GENERAL PROGRAMME INSTRUCTIONS FOR THE INTERNATIONAL EPD® SYSTEM
2.01

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1 OBJECTIVES OF THE INTERNATIONAL EPD® SYSTEM

The main objective of the International EPD® System is to support organisations in any country to disseminate verified product-related information for a number of market applications. In doing this, the International EPD® System can be regarded as a supplement to existing national environmental declaration programmes in a cooperative and coordinating effort to meet the need of those organisations wanting to make use of their environmental declarations on a global market. As environmental declarations from different programmes in most cases may not be comparable, an important aspect of the International EPD® System is to offer general accepted programme requirements building on common and recognised life cycle assessment (LCA) calculation rules for as many product categories as possible as well as to provide a uniform reporting format. Another very important aspect of the International EPD® System is simplicity and practical usefulness still complying with the requirements in ISO 14025[1]: The International EPD® System is verified by a third party to comply to the requirements in ISO 14025 on the programme operator.

As the interest for the climate impact of goods and services has risen, International Organisation for Standardisation has issued ISO/TS 14067[2]. The aim for the International EPD® System is also to give organisations the possibility to publish information about the carbon footprint of their products according to the new technical specification.

As environmental declarations from different programmes may not be comparable, ISO 14025 recommends programme operators to facilitate harmonisation when developing the Product Category Rules (PCR). This is of vital importance to avoid creating trade obstacles. As the International EPD® System is meant to provide a tool for relevant and credible product-related environmental information around the world, it has two principal objectives as presented below.

The International EPD® System has, as a main objective, the ambition to help and support organisations to communicate the environmental performance of their products (goods and services) in a credible and understandable way by:

- offering a complete programme for any interested organisation in any country to develop and communicate environmental declarations according to ISO 14025:2006 and EN 15804[3], carbon footprint of products according to ISO/TS 14067:2013, and
- supporting other environmental declarations programmes (i.e. national, sectorial etc.) in seeking cooperation and harmonisation and helping organisations to broaden the use environmental declarations on an international market.

[1] ISO 14025:2006, *Environmental labels and declarations – Type III Environmental declarations – Principles and procedures*

[2] ISO/TS 14067:2013, *Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication*

[3] EN 15804:2012, *Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*

2 PROGRAMME ORGANISATION

The International EPD® System builds on an organisational structure including several parties at selected levels in different countries all having separate and mutual interrelated tasks and responsibilities divided into four different types of work, see Figure 1:

1. Administration of the International EPD® System (described in section 2.1)
2. PCR development (described in section 2.2)
3. EPD® development (described in section 2.3)
4. EPD® verification (described in section 2.4)

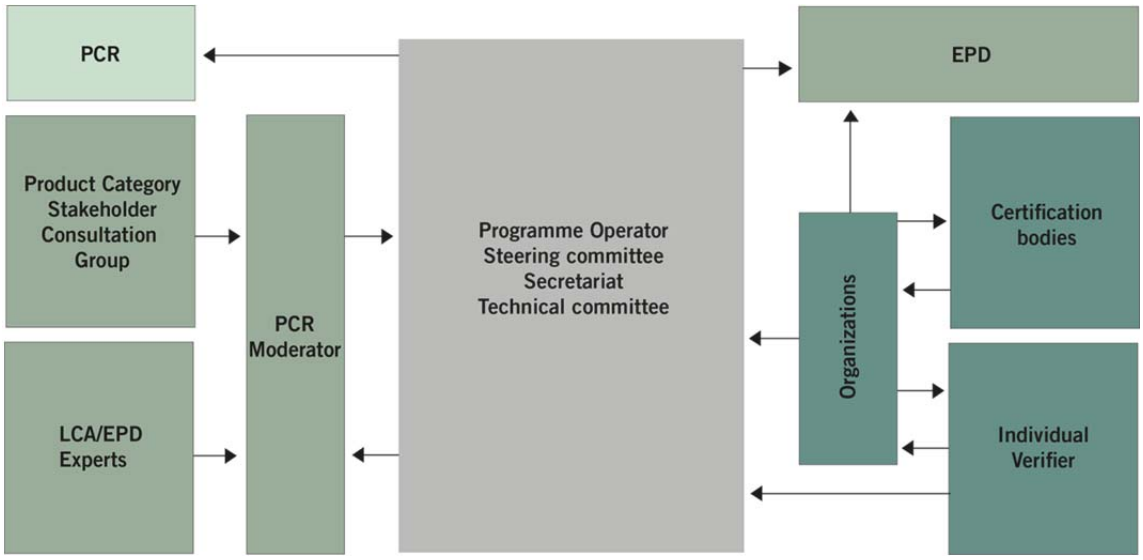


Figure 1 Flowchart over the organisational structure of the International EPD® System indicating the activities related to administration (grey box), PCR development (light green boxes) and EPD® development and EPD® verification (dark green boxes).

The Swedish Environmental Management Council (SEMCo) acts as the programme operator of the International EPD® System. The programme is managed by the Secretariat assisted by a Steering Committee (SC) and a Technical Committee (TC).

The development of PCR documents involves work by a PCR Moderator coordinating the work of LCA/PCR experts and the Product Category Stakeholder Consultation Group.

EPDs are developed by the organisations, as companies or branch organisations and the EPDs are verified by either certification bodies or individual verifiers.

2.1 ADMINISTRATION OF THE INTERNATIONAL EPD® SYSTEM

2.1.1 PROGRAMME OPERATOR

The Swedish Environmental Management Council (SEMCo)[4] acts as the Programme Operator and has the overall responsibility of the International EPD® System.

According to ISO 14025, an environmental declarations programme operator has a number of mandatory obligations when fulfilling the duties to manage the International EPD® System. These duties will be divided by the Steering Committee (SC), the Technical Committee (TC) and a Secretariat, which is further described below.

[4] Information on SEMCo can be found www.msr.se/en

2.1.2 MEMBER ORGANISATIONS

The International EPD® System is constituted of *permanent members* and *associate members*. Permanent members are organisations or association that are interested in development and diffusion of EPDs, while associate members are other interested parties and stakeholders interested or having in-depth and valuable knowledge of PCR- and LCA-related matters. Any organisation can apply to become a member. All permanent members are allowed to nominate individuals to act as representatives of the Steering Committee (SC). Permanent and associate members may also appoint individuals to act as representatives of the Technical Committee (TC).

2.1.3 THE STEERING COMMITTEE (SC)

The SC shall consist of experts from different industry sectors and countries, and shall be in charge of and assist the Secretariat in the overall management of the International EPD® System in order:

- to support the work to prepare the General Programme Instructions as well as in activities to revise and update the programme,
- to appoint members of the TC,
- to consider new potential audience and applications of EPDs, and
- to follow the market acceptance and uptake of the programme and suggest activities aimed at promoting the establishment of the programme.

The SC can decide to place additional selected activities to be carried out by the Secretariat.

2.1.4 THE TECHNICAL COMMITTEE (TC)

The TC shall consist of a group of at least five LCA/EPD experts to assist the SC and Secretariat in order:

- to act as the PCR review panel for considering and approving PCR proposals according to the requirements on PCRs in the General Programme Instructions,
- to suggest measures for further development of technical and LCA-oriented issues within the framework of the programme,
- to consider applications and appoint LCA/PCR experts to act as external verifiers and suggest measures for the surveillance of their competences, and
- to check that verifications done by individual verifiers are carried out according to the requirements in the General Programme instructions.

The TC shall be constituted in such a manner that their expertise covers as many product categories as possible, If there is need for additional expertise, for example when reviewing PCRs, independent experts can be consulted. The chair of the TC is a member of the Steering Committee. The TC shall operate according to routines specified in a separate procedure.

