators

The EPD shall declare the default environmental performance indicators and their methods as described at the website ([www.environdec.com](http://www.environdec.com/impact-categories)/indicators), which includes both inventory indicators and indicators of potential environmental impact. The source and version of the impact assessment methods and characterisations factors used shall be reported in the EPD. Also other indicators may be declared, if justified, see Section 5.4.5.

If the default list of environmental performance indicators and methods at the [www.environdec.com](http://www.environdec.com/impact-categories)/indicators is updated, the previous version of the list is valid in parallel to the new version during a transition period of at least 90 days, as described at the website.

Apart from inventory indicators (such as the required and optional inventory indicators listed at [www.environdec.com](http://www.environdec.com/impact-categories)/indicators), other inventory data may also be declared in the EPD, if relevant and useful for EPD users. Such data shall not be declared in the main body of the EPD, but in an annex.

*To better characterise the environmental performance of a product category, the PCR may require or recommend the declaration of environmental performance indicators not included in the default list; such additions shall be justified in the PCR development process. Likewise, the PCR may allow or recommend the exclusion of indicators in the default list, if they are considered irrelevant for the product category; such deviations shall be justified in the PCR development process.* *To harmonize across product categories, recommendations and requirements on indicators in PCRs of similar and/or related product categories PCRs shall be considered. In the end, all environmentally relevant indicators for the product category shall be included. If adjustments or amendments are done to the default list, above text and Section 5.4.5 must be adjusted and expanded accordingly.*

*The inclusion of additional environmental performance indicators, or exclusion of indicators in the default list, should be based on:*

* *the results and interpretation of the supporting LCA studies, including the use of normalisation and weighting of results to determine the most relevant impact categories,*
* *a literature review (LCA and non-LCA) of relevant impacts for the product category,*
* *a review of key environmental concerns regarding the product category, e.g. from NGOs, civil society, customers, and other stakeholders, for the geographical applicability of the PCR, and*
* *a review of requirements in other standards or methodological guidelines of relevance for the product category, to which harmonisation is desirable, such as EN 15804 for construction products.*

*The selection of indicators shall focus on their environmental relevance for the product category. The selection shall also take into consideration the scope of the EPD, regional aspects or requirements, and the maturity of the methods to ensure that they are not misleading. In addition, they shall only apply to those life-cycle stages in which the information is appropriate. If a PCR requires or recommends other indicators than those in the default list, it shall list the inventory and/or impact assessment methods to use, including references to the original source and specification of the version of methods and characterisation factors. Such indicators should be based on international standards or similar documents developed in a transparent procedure.*

*If the selection of indicators is based on an effort to harmonize with international standards or other external documents outlining product category rules, the PCR shall include a statement saying that the alignment/adoption of indicators from the external product category rules does not imply that the EPDs can be claimed to be aligned or compliant with the external product category rules. Alignment/compliant with external product category rules requires alignment/compliant of the entire method applied, and not just the selection of indicators.*

*The PCR may also indicate and justify issues that need to be addressed in more detail in future updates of the PCR.*

* 1. Including multiple products in the same EPD
     1. Multiple Products from the same company

Several sets of results, reflecting different products, are not allowed to be declared in the same EPD. However, similar products from a single or several manufacturing sites covered by the same PCR and manufactured by the same company with the same major steps in the core processes may be grouped and thereby included in the same EPD. For such an EPD, there are three options:

* For each indicator, declare the average results of the included products. This average shall be weighted according to the production volumes of the included products, if relevant. In this option, the average content shall be declared in the content declaration.
* Declare the results of one of the included products – a representative product. The choice of the representative product shall be justified in the EPD, using, where applicable, statistical parameters. For example, the choice may be based on production volumes. In this option, the content of the representative product shall be declared in the content declaration.
* For each indicator, declare the highest result of the included products (i.e., the results of a “worst-case product”, which may be the results of one or several of the included products). In this option, the content declaration shall include the lowest amounts of recycled and biogenic content of the included products and their packaging, respectively, and the information on environmental and hazardous properties of substances shall reflect the highest share and most hazardous such substances contained in the any of the included products.

The first two options are only possible if none of the declared environmental impact indicator results differ by more than 10% between any of the included products. The third option is possible also if variations are larger than 10%.

The option chosen shall be clearly described in the EPD.