2.1.5 THE SECRETARIAT

The programme operator has a *Secretariat* for the overall management of the International EPD® System in order:

- to prepare and communicate the General Programme Instructions,
- to ensure that the General Programme Instructions are followed,
- to monitor changes in procedures and documents and modify the programme and programme instructions if necessary,
- to ensure appropriate consultations for maintaining credibility of the programme,
- to facilitate participation and involvement of interested parties,
- to ensure a credible procedure to safeguard the consistency of data handling,
- to guide the development of the Product Category Rules (PCR) documents,
- to establish a transparent procedure for the definition of product categories,
- to establish an accepted open consultation procedure for the programme structure and the PCRs,

- to facilitate harmonisation when developing PCRs,
- to prepare guidelines, checklist and other tools for the PCR development
- to ensure the consistency of transparent verification procedures for PCR review, verification of LCA and verification of EPDs,
- to define additional tasks for the PCR review procedure and for the external individual verifiers (if found necessary),
- to guide an organisation in the selection procedure of competent independent verifiers (if requested),
- to decide upon the necessity to use third-party verifications (specifically in the case of "business-to-consumer communication),
- to decide whether to accept an EPD for publication based on the verification report,
- to manage the website of the programme,
- to make publicly available lists and records of PCRs and EPDs within the programme,
- to publish all PCRs and EPDs registered in the programme,
- to issue a newsletter on a regular basis,
- keep a list of subscribers to the newsletter,
- to make publicly available explanatory materials, and
- to establish procedures to avoid misuse of the programme and information in the EPDs.

2.1.6 MUTUAL RECOGNITION BETWEEN PROGRAMME OPERATORS

In order to harmonize PCR development, the International EPD® System collaborates with other programme operators acting according to ISO 14025 through mutual recognitions.

Such a mutual recognition shall include the procedures for organisations wishing to register environmental declarations in both programmes. The mutual recognition should include:

- scope for the mutual recognition,
- financial structures ,
- procedures for PCR harmonisation,
- procedures for EPD® verification, and
- procedures for EPD® registration and publication.

A special procedure shall be agreed on between the programme operators to ensure that the conditions for the mutual recognition are valid.

2.1.7 WEBSITE

The website of International EPD® System is found on www.environdec.com. The Secretariat is responsible to keep the website up-to-date with the correct information about the programme and information on registered PCRs and EPDs.

2.1.8 PCR AND EPD® REGISTRATION AND PUBLICATION

The programme operator shall publish a list of approved PCRs on the website, in order to make them available to all interested parties, together with complementary information about the parties involved in developing the PCR and contact details of the PCR moderator. Further information on PCR development is found in Section 3.

When an organisation wishes to register an EPD®, the document shall be sent in to the Secretariat together with the necessary information. A registration form, and instructions on what information that must be provided and the address to send the information are available on the website. More information on EPD® development is found in Section 4.

The Secretariat shall register and publish approved EPDs on the website supplemented with complementary information about the organisation and the overall management work, contact details of reference persons etc. and keep this information continuously updated in a list of all registered EPDs.

EPDs will be kept published until the company contacts the programme operator for deregistration and withdrawal of the EPD.

Additional to the list of registered EPDs, the Secretariat shall also keep a list of EPDs withdrawn from the official EPD® register. Withdrawn EPDs can be made available upon request, provided the acceptance by the organisation having the EPD.

2.1.9 THE EPD® LOGOTYPE

As environmental declarations from different programmes may not be comparable, it is important for the market to be able to identify which programme an EPD® belongs to. The organisations having registered EPDs in the International EPD® System therefore has to carry the official EPD® logotype following the instruction presented in the Annex E.

The EPD® logotype and the acronym EPD® are registered trademarks within the European Union and use of them within the EU is therefore only allowed for certified EPDs within the International EPD® System.

The EPD® logotype is meant to provide added market value for the organisations having an EPD® by means of being generally recognised for providing verified, factual-based and relevant environmental product information by using it in connection with e.g. advertisement, on products and on packaging material. If the organisation has an environmental management system (EMS) according to standards or a less formal EMS, information acknowledging this can be added underneath the logotype.

Using the logotype separately with no other information is only allowed on official documents prepared within the framework of the International EPD® system, such as on PCR or guidance documents. Other ways of using the logotype separately can be accepted after approval by the Secretariat.

An organisation is allowed to make use of the EPD logotype in other different ways, e.g. on official documents such as on letter heads and envelopes. In some cases, an organisation may want to include a more explanatory and informative text describing what an EPD is and its main intent. The Secretariat shall be consulted to accept such a text.

The Secretariat shall provide the rules to follow that regulates the rights and the terms that shall apply for using the logotype and information. These rules also contain provisions concerning possible withdrawal of the right to use the logotype in case of misuse.

For more information see Annex E – Guidance on communicating EPD information.

2.1.10 CERTIFICATE

Any organisation that so wishes can have a printed certificate issued proving that the EPD® is certified within the International EPD® System. The certificate is issued by the Secretariat on request.

2.1.11 COST AND FEES

There is a fee structure connected to the registration and publication of approved EPDs within the framework of the International EPD® System including a registration fee and an annual fee. The registration fee is to be paid for registration and certification of EPDs and pre-certified EPDs (see section 3.7). The annual fee is to be paid per organisation, and covers all EPDs registered by that organisation. The organisation shall inform the programme operator when the EPDs are to be deregistered and no longer published. The programme operator has the right to deregister EPDs if the registration fee or annual fee is not paid in time.

The International EPD® System includes a “price mechanism” reducing the costs for those organisations wanting to register several EPDs as well as for small and medium sized enterprises. Further information about costs is available on the website.

2.2 PCR DEVELOPMENT

The PCR development process is managed by the programme operator who is responsible for that the PCR development follows the requirements in ISO 14025 and relevant PCR harmonisation initiatives. The preparation of a specific PCR is managed by a PCR moderator, an expert appointed by the programme operator. In addition, relevant stakeholders are involved in the PCR development or open consultation.

2.2.1 PCR MODERATOR

The PCR moderator has a number of tasks related to the development of PCR documents, primarily:

- to identify CPC codes,
- to invite LCA/PCR experts to take part in the development of PCR documents,
- to submit a time plan for the PCR development to the Secretariat, and inform the Secretariat of any changes to the time plan during the development,
- to inform the Secretariat about relevant industry and trade publications were PCR development should announced,
- to be responsible for the overall drafting of the PCR proposals,
- to help in appointing a Product Category Stakeholder Consultation Group,
- to identify stakeholders to invite to the open consultation,
- to take actions to guide people in the open consultation process via the PCR Forum,
- to collect comments,
- to revise the PCR document according to the comments received, make a short summary of comments included and rejected (and their rationale) and publish it on the PCR Forum,
- to draft the final PCR proposal,
- to alert all people being involved in the process about the final outcome of the work and publication of the document on the International EPD® System website, and
- to maintain as the contact person during the time when the PCR document is being used on the market for e.g. collecting suggestions for improvement in upcoming revisions.

2.2.2 LCA/PCR EXPERTS

All interested parties can take part in the work to develop PCR, both companies and organisations. Typically LCA/EPD® experts contribute in the process of the PCR development with their knowledge and expertise in business sector of relevance for the PCR category under study. This might include technical input to the LCA-based information as well as views on the proper way of presenting the results in the EPD®.

2.2.3 THE PRODUCT CATEGORY STAKEHOLDER CONSULTATION GROUP

The Product Category Consultation Group is expected to take part in the preparation of the PCR. The members should be selected to representatively cover knowledge and skills in different sectors of society both nationally and internationally relevant for the PCR under development.

More information on PCR development is found in section 3 and Annex C – Guidance on PCR development.

2.3 EPD® DEVELOPMENT

2.3.1 ORGANISATIONS CREATING EPDS

Organisations creating EPD®s for registration and publication shall carry out the following tasks:

- to collect LCA-based information and other relevant additional environmental information to be included in the EPD® according to the instructions in the general programme instructions and the relevant PCR document,
- to convert input data into the prescribed information to be included in an EPD®,
- to have the EPD® examined by an independent verifier (not applicable if the organisation has an EPD® process certification),
- to carry out routine work to follow-up the accuracy of the information in the EPD® and to report to the verifier in case of significant changes in the input data occur causing a need for modifying the information in the EPD®s when found necessary (not applicable if the organisation has an EPD® process certification when it is supposed to handle such a situation on a regular basis),

- to provide the programme operator with relevant associated information needed for registration and publication of the EPD®,
- to timely pay registration and annual fees, and
- to inform the programme operator when the EPD® is to be deregistered and no longer published on the website.

For more information on EPD® development, see section 4.

2.4 EPD® VERIFICATION

The EPD® verification work involves bodies checking the competence requirements of verifiers, the verifiers and the organisations creating EPDs.

2.4.1 BODIES CHECKING THE COMPETENCE REQUIREMENTS OF VERIFIERS

Examining the compliance of external verifiers with the prescribed competence requirements as well as carrying out supervisions of verifiers are vital parts in an environmental declarations programme for rising and maintaining market acceptance of EPD®s. In the International EPD® System, there are two possibilities to fulfil these tasks:

- to be carried out by organisations officially appointed to act as so-called accreditation bodies, which are valid in cases of external verification, where the verifier is a certification body
- to be carried out under the auspices of the programme operator, which is valid in the case of individual verifiers.

2.4.2 INDEPENDENT VERIFIERS

Independent verifiers shall review EPDs from different viewpoints including:

- the underlying data used for the LCA calculations,
- the way the LCA-based calculations has been carried and their compliance with the calculation rules set up in the PCR,
- the presentation of environmental performance in the declaration,
- any other additional environmental information included in the declaration, and
- documentation of the review and positions taken in a verification report.

For more information on EPD® verification, see Section 5.

3 DEVELOPMENT OF PRODUCT CATEGORY RULES, PCR

To be able to fulfil high market expectations for a number of practical applications, EPD®s have to meet and comply with specific and strict methodological prerequisites. These expectations include the possibility to add up LCA-based information in the supply chain and to compare different EPD®s. To achieve this goal, common and harmonised calculation rules have to be established to ensure that similar procedures are used when creating EPD®s.

However, groups of products, usually differ in their inherent environmental performance requiring specific rules to the product group, so-called Product Category Rules (PCR), to be developed. The PCR documents shall be regarded as complementary to the General Programme Instructions and LCA calculation rules of the International EPD® System.

While this section gives the requirements on the PCR document, further guidelines on PCR development can be found in *Annex C – Guidance on PCR development*.

3.1 PCR DEFINITION

In order to define the scope of the PCR the International EPD® System uses the latest version of the classification scheme UN CPC (Central Product Classification) developed by the United Nations[5]. The classification scheme provides a stringent definition of the PCR-documents within the International EPD® System and also the possibility to give specific guidance for developing PCRs within different groups of products. More information about the CPC-system and PCR-development is found in *Annex B – PMI: A classifications scheme for product categories* and *Annex C – Guidance on PCR development*. The PCR document shall as far as possible be classified with one or more CPC-codes at three, four or five digit level. In those cases where it is not possible to find a proper CPC-code, the Technical Committee shall provide guidance on how to define the PCR. If relevant, the PCR can also refer to other classification schemes, like the CPV nomenclature for public procurement).

The GPI shall be considered as the pillar document for the PCR development. During the PCR consultation some specific requirements could be discussed even if not strictly aligned with this GPI. Reason for any deviance from GPI shall be explained in the PCR document.

3.1.1 WHEN PCR DEFINITON ACCORDING TO UN CPC IS NOT POSSIBLE

The PCR documents shall as far as possible be classified with one or more CPC-codes. In some cases it might be justified to deviate from the normal methodology for PCR definition described in the General Programme Instructions, for example when the PCR needs to cover products classified by a broad range of CPC codes in different CPC divisions. In such a case the PCR must be defined by another methodology, for example using the functional unit. The Technical Committee can give further guidance on the PCR definition. Even if the PCR does not follow the CPC structure, the relevant PCR Basic Modules can be used for the PCR development.

If relevant, the PCR can also refer to other classification schemes as additional information, like the CPV (Common Procurement Vocabulary) nomenclature for public procurement.

3.2 PCR BASIC MODULES

The International EPD® System has developed PCR Basic Modules for a number of divisions (two-digit level) within the UN CPC Scheme. The PCR Basic Modules contain the information required to develop a PCR within a more specific CPC code, some text can be used directly and some texts needs to be further defined in the PCR, see Section C.3.

The PCR Basic Modules could be used as guidelines for the PCR development and act as template for the PCR document. PCRs may deviate from the recommendations in the PCR Basic Module. Such deviations should be highlighted and is finally decided by the Technical Committee during the technical review of the draft PCR.

3.3 CONTENT OF PCR DOCUMENTS

The PCR shall define the criteria according to assigning a product to a specific category, which parameters are set out to prepare the EPDs, the data quality requirements and the collection and calculation rules for data to be included in the EPD, as well as what kind of information suitable to convey to the primary audience of the EPD. It is required that PCRs published in the International EPD® System are written in English.

[5] http://unstats.un.org

The PCR document shall include:

- CPC code (one or several relevant for the product category or categories), see section 3.1.1 for cases when this is not possible.
- Products not covered by the PCR, when relevant
- Product category definition and description (e.g. function, technical performance and use)
- Goal and scope of the PCR (e.g. functional unit/declared unit, system boundaries, description of data and data quality, cut-off rules and units to be used)
- Materials and substances to be declared in a product content declaration
- Inventory analysis results (e.g. data collection and calculation procedures, and allocation of material flows and releases)
- Pre-determined parameters for reporting LCA data (e.g. inventory data categories and impact category indicators), as appropriate
- Impact category selection and calculation rules, if applied
- Description of the type of information to be included for the downstream processes, i.e. the use and end-of-life stages
- Rules for provision of additional environmental information
- Instructions of the content and format of the EPD®
- Information if life cycle stages are not considered and omitted in the EPD®, if appropriate
- Validity of the document and renewal schedule

If any of these issues are not considered, it must be justified.

LCA studies usually includes a so-called life cycle interpretation, to describe the final phase in which the inventory analysis and the impact assessment are summarized and discussed as a basis for conclusions, recommendations and decision-making in accordance with the goal and scope definition. Typically most of these considerations are being handled within the PCR work.

A more detailed description of the content of PCR documents is given in Annex C and in the PCR Basic Modules published on the system website.

When the choice of the database is relevant for the impacts calculation, the PCR should specify which the database that has to be used for the EPD preparation.

3.4 INTERNATIONAL DIMENSION AND PCR HARMONISATION

EPDs are meant to serve the business sector with means for a broad communication about the environmental performance of products and services on an international market. As a consequence, the new potential market applications related to EPD have led to an increased interest among various stakeholders in many countries to take part in the work related to the PCR development. The ambition is to make the PCR documents as internationally applicable as possible, thereby avoiding unnecessary trade implications.

ISO 14025 states that harmonisation particularly of the Product Category Rules should be strengthened between different programmes to meet the principle of comparability and to enable the possibility to add up information in the supply chain. Programme operators are therefore encouraged to work cooperatively to achieve harmonisation of the programmes.

The International EPD® System participates in different harmonisation initiatives and more information can be found on the website.

3.4.1 RECOGNITION OF PCRS DEVELOPED BY OTHER PROGRAMMES

Trade of products and services often extends national borders which call for a need to harmonise the PCR documents being prepared in various countries by different companies and branch organisations as well as independent bodies operating or implementing environmental declarations programmes.

The International EPD® System recognizes the PCRs, prepared preferably by other programme operators operating in accordance with ISO 14025, that fulfil the requirements of this General Programme Instruction with particular regards to:

- functional unit definition;
- use of attributional approach;
- system boundaries;
- allocation rules (priority for physical relationships);
- impact categories;
- approach for the waste management impacts evaluation;
- public stakeholders consultation.

After the approval by the TC, these PCRs can be used to develop EPDs for registration within the International EPD® System. Information about such PCRs from other programmes shall be published on the web site of the International EPD® System after the agreement with the other programme operator.

3.4.2 USE OF OTHER INTERNATIONALLY ACCEPTED PCR GUIDELINES

If other internationally standardized methodologies exist, that acts as PCRs or gives guidance on PCR development for certain product categories, and the guidelines are widely accepted and used by the market, it should 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. In such cases, a specific PCR shall be developed, to align the other guideline with the basic principles and requirements in the International EPD® System. Such a PCR shall always be developed according to the normal process within the International EPD® System. Any deviations from the GPI must be approved by the Technical Committee.

3.5 TRANSPARENCY AND THE PCR FORUM

Transparency is one of the main principles for the International EPD® System. The programme operator shall enable all interested parties and stakeholders to give comments on proposals for PCR documents on the website. Each PCR published on the website shall therefore have a forum for discussion and information on the appointed PCR moderator and on what organisations that have contributed to the PCR development. The language used in the forum is English.