*Further guidance may be given in the PCR*.

* + 1. Sector EPDs

The International EPD® System allows for an industry association to develop an EPD in the form of a Sector EPD. A Sector EPD declares the average product of multiple companies in a clearly defined sector in a clearly defined geographical area. Products covered in a sector EPD shall follow the same PCR and the same declared/functional unit shall be applied.

Any communication of the results from a Sector EPD should contain the information that the results are based on averages obtained from the sector as defined in the EPD. The communication shall not claim that the sector EPD results are representative for a certain manufacturer or its product.

The following information shall also be included in a Sector EPD:

* a list of the contributing manufacturers that the Sector EPD covers,
* a description of how the selection of the sites/products has been done and how the average has been determined, and
* a statement that the document covers average values for an entire or partial product category (specifying the percentage of representativeness) and, hence, the declared product is an average that is not available for purchase on the market.

1. Content and format of EPD

*In addition to below requirements on the content and reporting format of EPDs, the PCR may specify further requirement of relevant for its product category, e.g. reflecting certain applications of the EPD information. For example, for EPDs of construction products compliant with EN 15804, the communication format of the EPD shall be in accordance with EN 15942 (Sustainability of construction works — Environmental product declarations — Communication formats: business to business).* Further, it is important to harmonize with the requirements on content and format in PCRs of similar or related product categories.

EPDs based on this PCR shall contain the information described in this section. Flexibility is allowed in the formatting and layout provided that the EPD still includes the prescribed information. A generic template for EPDs is available at [www.environdec.com](http://www.environdec.com).

The EPD content shall:

* be in line with the requirements and guidelines in ISO 14020 (Environmental labels and declarations – General principles),
* be verifiable, accurate, relevant and not misleading, and
* not include rating, judgements or direct comparison with other products[[10]](#footnote-11).

An EPD should be made with a reasonable number of pages for the intended audience and use.

The content of EPDs published in machine-readable format shall correspond with the content of the underlying EPD.

* 1. EPD languages

EPDs should be published in English but may also be published in additional languages. If the EPD is not available in English, it shall contain an executive summary in English including the main content of the EPD. This summary is part of the EPD and, thus, also subject to the verification process.

* 1. Units and quantities

The following requirements apply for units and quantities:

* The International System of Units (SI units) shall be used where available, e.g., kilograms (kg), Joules (J) and metres (m). Reasonable multiples of SI units may be decided in the PCR to improve readability, e.g., grams (g) or megajoules (MJ). The following exceptions apply:
  + Resources used for energy input (primary energy) should be expressed as kilowatt-hours (kWh) or megajoules (MJ), including renewable energy sources, e.g., hydropower, wind power and geothermal power.
  + Water use should be expressed in cubic metres (m3)
  + Temperature should be expressed in degrees Celsius (°C),
  + Time should be expressed in the units most practical, e.g., seconds, minutes, hours, days or years.
  + Results of the environmental performance indicators shall be expressed in the units prescribed by the impact assessment methods, e.g. kg CO2 equivalents.
* Three significant figures[[11]](#footnote-12) should be adopted for all results. The number of significant digits shall be appropriate and consistent.
* Scientific notation may be used, e.g. 1.2E+2 for 120, or 1.2E-2 for 0.012.
* The thousand separator and decimal mark in the EPD shall follow one of the following styles (a number with six significant figures shown for illustration):
  + SI style (French version): 1 234,56
  + SI style (English version): 1 234.56

In case of potential confusion or intended use of the EPD in markets where different symbols are used, the EPD shall state what symbols are used for thousand separator and decimal mark.

* Dates and times presented in the EPD should follow the format in ISO 8601. For years, the prescribed format is YYYY-MM-DD, e.g., 2017-03-26 for March 26th, 2017.
* The result tables shall:
  + Only contain values or the letters “ND” (Not Declared). It is not possible to specify ND for mandatory indicators. ND shall only be used for voluntary parameters that are not quantified because no data is available.[[12]](#footnote-13)
  + Contain no blank cells, hyphens, less than or greater than signs or letters (except “ND”).
  + Use the value “0” only for parameters that have been calculated to be zero.
  + Footnotes shall be used to explain any limitation to the result value.
  1. Use of images in EPD

Images used in the EPD, especially pictures featured on the cover page, may in themselves be interpreted as an environmental claim. Images such as trees, mountains, wildlife that are not related to the declared product shall therefore be used with caution and in compliance with national legislation and best available practices in the markets in which the EPD is intended to be used.

* 1. EPD reporting format

The reporting format of the EPD shall include the following sections:

* Cover page (see Section 5.4.1)
* Programme information (see Section 5.4.2)
* Product information (see Section 5.4.3)
* Content declaration (see Section 5.4.4)
* Environmental performance (see Section 5.4.5)
* References (see Section 5.4.9)

The following sections may be included:

* Additional environmental information (see Section 5.4.6)
* Additional social and economic information (see Section 5.4.7)

The following sections shall be included, if relevant:

* Differences versus previous versions (see Section 5.4.8)
* Executive summary in English (see Section 5.4.10)
  + 1. Cover page

The cover page shall include:

* Product name and image
* Name and logotype of EPD owner
* The text “Environmental Product Declaration” and/or “EPD”
* Programme: The International EPD® System, [www.environdec.com](http://www.environdec.com)
* Programme operator: EPD International AB
* Logotype of the International EPD® System
* EPD registration number as issued by the programme operator[[13]](#footnote-14)
* Date of publication (issue): 20XX-YY-ZZ
* Date of revision: 20XX-YY-ZZ, when applicable
* Date of validity; 20XX-YY-ZZ
* A note that *“An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at* [*www.environdec.com*](http://www.environdec.com)*.”*
* A statement of conformity with ISO 14025.
* For construction products: *(this bullet point shall be removed for non-construction PCRs)*
  + a statement of conformity or non-conformity with EN 15804:2012+A1:2013, EN 15804:2012+A2:2019, or later versions of EN 15804 (if published), and ISO 21930.
  + ECO EPD logotype as approved by the ECO Platform.
* For EPDs covering multiple products: a statement that the EPD covers multiple products and a list of all products covered by the EPD.
* For Sector EPDs: a statement that the EPD is a Sector EPD.

In the case of EPDs registered through a regional hub (a regional or national programme based on and fully aligned with the International EPD® System through an agreement with the programme operator), “Programme”, “Programme operator”, and “Logotype” shall be expanded to include a reference to the regional programme and the organisation responsible for it.

Where applicable, the cover page shall also include the following information:

* Information about dual registration of EPD in another programme, such as registration number and logotype.
* A statement of conformity with other standards and methodological guides.
  + 1. Programme information

The programme information section of the EPD shall include:

* Address of programme operator: *EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail:* [*info@environdec.com*](mailto:info@environdec.com)
* The following statement on the requirements for comparability of EPDs, adapted from ISO 14025: *“EPDs within the same product category but from different programmes may not be comparable*. *For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison.”*
* A statement that the EPD owner has the sole ownership, liability and responsibility of the EPD
* Information about verification[[14]](#footnote-15) and the PCR in a table with the following format and contents:

|  |
| --- |
| **Accountabilities for PCR, LCA and independent, third-party verification** |
| **Product Category Rules (PCR)** |
| PCR: *<name, registration number, version and UN CPC code(s)>* |
| PCR review was conducted by: *<name and organisation of the review chair, and information on how to contact the chair through the programme operator>* |
| **Life cycle assessment (LCA)** |
| LCA accountability: *<name, organization>* |
| **Third-party verification** |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:  EPD verification by individual verifier    Third-party verifier: *<name, organisation, and signature of the third-party verifier>*  Approved by: The International EPD® System |
| **OR** |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:  EPD verification by accredited certification body    Third-party verification: *<name, organisation>* is an approved certification body accountable for the third-party verification  The certification body is accredited by: *<name of accreditation body & accreditation number, where applicable>* |
| **OR** |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006 via:  EPD verification by EPD Process Certification\*  Internal auditor: *<name, organisation>*  Third-party verification: *<name, organisation>* is an approved certification body accountable for third-party verification  Third-party verifier is accredited by: *<name of accreditation body & accreditation number, where applicable>*  \*For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI v4, Section 7.5. |
| Procedure for follow-up of data during EPD validity involves third-party verifier[[15]](#footnote-16):  Yes  No |

* + 1. Product information

The product information section of the EPD shall include:

* address and contact information of the EPD owner,
* description of the organisation. This may include information on products- or management system-related certifications (e.g. ISO 14024 Type I environmental labels, ISO 9001- and 14001-certificates and EMAS-registrations) and other relevant work the organisation wants to communicate (e.g. SA 8000, supply-chain management and social responsibility),
* name and location of production site,
* product identification by name, and an unambiguous identification of the product by standards, concessions or other means,
* identification of the product according to the UN CPC scheme system. Other relevant codes for product classification may also be included, e.g.
  + Common Procurement Vocabulary (CPV),
  + United Nations Standard Products and Services Code® (UNSPSC),
  + Classification of Products by Activity (NACE/CPA),
  + Australian and New Zealand Standard Industrial Classification (ANZSIC), or
  + Global Trade Item Number (GTIN).
* a description of the product,
* a description of the technical purpose of the product, including its application/intended use,
* a description of the background system, including the main technological aspects,
* for EPDs covering multiple products: a description of the selection of products/sites, a list of contributing manufacturers (if Sector EPD), etc. (see Section 5.4.8),
* geographical scope of the EPD, i.e., for which geographical location(s) of use and end-of-life the product’s performance has been calculated,
* declared/functional unit,
* reference service life (RSL) and/or technical/actual lifespan, if relevant,
* declaration of the year(s) covered by the data used for the LCA calculation and other relevant reference years,
* reference to the main database(s) for generic data and LCA software used, if relevant,
* system diagram of the processes included in the LCA, divided into the life cycle stages,
* description if the EPD system boundary is “cradle-to-gate”, “cradle-to-gate with options” or “cradle-to-grave”,
* information on which life-cycle stages are not considered (if any), with a justification of the omission, and
* references to any relevant websites for more information or explanatory materials.

This section may also include:

* name and contact information of organisation carrying out the underlying LCA study,
* any additional information about the underlying LCA-based information, such as cut-off rules, data quality, allocation methods, and other methodological choices and assumptions,
* a description of the material properties of the product with a declaration of relevant physical or chemical product properties, such as density, etc., and
* if end-of-life treatment is not included, the EPD shall contain a statement that it shall not be used for communicating environmental information to consumers/end users of the product.
  + 1. Content declaration

*More product category-specific guidance on this section should be provided in the PCR. For example, additional requirements for the content declaration may be set by the PCR, e.g. which materials and substances to declare. Further, for construction products, requirements on content declaration shall follow EN 15804. Deviations from below requirement in the PCR may be done but shall be justified in the PCR development process. For example, a content declaration may not be appropriate for EPDs for intangible products, such as services, which should be specified in the PCRs of such product categories.*

The content declaration section shall declare the weight of one unit of product, as purchased, and contain information about the content of the product in the form of a list of materials and chemical substances including information on their environmental and hazardous properties. The gross weight of each material/substance shall be declared, including a minimum of 99% of the materials/substances in one unit of product.

The content declaration does not apply to proprietary materials and substances covered by exclusive legal rights including patent and trademarks. In general, an indication that a product is “free” of a specific hazardous material or substance should be done with caution and only when relevant, following the rules in ISO 14021 on self-declared environmental claims.

Information on the hazardous properties of materials and chemical substances should follow the requirements given in the latest revision of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS),[[16]](#footnote-17) issued by the United Nations or national or regional applications of the GHS. As an example, the following regulations should be used for EPDs intended to be used in the European Union:

* Regulation (EC) No 1907/2006 of the European parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH); and
* Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling, and packaging of substances and mixtures.
  + - 1. Information about recycled materials

*This section may be removed in the PCR if irrelevant for the product category.*

When a product is made in whole or in part with recycled materials, the provenance of the materials (pre-consumer or post-consumer) shall be presented in the EPD as part of the content declaration.

To avoid any misunderstanding about which material that may be considered “recycled material”, the guidance given in ISO 14021 shall be considered. In brief, the standard states that:

* only pre-consumer or post-consumer materials (scraps) shall be considered in the accounting of the recycled materials, and
* materials coming from scrap reutilisation (such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it) shall not be considered as recycled content.
  + - 1. Information about packaging

*This section may be removed in the PCR if irrelevant for the product category.*

As packaging is strongly connected with the product, the producer shall provide information about packaging in the EPD, when applicable. Packaging may be classified as:

* Distribution Packaging: packaging designed to contain one or more articles or packages, or bulk materials, for the purposes of transport, handling and/or distribution (ISO 21067-1:2016, Section 2.2.6)
* Consumer Packaging: packaging constituting, with its content, a sales unit for the final user or consumer at the point of retail (ISO 21067-1:2016, Section 2.2.7).