The overall purposes of the PCR Forum are to:

- be used as a marketplace for an open and transparent communication and dialogue to take place between PCR stakeholders on any issue related to PCR in general,
- enable questions and answers on any relevant PCR area to be addressed to those parties responsible for the PCR development and to
- offer the possibility to comment on any PCR document open for consultation before approval.

Another important purpose of the PCR Forum is to enable any interested party to easily follow the answers and comments given to PCR documents under consultation or direct questions posed to the PCR moderators or programme operators during the consultation process.

As an element to secure a proper handling of the PCR Forum, any person wanting to give comments has to register user name, country, organisation and e-mail address. Following registration the person will automatically receive its individual username and password to be used in the future as login information when revisiting the PCR Forum.

3.6 DEVELOPING A PCR DOCUMENT

PCR documents shall be developed in an internationally-accepted manner based on an open, transparent and participatory process either by:

- companies and organisations in co-operation with other parties, such as branch- and interest organisations,
- institutions involving LCA/EPD experts in close cooperation with companies or branch- and interest organisations, or by

- single companies or organisations in case they have the necessary in-house competence or choose to engage outside LCA/EPD experts.

The overall management of the PCR development is the responsibility of the programme operator.

Developing PCR is a procedure including a staged approach with the following elements:

- Initiation
- Preparation
- Consultation
- Approval and publication
- Updating

Further information is given in Annex C.

3.7 PRE-CERTIFICATION AS AN ELEMENT TO DEVELOP PCR DOCUMENTS

The International EPD® System includes the possibility for pre-certification of EPDs as an initial step to develop PCRs. Pre-certification is a general concept for the International EPD® System being valid for single-issue EPDs (such as Climate Declarations), Sector EPDs and full EPDs.

A practical example of an EPD® in the form of a pre-certification may facilitate the PCR development process in the discussions between parties involved in the work. Besides, the pre-certification gives an organisation the possibility to early inform the market about the environmental performance of their products.

For pre-certification the following specific requirements shall apply:

- the underlying LCA-data shall be collected and calculated in accordance with ISO 14040 and ISO 14044 and meeting the requirements set out in Annex A. Deviations from the general requirements shall be justified and stated in the pre-certified EPD;
- the EPD format and contents shall comply with the requirements laid down in these General Programme Instructions;
- examination and review of the results from the LCA study and the declaration shall be carried out by an external verifier;
- relevant parties, e.g. industrial associations and interest organisations, shall be informed about the pre-certification, if found appropriate

It is likely that data gaps exist in the underlying background information to EPDs subject to pre-certification. Lower demands on the accuracy of the input data in the supply chain are accepted, provided that the data gaps are insignificant related to the organisations activities that they have management control over. Existence of such data gaps shall be reported in the pre-certified EPD in the form of a qualitative assessment of the type of environmental impact that might occur from the activity lacking data.

Pre-certified EPDs are valid for a specific period of time in most cases equivalent to the time needed to develop the PCR; in any case this period must not exceed one year. A precertification cannot be renewed.

4 DECLARATION REQUIREMENTS AND FORMAT

In order to ensure a common degree of homogeneity of contents and presentation of the EPD®s, certain requirements for the reporting format have to be defined. However, due to specific needs of some organisations to their key audiences as well as for internal use in the organisation, certain flexibility is allowed in the reporting format provided the EPD®s still include the prescribed information. EPD®s can be published on several languages, but if the EPD® document is not available in English, the organisation shall provide a summary in English including the main content of the EPD® to be available on the website.

The reporting format of an EPD® shall include the following six parts:

- Programme-related information
- Product-related information
- Content declaration
- Environmental performance-related information
- Additional environmental information
- Mandatory statements

As a general rule the EPD® content:

- must be verifiable;
- must not include rating, judgements or direct comparison with other products.

4.1 PROGRAMME-RELATED INFORMATION

The programme-related part of the EPD® shall include:

- Reference to the International EPD® System as the programme operator
- The EPD® logotype as specified in Annex E
- The reference PCR document upon which the EPD is based identified according to CPC codes and other relevant codes as appropriate, e.g. the corresponding CPV code to be used for identifying the product within the framework of public procurement
- Registration number (provided by the Secretariat)
- Date of publication and validity
- Declaration of the year(s) covered by the data used for the LCA calculation
- Geographical scope of application of the EPD® if deviating from an international coverage
- Information about the year or reference period of the underlying data to the EPD
- Reference to relevant websites for more information

And for sector EPDs (see 4.13) specific indication shall be given upfront stating that the document covers average values for an entire or partial product category (specifying the percentage of representativeness) and, hence, the declared unit is not available for purchase on the market.

4.2 PRODUCT-RELATED INFORMATION

The product-related part of the EPD® should include the following information:

- Trade name (if found relevant)
- Unequivocal identification of the product according to the CPC classification system
- Short description of the organisation, including information on products- or management system-related certifications (e.g. ISO Type I ecolables, ISO 9001- and 14001-certificates, EMAS-registrations etc.) and other relevant work the organisation wants to communicate (e.g. SA 18000, supply-chain management, social responsibility etc.)
- Description of the intended use

- A technical description of the product in terms of functional characteristics, expected service life time etc.,
- The relevant functional unit or declared unit,
- Short description of the underlying LCA-based information (e.g. summary of an existing LCA study or similar studies), and
- A content declaration covering relevant materials and substances.

Any claims made about the product must be verifiable.

4.3 CONTENT DECLARATION

The content declaration shall have the form of a list of materials and chemical substances including information on their environmental and hazardous properties. A harmonisation is recommended if similar information is issued from central authorities, initially preferably based on international regulations and legislation. In such a case it is important to complement a list of materials and chemical substances product content in quantitative terms e.g. related to their weight on their functional/declared unit or their percentage weight.

The content declaration does not apply to proprietary materials and substances such as those covered by exclusive legal rights including patent and trademarks. It may also not be appropriate for declarations concerning intangible products. As a general rule an indicating that a product is "free" of a specific hazardous material or substance should be done with caution and only when relevant (following the rules set in ISO 14021 on self-declared environmental claims).

Information on the hazardous properties of materials and chemical substances should follow the requirements given in latest revision of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)[6], issued by United Nations or national or regional applications of the GHS. As an example, in the European Union the following regulations are recommended to be used:

- 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)
- 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

In the PCR, additional requirements on the content declarations can be set, e.g. what materials and substances to declare.

4.3.1 INFORMATION ON RECYCLED MATERIALS

When a product is made by recycled materials (100% or less) the producer could provide information about this in the EPD.

In order to avoid any misunderstanding about which material could be considered "recycled material", the guidance given in ISO 14021 must be taken into account. In brief:

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

If the product contains some secondary materials a statement of the provenience (from pre-consumer or post-consumer) must be presented in the EPD. See definitions in Annex F).

4.4 ENVIRONMENTAL PERFORMANCE-RELATED INFORMATION

The environmental performance-related part of the EPD, representing the LCA-based information, shall include information about the use of resources, energy consumption, polluting emissions from the life cycle inventory work (if found relevant) and the resulting potential environmental impacts.

Detailed requirements on the information to include is a task associated with the work of preparing PCRs, in case the information needed exceeds the general requirements and format described below.

[6] The GHS document is available on http://www.unece.org

4.4.1 LIFE CYCLE STAGES

The International EPD® System is based on so-called attributional LCA studies describing the environmentally relevant physical flows to and from one product system and its subsystems. Even though the underlying data for upstream and manufacturing processes sometimes are referred to "historic data" they have the form of a "book-keeping system" being traceable and documented, and representative to reflect the present situation to the best extent possible. In case of downstream processes (especially end-of-life), data often reflect future scenarios, depending also on product life span and the modelling assumptions chosen. The approach taken is necessary for a number of operational and user reasons, many of which are connected to the requirement to meet specified data quality assurance criteria, which is especially important for a credible updating and verification process.

Presentation of the performance related information shall be separated for the following life cycle stages:

- upstream processes (cradle-to gate): producing input to the core processes (for example raw material acquisition and refinement, and production of intermediate components),
- core process (gate-to-gate): including the processes managed by the organisation owning the EPD ;
- downstream processes (gate-to-grave): including the use stage and end-of-life stages/end of life treatment of the product

Information aggregated over life cycle stages or the entire life cycle can also be included if found relevant. The presentation shall illustrate the environmental profile including several impact categories for each of the stages. It must be noted that such data for certain very specialised manufacturing processes might be controversial because it may indicate confidential information that an organisation do not want to make public, and if so, this has to be respected.

For construction product EPDs, paragraph 6.2 of the EN 15804:2012 could be applied in the PCR.

For more information, see section A.3.

4.4.2 USE OF RESOURCES

The collected raw data for resource consumption from the life cycle inventory work should be reported under the following headings:

- non-renewable resources
  - material resources
  - energy resources (used for energy conversion purposes)
- renewable resources
  - material resources
  - energy resources (used for energy conversion purposes)
- secondary resources
  - material resources (see content declaration, section 4.3)
  - energy resources (used for energy conversion purposes)
- recovered energy flows (such thermal) expressed in MJ
- water use divided in:
  - total amount of water[7]
  - direct amount of water used by the core process

The following requirements on the resource declaration also apply:

- all parameters for resource consumption shall be expressed in mass, with the exception of renewable energy resources used for the generation of hydroelectric, wind electricity and solar energy, which shall be expressed in MJ;

[7] For closed loop processes (such cooling system) and power generation only the net water consumptions (such as reintegrations of water losses) should be considered.

- all parameters shall not be aggregated but reported separately. Resources which contribute for less than 5% in each category shall be included in the resources list as "other";
- nuclear power shall be reported among the non-renewable energy resources as kg of uranium calculated by converting the thermal energy (MJ) considering a reactor of III generation with an efficiency of 33%;
- the PCR can define other resources (for example rare materials originating from the LCI data) which may be listed and detailed in the EPD for each specific product category;
- data have to be reported using the International System of Units (SI units). Reasonable multiples could be adopted for a better understanding. The PCR document could give further details on the units to be used;
- a reasonable number of significant digits shall be adopted. Further information should be given in the PCR;
- the energy content into some products (such paper or plastic based products) is useful information for the end of life management. For this reason the "energy content of product" shall be declared in MJ: its estimation shall be made considering the gross calorific value of the product. Only the energy that is suitable for an eventual energy recovery at the end of life shall be considered (energy content of steel due to its carbon content for example shall not be considered since it is not practically recoverable);
- energy content of biomass used for feed or food purposes shall not be considered.

For construction product EPDs, table 4 provided in EN 15804:2012 should be applied in the PCR.

4.4.3 POTENTIAL ENVIRONMENTAL IMPACTS

Different forms of resources use and pollutants emissions identified in the life cycle inventory work usually have different potential environmental impacts within so-called impact categories. The potential environmental impact can be calculated using characterisation methods that make it possible to associate the scale of a pollutant emission to selected so-called characterisation/conversion factor. Based on this background data and conversion factors the associated environmental impact can be calculated. The recommended characterisation factors to use are available on the website.

The potential environmental impacts associated with the various types of use of resources and pollutant emissions shall be reported into the following impact categories:

- Emission of greenhouse gases (expressed as the sum of global warming potential, GWP, 100 years, in CO_2 equivalents).
- Emission of acidifying gases (expressed as the sum of acidifying potential in sulphur dioxide (SO_2) equivalents).
- Emission of gases that contribute to the creation of ground-level ozone (expressed as the sum of ozone-creating potential, ethene-equivalents).
- Emission of substances to water contributing to oxygen depletion (expressed as phosphate (PO_4) equivalents).

In order to better characterise the environmental performance of a product category, the relevant PCR should indicate the use of other categories of potential impacts in parallel, providing the general agreed-upon characterisation factors exist. The characterisation factors used shall be reported in the EPD.

4.4.3.1. Optional indicators

The emission of ozone-depleting gases (expressed as the sum of ozone-depleting potential in mass of CFC 11-equivalents, 20 years) and the abiotic resource depletion are optional indicators and the inclusion of them should be specified in the PCR.

In order to better characterise the environmental performance of a product category or for a specific market, the PCR should indicate the use of other categories of potential impacts. For construction products impact categories may be relevant as specified in EN 15804:2012, use of them shall be indicated in the PCR. Other indicators may also be those suggested in the European Union Product Environmental Footprint (PEF) methodology.

4.4.4 WASTE PRODUCTION

Waste generated along the whole life cycle production chains shall be treated following the technical specifications described in the Annex A. When the amount of waste has to be declared, the following information shall be reported:

- hazardous waste;
- non-hazardous waste.

4.4.5 OTHER ENVIRONMENTAL INDICATORS

The collected raw data from the life cycle inventory work can be used for a variety of information requirements and indicators. In the EPD, all environmentally relevant indicators for the product category shall be included. The selection of other indicators to include has to take into consideration the scope of the EPD, and that they are not misleading. In addition, they shall only apply to those life cycle stages where the information is appropriate.

Other environmental indicators shall be based on international standards or similar methodologies developed in a transparent procedure. Reference to the chosen indictors and methodologies shall be reported.

The final selection of recommended other indicators to report on will be done during the PCR development.

4.5 ADDITIONAL INFORMATION

An EPD can contain additional environmental information not derived from the LCA-based calculations. The part of the EPD describing additional environmental information may include various issues e.g. on specific information about the use and end-of-life, which has a special value covering e.g.:

- instruction for a proper use of the product, e.g. to minimise the energy or water consumption or to improve the durability of the product,
- instructions for a proper maintenance and service of the product,
- information on key parts of the product determining 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, and
- information regarding disposal of the product or inherent materials, and any other information considered necessary to minimise the product's end-of-life impacts.

It is recommended to add information enabling the possibility to make comparisons with sector benchmarks or, if not available, with benchmark of common products and services preferably based on the concept of functional/declared unit, which is useful for scaling the environmental impacts of different activities, products and services.

Additional environmental information can also include a more detailed description of an organisation´s overall environmental work (than indicated above under Chapter 4.2 Product-related information), such as:

- the existence of a quality or environmental management system or any type of organised environmental activity,
- any activity related to supply chain management, social responsibility (SR)[8] etc., and
- information on where interested parties may find more details about the organisation´s environmental work.

The PCR shall give further information on relevant additional information to include in the EPD.

[8] For more information about social responsibility, see ISO 26 000:2010 Social responsibility

4.6 MANDATORY STATEMENTS

The following information is mandatory to include in the EPD:

- any omission of life cycle stages not making the EPD cover the full life cycle, with a justification of the omission
- means of obtaining explanatory materials, for example references to chosen methodologies.

The EPD shall include the following mandatory statement:

- "EPDs within the same product category but from different programmes may not be comparable"

The EPD shall also clearly provide the following information:

Product category rules (PCR) review was conducted by: *<name and organisation of the chair, and information on how to contact the chair through the programme operator>*
Independent verification of the declaration and data, according to ISO 14025:2006 ☐ EPD process certification ☐ EPD verification
Third party verifier: *<name of the third party verifier>*

4.7 INFORMATION RELATED TO PRE-CERTIFIED EPDS

The reporting format for a pre-certified EPD shall follow the same layout as for EPDs in general. However, a pre-certified EPD must include key information about the LCA calculation rules that normally is described in a PCR document, due to the absence of a reference PCR. The following information is of special importance:

- Choice and definition of the functional unit
- Choice and description of system boundaries
- Cut off rules
- Allocation rules
- Data sources
- Any deviation from the general requirements regarding the use of specific and generic data.

Organisations having a pre-certified EPD shall ensure that this is clearly indicated upfront the EPD by using a special registration number.

4.8 REGISTRATION OF EPDS

For information about EPD registration, see Section 2.1.8.

4.9 EPD® VALIDITY

The validity of the EPD is set at three years[9] after which the declaration must necessarily be revised and reissued.

During the validity period surveillance follow up shall be agreed with the verifier in order to evaluate if the content are still consistent with the current situation. It is not necessary to perform a full LCA, only the monitoring of main parameters is requested. The surveillance verification could be organised as documental check aimed to the evaluation of the main environmental aspects relevant for the LCA calculation.

The EPD shall be updated if one of the environmental indicators has worsened for more than 10% compared with the data currently published.

The organisation can choose to let EPDs that have passed the date of validity to continue to be published on the EPD website. This might be relevant for products that are discontinued but still are available on the market or still in use.