Consumer packaging is generally the outcome of eco-design processes, or other activities, under direct control of the organisation. Many critical categories with strict legal requirements belong to consumer packaging category like food contact packaging and pharmaceutical packaging.

The weight of the packaging per product, and the type and function of the packaging, shall be reported in the EPD.

A statement of the source of the materials (pre-consumer or post-consumer) shall be presented in the EPD when the packaging is made in whole or in part by recycled materials.

* + 1. Environmental performance

*The PCR may adjust or amend the default list of environmental indicators referred to in the below subsections (see guidance to Section 4.8 and in the GPI). If this is done, below subsections shall be adjusted accordingly. Likewise, below subsections shall be adjusted if results are to be declared per information module instead of per life-cycle stage or if certain life-cycle stages shall, should or may be separately declared (see Section 4.3.1).*

Below subsections list the mandatory environmental performance indicators to declare in the EPD. LCA results based on additional indicators may be declared, if they are relevant for the product category, their inclusion is justified in the EPD, appropriate methods[[17]](#footnote-18) are used, and the results are verifiable. If the additional indicators appear to the reader to display duplicate information, the EPD shall contain an explanation of the differences between the declared indicators.

* + - 1. Environmental impacts

The EPD shall declare the environmental impact indicators, per declared/functional unit, per life-cycle stage and in aggregated form, using the default impact categories, impact assessments methods and characterisation factors available at [www.environdec.com/indicators](http://www.environdec.com/indicators). The source and version of the impact assessment methods and characterisation factors used shall be reported in the EPD.

Alternative regional life cycle impact assessment methods and characterisation factors may be calculated and displayed in addition to the default list. If so, the EPD shall contain an explanation of the differences between the declared sets of indicators, as they may appear to the reader to display duplicate information.

* + - 1. Use of resources

The EPD shall declare the mandatory, and may declare the optional, indicators for resource use listed at [www.environdec.com/indicators](http://www.environdec.com/indicators) per declared/functional unit, per life-cycle stage and in aggregated form.

* + - 1. Waste production and output flows

Waste generated along the whole life cycle production chains shall be treated following the technical specifications described in the GPI. The EPD may declare the optional indicators for waste production and output flows as listed at [www.environdec.com/indicators](http://www.environdec.com/indicators) per declared/functional unit, per life-cycle stage and in aggregated form.

* + 1. Additional environmental information

*The PCR may specify which additional environmental information that may, should or shall be declared in the EPD, and adjust and amend the above guidance accordingly. Methods used to report such information shall be specified or referenced. A justification for the choice of additional environmental information shall be included in the PCR. Further, it is recommended to add information enabling the possibility to make comparisons with sector benchmarks (outside of the EPD) or, if not available, with benchmarks of common products and services preferably based on the concept of declared/functional unit, which is useful for scaling the environmental impacts of different activities, products, and services. Such comparisons shall, however, never be done in the EPD.*

An EPD may declare additional environmentally relevant information, in addition to the LCA results of the section on environmental performance results. The additional environmental information may cover various aspects of specific relevance for the product, for example:

* the release of dangerous substances into indoor air, soil, and water during the use stage,
* instructions for proper use of the product, e.g. to minimise energy or water consumption or to improve the durability of the product,
* instructions for proper maintenance and service of the product, e.g. to minimise energy or water consumption or to improve the durability of the product,
* information on key parts of the product that determine its durability,
* information on recycling including, e.g. suitable procedures for recycling the entire product or selected parts and the potential environmental benefits gained,
* information on a suitable method of reuse of the product (or parts of the products) and procedures for disposal as waste at the end of its life cycle,
* information regarding disposal of the product, or inherent materials, and any other information considered necessary to minimise the product’s end-of-life impacts, and
* a more detailed description of an organisation’s overall environmental work, in addition to the information listed under Section 5.4.3, such as:
  + the existence of any type of organised environmental activity, and
  + information on where interested parties may find more details about the organisation’s environmental work.