[9] For European construction products EPDs where there is a low variation in production data year after year, indication provided in paragraph 9 of EN 15804 could be applied in the PCR.

However, in such cases, the organisation is not allowed to use the non-valid EPDs in marketing. If the organisation wishes to have the EPD deregistered, the organisation must inform the programme operator, see Section 2.1.8.

4.10 POSSIBILITIES TO ADD CORRECTIONS/AMENDMENTS IN EXISTING DECLARATIONS

Besides situations where the EPD must be updated during the validity period (see 4.10), an organisation may want to correct or amend information in its EPD, whenever it finds it appropriate e.g. if input data change substantially, affecting the results in the EPD. In such a case new inventories and calculations must be provided according to the recent information.

A requirement of this kind may occur, for example, in conjunction with improvements of the environmental performance of a product. In such a situation, the organisation shall initiate and have a special check being carried out by an independent verifier in order to examine the new information that has emerged. In case the organisation has an internal "EPD process certification" they are allowed to handle such corrections/amendments by themselves.

A notification of changes in the declaration shall be issued to the programme operator, together with a document stating conformance with relevant requirements from the verifier (if not the procedure of internal verification via the EPD process certification is practised). The organisation may want to give the revised EPD a special version number following the registration number to indicate the change in the declaration.

If an EPD is updated or the information changed in any way, the organisation is recommended to explain, in the revised EPD, the differences versus the previous version of the EPD.

4.11 ADJUSTMENT OF THE EPD FORMAT IN CASE OF INCLUSION OF SEVERAL SIMILAR PRODUCTS

The International EPD® System offers the possibility for similar products to be included in the same EPD. The following requirements must be met:

- Similar products with differences between the mandatory impact indicators lower than ±5% could be presented using the impacts of a representative product. A variation range description shall be presented in the declaration;
- Similar products with differences between the mandatory impact indicators higher than ±5% could be presented in the same declaration documents but using separate columns or tables.

For the purpose of these requirements "*similar products*" means products covered by the same PCR and produced by the same company with same core process.

4.12 SINGLE-ISSUE EPDS

The International EPD® System allows for the possibility to adapt the information given to specific user needs and market applications by introducing the concept of "single-issue EPDs". A "single-issue EPD" can, for instance, have the form of a climate declaration, extracting the information related to climate change by describing the emissions of green-house gases, expressed as CO_2-equivalents. Other examples could be a "eutrophication declaration" summing up the environmental impact related to nutrient-enrichment of lakes and coastal areas or a "recycling declaration" describing various ways recycle used materials to be used as input for manufacturing of new products.

A single issued EPD can only be published if a full EPD is registered or if the correspondent information, giving the information on the products environmental performance according to chapter 4.4, is available on request. The reporting format shall, as a minimum, include the following information:

- Information about the product
- Information about the company
- Declaration of the environmental impact for the chosen topic based on relevant impact category in the form of an "Ecoprofile" for the various life cycle stages
- Mandatory statements according to chapter 4.6.
- The programme operator can issue templates, mandatory to use when publishing a single issue EPDs.

Single issue EPDs shall give information on how to obtain information on the full environmental impact from the declared product. Single issue EPDs shall in addition include the following statement:

"This single issue EPD only addresses one impact category and does not assess other potential social, economic and environmental impacts arising from the provision of this product."

4.13 SECTOR EPD®

Recent years have seen an increasing interest in describing the average performance of extended industrial systems belonging to the same sector in terms of the consumption of energy, raw materials, wastes and the emissions to the environment (including liquid and gaseous). In this context, an extended industrial system is one which starts with raw materials in the earth and traces all industrial, transport and consumer operations until final disposal of the product at the end of its useful life and is often referred to as cradle-to-grave.

Many trade or commercial associations have initiated projects to examine their practices and provide this information for wider dissemination. The meaning of a sector EPD can therefore be recognized by the need of publishing data about the environmental burden of an average product/process by a direct involvement of a suitable sample of plants.

5 EPD® VERIFICATION PROCEDURE

The EPD verification is the critical issue for ensuring the reliability of declaration contents. To be certified and published, the EPD must successfully have passed the verification procedure. In this chapter, verification principles and verifier competences are described.

5.1 PRINCIPLES FOR EPD® VERIFICATION

The verification shall cover the following main areas:

- the underlying data collected and used for the LCA calculations,
- the way the LCA-based calculations has been carried out to comply with the calculation rules described in the reference PCR,
- the presentation of environmental performance included in the EPD, and
- other additional environmental information included in the declaration, if existent.

In case of existence of already verified background information in the LCA results, these shall not be subject for further verification provided that they are up-dated and valid through the so-called revision period.

When a large variety of products (e.g. series of products) are subject for verification, it is likely unrealistic to have background data (and assessments) available about all products. In such a case development and an application of sampling methods for the LCA study can be a practical solution. If a specific sampling method has been developed by an organisation, this method shall be verified by a third party verifier and specified in the EPD.

Renewed verifications shall preferably focus on changes in the background conditions for the EPD that might have occurred or other types of changes with regard to the organisation's internal procedures with relevance to the declaration. When there is a variation higher than +/-10 % in one or more data reported in the EPD document, the verification should focus on parameters and data generating the variation.

The verification procedure could be seen as being divided into two separate parts:

- documental review and
- validation.

5.2 DOCUMENTAL REVIEW

The documental review shall focus on the analysis of all documents that justify input data and information included in the EPD, both the underlying LCA study and documents describing other environmental information included in the EPD®.

The objectives of the documental review are:

- to assess compliance of the LCA and the EPD with the general programme instructions and the reference PCR,
- to verify procedures established for updating the information in the LCA and EPD, and to
- to verify procedures established for an assessment of the conformity to all relevant process and product-related environmental laws (if appropriate).

5.3 VALIDATION

The validation phase shall focus on an assessment of the validity of data and information included in the LCA study and the EPD. This phase is conducted by sampling activities focusing, in particular, on those processes and activities having significant influence on results the overall environmental impact.

The objectives of the validation phase are:

- to assess the accuracy of the information contained in the LCA study and the EPD,
- to assess the application of documented procedures established for updating the information in the LCA and EPD and
- to assess the compliance with relevant process and product-related environmental laws (if relevant).

The verifier shall justify the way the organisation conduct the validation phase especially considering the following factors:

- type and complexity of product and associated processes,
- presence of an already certified EMS according to ISO14001 or EMAS or less formal EMS (e.g. in the form of a monitoring data management system),
- data sources and format of presentation,
- legal complexity and
- specific requirements as outlined in the reference PCR.

The verifier can organise the validation phase either as an “on desk” and “on site” exercise. In particular, an “on site” audit is usually valuable to conduct if the manufacturing processes are predominant with regard to the overall environmental impact, instead being at the place where data are stored and managed.

5.4 DATA CONFIDENTIALITY

Business data could be of confidential nature because of competitive business aspects, intellectual property rights or similar legal restrictions. Such confidential data is not made public as the declaration typically only provides data aggregated over full or relevant portions of the life cycle. Therefore, business data identified as confidential and provided during verification process shall be kept confidential as advocated in the general programme instructions. Hence, verifiers shall not disseminate, without the permission of the organisation, any information disclosed to them during the course of the review work.

5.5 ORGANISATION’S OBLIGATIONS FOR EPD VERIFICATION

Organisations creating an EPD are required to ensure that the LCA-based data and, where relevant, additional environmental information, as well as the EPD, are independently verified.

Moreover they have to:

- present data for verification and
- establish internal follow-up procedures.

5.5.1 PRESENTATION OF DATA FOR VERIFICATION

The ISO 14025 states that the verifier shall generate a report documenting the verification process and that this report shall be available to any person upon request. The *ISO 14044 Life cycle assessment – Requirements and guidelines, Chapter 5.2: Additional requirements and guidance for third party reports* includes the following the statement: "*When results of the LCA are to be communicated to any third party (i.e. interested party other than the commissioner or the practitioner of the study), regardless of the form of the communication, a third-party report shall be prepared*". However, as the verifiers report within the framework of an environmental declarations programme is not primarily meant to be communicated to any interested party, but rather to support the verification procedure, it may not strictly have to follow the requirements and guidance as advocated in ISO 14044, even though the ISO standard contain valuable input to consider for the verifiers report.

In the presentation of data for verification, references shall be made to the reference PCR as well as other background documents used. Any deviations from making use of these documents shall be described and justified. In case the verifier finds the LCA study not in conformance with the requirements, the verifier may ask for additional information or further refinement of the underlying data. This activity shall be documented.

The presentation of the results from the LCA-based calculations shall be comprehensive enough to facilitate the examination by the verifier. Some guidance for the organisation providing data and information to the verifier is given below with regard to:

- lay-out of the presentation
- description of the LCA-based calculations

5.5.1.1. Lay-out of the presentation

The presentation of data from the LCA-based calculations shall be done in a consistent way to cover the most important aspects related to the accuracy and relevance of the data. Data on unit processes/information modules/PCR modules

shall be described in a transparent way. The same rules apply regardless of the type of data whether being specific/generic, from literature sources, from questionnaires or from personal information.

Results from the inventory analysis can preferably be presented separately in the form of a table. A summation of the various parameters may be included for different life cycle stages. Inventory results can be presented together with the characterisation factors for converting the inventory data into category indicators.

Results from the impact assessment can preferably be presented in a way that illustrates the calculation procedure from raw data collected in the inventory analysis phase to the final conversion of the data into the impact categories.

5.5.1.2. Description of the LCA-based calculations

Quality assurance of data and data handling is a central part of the presentation of the LCA-based calculations provided to the verifier. Specific data from manufacturing processes or equivalent data shall be documented on a site level. Unit processes/information modules/PCR modules and generic data shall be reported at the level of aggregation available for use in the calculation, but more detailed data can be reported if found relevant.

All data relevant for the EPD shall be documented as follows:

- description of the technical system (type of system, geographical location and description of the function of the unit processes/information module/PCR module),
- description of data collection (objectives, reference function and reference flow, name of person in charge of the data collection, system boundaries, allocation, judgement of data quality and its relevance and accuracy, checks of data collection being performed and various information of administrative nature),
- description of data collection (time period for data collection, type of methods used and a description thereof, identification and assessment of the relevance of eventual data gaps and how these are handled, references and other information),
- presentation of data (presentation of all input and output data and how they relate to reference functions and reference flows separated into the data categories chosen for the LCA-based calculations).

The following information about the inventory analysis ought to be included:

- functional unit alternatively declared unit, system boundary settings and allocation rules,
- data collection (collection procedures, questionnaires, specific/generic data and reference to documentation),
- validation of data (internal quality assurance procedures, routines for identification, follow-up and corrections of data gaps),
- inventory results (calculation procedures, results for different life cycle stages and the final aggregated results).

The following information about the impact assessment ought to be included:

- key inventory parameters and data on use of resources,
- assignment of the results from the inventory analysis (classification),
- results of the characterisation and impact assessment calculations,
- a sensitivity analysis.

The procedure for interpreting the results from the LCA-based calculations need not to be too comprehensive as parts of the elements included in the interpretation phase has already been handled when preparing the PCR. References should be made to existing critical reviews of LCA data already being examined and approved.

5.5.2 INTERNAL FOLLOW-UP PROCEDURES

It is the obligation of the organisation to inform the verifier, during the course of a revision period, of any significant changes that have taken place in the information submitted as input data for the information in the EPD. Such changes might include e.g. raw material acquisition, transportation modes, manufacturing processes or changes in product design. Organisations usually favour from having reliable procedures for documentation and follow-up to enable them to identify such changes in the background information to the EPD. Existence of a quality or environmental management system or even less formal management systems is a good help and might reduce the magnitude of renewed verifications as these systems include generally accepted procedures for checking and follow-up. Access to continuously up-dated information on existing legislation from e.g. central authorities will facilitate the follow-up procedures.

If an organisation has no environmental management system in place, other types of internal follow-up procedures usually need to be established. Internal reviews can be performed by in-house experts or experts employed by the organisation. These activities can also be carried out by external experts or organisations that act on behalf of the organisation. Internal reviews and auditing shall be made with a frequency that will allow for an acceptable coverage of changes that might occur.

5.6 PROCEDURES FOR EPD VERIFICATION

There are two types of verification procedures to ensure that EPDs comply with these programme instructions:

- EPD verification: verification of LCA-based data, additional environmental information and the information given in a single EPD, conducted by an recognised individual verifier or an accredited certification body
- EPD process certification: verification of an internal organisation process aimed to develop EPDs according to the General Programme Instructions. Only accredited certification bodies are allowed to certify EPD processes. The process certification is described in chapter 5.8 and annex D.

All types of information and data shall be independently verified. This means that the independent verifiers, whether internal or external to the organisation, shall not have been involved in the execution of the LCA or the development of the declaration, and shall not have conflicts of interest resulting from their position in the organisation.

5.7 EPD VERIFICATION

The contents of this section are applicable for verification of single EPDs.

5.7.1 LCA AND PCR COMPLIANCE

The verifier shall check that the LCA-based calculations has been performed in accordance with the general programme instructions and specifically focus on that:

- the collection of LCA-based data and the choice of methods used are carried out following the ISO 14040 and 14044 and the reference PCR, and that
- the results from the inventory analysis and the impact assessment calculations have been made using prescribed methods.

In verifying the underlying data from the inventory analysis, the verifier shall examine that:

- each unit process is defined in the way specified in the reference PCR,
- all relevant information is documented for each unit process/information module/PCR module, i.e. being consistent and understandable to enable an independent evaluation of the relevance of the data in accordance to the reference PCR, and that
- data validity is reliable.

In verifying the results from the impact assessment, the verifier shall check that the calculations are made in a correct way based on the inventory analysis results and recommended characterisation factors.

5.7.1.1. Sample checks

With regard to checking information from the inventory analysis, the verifier can make use of sample checks for the unit processes/information modules/PCR modules to check their conformance to original data sources. The organisation shall provide the verifier with information about the underlying data and calculations carried out upon request.

Sample checks may preferably be carried out for:

- those unit processes/information modules/PCR modules having a significant influence on the inventory analysis results, and
- randomly chosen unit processes/information modules/PCR modules.

With regard to verifying information about the impact assessment, the verifier can make use of sample checks to check that the calculations of one or more impact category indicators have been made in a correct way. A selected number of impact categories ought to be chosen focusing on the most dominant parameters within each category. Such parameters could be identified by evaluating their relative contribution to the total environmental impact of the product.

5.7.2 EPD INFORMATION

The verifier shall check the consistency of the information in all parts of the EPD related to the general programme instructions, information about the product, the environmental performance, other environmental information as well as the mandatory statements needed. These rules also apply for any information of more qualitative nature related to the organisation making the declaration.

The examination of the presentation of the EPD shall specifically focus on that:

- the background information is presented in a transparent and understandable way,
- the presentation is credible and neutral,
- the declaration format follows the recommended overall lay-out, and that
- information and guidance are given on where to find supplementary explanatory materials.

5.7.3 COMPLIANCE WITH RELEVANT ENVIRONMENTAL LEGISLATION

The verifier shall, to the extent possible depending on practical circumstances, ensure that the product do not violate relevant legislation. As a minimum request, the verifier shall evaluate the compliance with process- and product environmental laws applicable to the organisation requesting the EPD verification, with a main focus on the list of materials and chemical substances and information related to pollution permits included in the EPD. The verifier shall check that the organisation has procedures in place for keeping itself updated with relevant process- and product related legislation and has access to all specific information of relevance concerning processes and products for the actual product category issued by central legislative authorities.

5.7.4 SECTOR EPDS

The verification procedure for Sector EPDs may have to be stricter compared to company-specific EPDs due to the multiple character of information from the large number of operations and manufacturing sites to be covered in a Sector EPD. The following aspects need to be handled in a specific way:

- A verification procedure based on sample tests whereby a verifier can assure the full inclusion of all operations and manufacturing sites over a certain number of review cycles
- The appointment of a responsible person for reporting all significant changes in the underlying material relevant for the Sector EPD for all operations and manufacturing sites that may lead to the necessary adjustments in the EPD

With regard to giving guidance for defining a reasonable size for a representative sample of manufacturing sites as a basis for information in a Sector EPDs, there are several possible points of departures, e.g.:

- to consider the verification procedure for environmental management systems in case of a corporate certification indicating that approximately one-third of the total number of sites should be visited annually so all sites should be covered over a period of three years (this rule may not be applicable for Sector EPDs if the number of sites becomes to extensive),
- to consider if there exist clear differences among the sites with regard to either the upstream processes or the manufacturing processes – and if so, make a representative sample out of each such category,
- to randomly look at a number of sites and find out if there are any substantial differences to consider – if not, there is a possibility to apply basic theories of statistics indicating that reaching a sample size of approximately 25 sites will give reasonable good and accurate information about the average situation prevailing among the sites, or
- to decide about a suitable selection of sample size, e.g. covering a certain percentage such as 20 %.