Any additional environmental information declared shall be substantiated and verifiable, and be derived using appropriate methods and be specific, accurate, not misleading, and relevant to the specific product. Quantitative information is preferred over qualitative information.

The additional environmental information shall not include LCA results, with some exceptions:

* If the EPD owner wants to display results of several scenarios for use or end-of-life stages, the most representative scenario (for the geographical scope of the EPD) shall be declared in the section on environmental performance results, and the other scenarios shall be declared in the section on additional environmental information.
* The LCA results of an alternative modelling approach may be declared as additional environmental information, if such an alternative modelling approach is explicitly allowed by the applicable PCR or the GPI. According to this PCR, alternative GWP‑biogenic results may be declared, which considers the effect of long-term storage of biogenic carbon (see next bullet point).
* The additional environmental information may include information on permanent (more than 100 years) storage of biogenic carbon, either in the product, in a landfill, or as a consequence of applying carbon capture and storage (CCS) to the incineration of biogenic carbon, and how this would influence GWP-biogenic results if the GWP-biogenic indicator would allow consideration of such storage.
* *Here the PCR may specify other alternative modelling approaches, but these needs to be highly relevant for the product category and justified in the EPD development process.*
  + 1. Additional social and economic information

The EPD may also include other relevant social and economic information as additional and voluntary information. This may be product information or a description of an organisation’s overall work on social or economic sustainability, such as activities related to supply chain management or social responsibility.

Any additional social and economic information declared shall be substantiated and verifiable, and be derived using appropriate methods and be specific, accurate, not misleading, and relevant to the specific product. Quantitative information is preferred over qualitative information.

*The PCR may specify requirements or recommendations on additional social or economic information to declare, and adjust and amend the above guidance accordingly. Methods used to report such information shall be specified or referenced. A justification for the choice of additional social and economic information shall be included in the PCR. Further information on which indicators that could be used can be obtained by the Global Reporting Initiative documents available at www.globalreporting.org.*

* + 1. Differences versus previous versions

For EPDs that have been updated, the following information shall be included:

* a description of the differences versus previously published versions, and
* a revision date on the cover page.
  + 1. References

A reference section shall be included, including a list of all sources referred to in the EPD, including the GPI (including version number), and PCR (registration number, name, and version) used to develop the EPD.

*Additional requirements may be added in the PCR, e.g. for databases used.*

* + 1. Executive summary in English

The executive summary, if included (see Section 5.1), shall contain relevant summarised information related to the programme, product, environmental performance, information related to pre-certified EPDs, and information related to sector EPDs. Besides this, further information may be added such as additional environmental, social or economic information, references as well as differences versus previous EPD versions.

1. List of abbreviations

ANZSIC Australian and New Zealand Standard Industrial Classification

CPC Central product classification

CPV Common procurement vocabulary

EPD Environmental product declaration

GPI General Programme Instructions

GTIN Global trade item number

ISO International Organization for Standardization

LCA Life cycle assessment

LCI Life cycle inventory

NACE/CPA Classification of products by activity

ND Not declared

PCR Product category rules

REACH Restriction of chemicals

RSL Reference service life

SI The International System of Units

UN United Nations

UNSPSC United Nations standard products and services code

*Adjust and amend list according to the PCR.* *The abbreviations shall be provided in alphabetical order.*

1. References

CEN (2013) EN 15804:2012+A1:2013, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

CEN (2019) EN 15804:2012+A2:2019, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EPD International (2021) General Programme Instructions for the International EPD® System. Version 4.0, dated 2021-03-29. [www.environdec.com](http://www.environdec.com).

ISO (2000) ISO 14020:2000, Environmental labels and declarations – General principles.

ISO (2004) ISO 8601:2004 Data elements and interchange formats – Information interchange – Representation of dates and times.

ISO (2006a) ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO (2006b) ISO 14040:2006, Environmental management – Life cycle assessment – Principles and framework.

ISO (2006c) ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO (2014) ISO 14046:2014, Environmental management – Water footprint – Principles, requirements and guidelines.

ISO (2015a) ISO 14001:2015, Environmental management systems – Requirements with guidance for use.

ISO (2015b) ISO 9001:2015, Quality management systems – Requirements.

ISO (2016a) ISO 21067-1:2016, Packaging – Vocabulary – Part 1: General terms.

ISO (2016b) ISO 14021:2016, Environmental labels and declarations - Self-declared environmental claim (Type II environmental labelling).

ISO (2017) ISO 21930:2017, Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.

ISO (2018a) ISO 14024:2018, Environmental labels and declaration – Type I environmental labelling – Principles and procedures.

ISO (2018b) ISO/TS 14067:2018, Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication.

*Adjust and amend list according to the PCR.*

1. Version history of PCR

*This section shall include a version history and the main differences compared to earlier versions of the PCR document.*

Version 1.0, 20ZZ-xx-yy

*Add description of the PCR version, e.g. “Original version of the PCR”.*

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|  |
| Cover image © *to be added by the Secretariat in the PCR* |

1. Type III environmental declarations in the International EPD® System are referred to as EPDs, Environmental Product Declarations. [↑](#footnote-ref-2)
2. Examples of infrastructure and capital goods are the building in which the studied product or upstream materials or components are produced, machinery used in the manufacturing of the product or its materials or components, or vehicles used in transports in the product system. For example, if the EPD is on wind power, the power plant itself is considered the studied product and not infrastructure/capital goods. However, the buildings and machinery that make the wind turbine components are considered infrastructure/capital goods. Similarly, if the EPD is on a means of transport, the vehicle is considered the studied product and not infrastructure/capital goods. [↑](#footnote-ref-3)
3. The composition of the residual grid mixes on the market are available for all EU countries and a few additional European countries through the Association for Issuing Bodies (AIB) at https://www.aib-net.org/facts/european-residual-mix. [↑](#footnote-ref-4)
4. For electricity markets without trade of Guarantees of Origin (or similar), the residual mix will, however, be identical to the consumption mix. [↑](#footnote-ref-5)
5. The composition of the residual grid mixes on the market are available for all EU countries and a few additional European countries through the Association for Issuing Bodies (AIB) at https://www.aib-net.org/facts/european-residual-mix. [↑](#footnote-ref-6)
6. For electricity markets without trade of Guarantees of Origin (or similar), the residual mix will, however, be identical to the consumption mix. [↑](#footnote-ref-7)
7. If the composition of the residual grid mix has not been publicly disclosed, the second or third options in the above hierarchy are not feasible and thus the fourth option is the only remaining option (if the first option is not chosen). [↑](#footnote-ref-8)
8. The composition of the residual grid mixes on the market are available for all EU countries and a few additional European countries through the Association for Issuing Bodies (AIB) at https://www.aib-net.org/facts/european-residual-mix. [↑](#footnote-ref-9)
9. For electricity markets without trade of Guarantees of Origin (or similar), the residual mix will, however, be identical to the consumption mix. [↑](#footnote-ref-10)
10. Therefore, results of normalization are not allowed to be reported in the EPD. [↑](#footnote-ref-11)
11. Significant figures are those digits that carry meaning contributing to its precision. For example with two significant digits, the result of 123.45 shall be displayed as 120, and 0.12345 shall be displayed as 0.12. In scientific notation, these two examples would be displayed as 1.2\*102 and 1.2\*10-2. [↑](#footnote-ref-12)
12. This requirement does not intend to give guidance on what indicators are mandated (“shall”) or voluntary. [↑](#footnote-ref-13)
13. The EPD shall not include a “registration number” if such is provided by the certification body, as this may be confused with the registration number issued by the programme operator. [↑](#footnote-ref-14)
14. If the EPD has been verified by an approved individual verifier who has received contractual assistance from a certification body that is not accredited, this certification body shall not be included in this table. [↑](#footnote-ref-15)
15. Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period (see Sections 7.3.2 and 7.4.9 of the GPI). The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update (see Section 6.5 of the GPI) is identified, the EPD shall be re-verified by a verifier. [↑](#footnote-ref-16)
16. The GHS document is available at [www.unece.org](http://www.unece.org). [↑](#footnote-ref-17)
17. If any of the following impact categories are declared in the EPD, the corresponding characterisation methods listed in EN 15804 should be used: particulate matter emissions, ionizing radiation (human health), eco-toxicity (freshwater), human toxicity (cancer effects), human toxicity (non-cancer effects) and land use related impacts/soil quality. If these impact categories and characterisation methods are used, the corresponding disclaimers listed in EN 15804 shall be declared in the EPD. [↑](#footnote-ref-18)