Independent of which approach are taken, the sample size should be adjusted to the inherent uncertainties in traditional LCA studies and included in the reference PCR document.

Description of the sample used for the LCA shall be clearly stated in the sector EPD.

5.7.5 EPD® VERIFICATION STATEMENT

A verification statement shall be written in English and provided to the organisation by the verifier. The verification statement shall be included in the EPD registration request.

5.7.6 COMPETENCE REQUIREMENTS

Only approved individual verifiers or accredited certification bodies may carry out EPD verification. The current list is available on the website: www.environdec.com.

5.8 EPD PROCESS CERTIFICATION

There is a need to simplify the verification process for organisations in their work to collect data, conduct LCA and create EPDs on a regular basis. Of special importance is to make the procedure less time- and resource-consuming, thereby being more cost-effective, still complying with relevant parts of general programme instructions.

In order to meet these needs, the International EPD® System includes the possibility for organisations to internally handle the management of EPD data involved in the verification procedure by themselves and issue EPDs without a third party certifier being involved in each case. This is referred to as *the EPD process certification*.

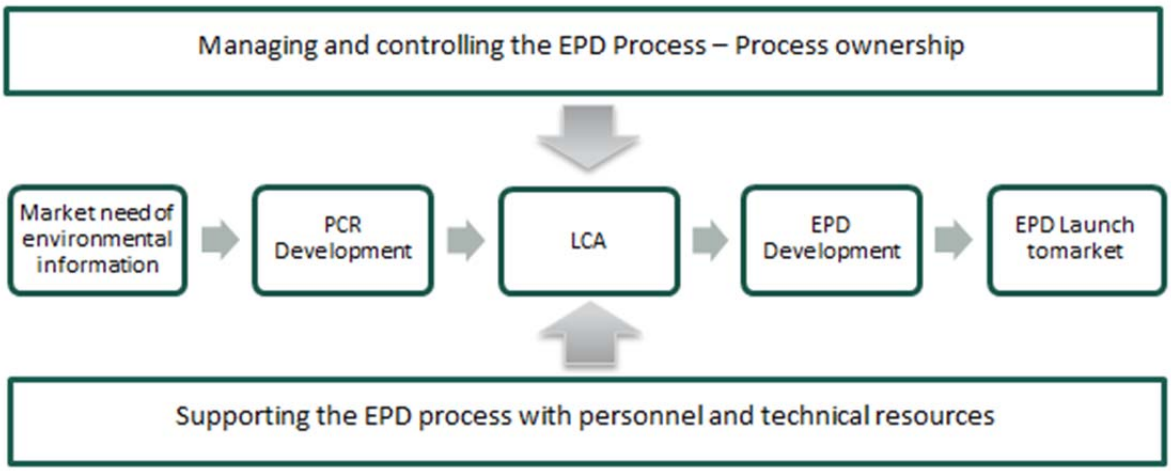
The increased implementation of environmental management systems in many organisations will automatically lead to the establishment of reliable internal follow-up routines which very well suits many of the needs in the procedure of EPD process certification. Hence, EPD process certification can be of interest of any type and size of organisation. Well-managed internal EPD routines will make data collection and its conversion into EPDs more rational and less costly in an organisation operating it in a resource- and time efficient manner.

An organisation having an EPD process certification assessed and certified by a third party is, on a regular basis, allowed to:

- update existing EPDs and
- create and issue new EPDs for registration.

5.8.1 THE EPD PROCESS

The activity to develop EPD shall follow a certain process pattern:



5.8.2 THE EPD PROCESS CERTIFICATION ACTIVITY

The internal EPD process certification process shall be outlined according to the PDCA principle:

Planning: Setting up resources needed for this activity, assessment plans and defining criteria's for approval. Records of this shall be kept.

Doing: Execute assessments according to plan, with trained internal staff at defined intervals and according to the approval criteria's. Records of this shall be kept.

Checking: Internal independent party shall verify that the EPD process certification activity is outlined well and works effectively and according to the norms.

Acting: Finally the EPD owner shall certify by a written statement that the above process works properly and effective and according to the norms. The statement shall be updated annually.

5.8.3 PROCESS CERTIFICATION ASSESSMENT AND VERIFICATION

The EPD process certification assessment has the form of a check of the quality assurance of the internal competence and skills in an organisation to:

- conduct the prescribed LCA calculations according to the reference PCR ,
- create EPDs according to the reference PCR, and
- have regular follow-up routines in place to accurately check the relevance of the current information in registered EPDs.

The EPD process shall be verified by an independent third party verifier. Such a verifier shall be an accredited body certified for audit of management systems. The verifications shall be done as an accredited service under the supervision of an accreditation body.

Detailed requirements on the EPD process certification is given in the Annex D.

5.9 CHECKING COMPETENCE AND QUALIFICATIONS OF VERIFIERS

Examining the compliance of verifiers with the prescribed competence requirements as well as carrying out their supervisions are vital parts in an environmental declarations programme for rising and maintaining market acceptance of EPDs. In the International EPD® System, there are two possibilities to fulfil these tasks – to be carried out by either by organisations officially appointed to act as so-called accreditation bodies or via a procedure carried out under the auspices of the programme operator. These alternatives are illustrated below:

TYPE OF VERIFICATION	RECOGNIZED VERIFIERS	EXAMINING COMPLIANCE WITH PRESCRIBED COMPETENCE REQUIREMENTS BY
EPD verification	Recognized individual verifiers	International EPD® System programme operator
	Accredited Certification bodies	Accreditation bodies
EPD process certification	Accredited Certification bodies	Accreditation bodies

The checking of competence requirements and supervision of the verifiers include the following activities:

- review of the verifier´s integrity and independence, documentation of competence, and management capacity (quality system if existent),
- review on-site, at the verifier´s site, and scrutiny of verifications carried out or in progress (if found relevant),
- supervision (follow-up and review) of the operations of the verifier.

A list of recognized individual verifiers and certification bodes is available at www.environdec.com

5.9.1 APPROVAL OF CERTIFICATION BODIES

Approval of certification bodies shall be made by accreditation bodies that shall to take part in international cooperation and follow multinational agreements such as EA or IAF MLA (Multinational Agreements). There is also a standard for accreditation bodies related to such activities (ISO/IEC 17011).

Checking of competence requirements of verifiers should follow a procedure set forth in ISO/IEC 17065:2012containing the general requirements for certification bodies and their work.

In case the verifier is a body not having the necessary competence among its own employees, the verifier shall have such competence at the management level that makes it possible within the relevant area:

- to determine the extent of sufficient competence needed for carrying out the verification,
- to recruit competent personnel for carrying out reviews and to ensure that they receive adequate training and introduction, and

- to ensure that review and verification are carried out in a correct manner.

5.9.2 APPROVAL OF RECOGNIZED INDIVIDUAL VERIFIERS

ISO/IEC 17065:2012 is not applicable for individuals, therefore the programme operator of the International EPD® System, by means of the TC, offers a special procedure for examining/checking single LCA/EPD experts, following the rationale of ISO/IEC 17065:2012 specifically securing their independence. In such an evaluation procedure, the verifier shall provide the programme operator with an application including:

- a CV stating compliance with the prescribed qualifications detailed below;
- assignments of similar tasks of verification of LCA and environmental declarations (if existing)
- information indicating independence of potential verification tasks, and
- description of the verifiers own processes when managing verification activities
- relevant references, as appropriate.

The verifier's application form is available at the website www.environdec.com.

The evaluation of the credentials of the applicant is carried out by the Secretariat supported by the TC. Sample checks may be carried out by the TC randomly to review the verifier's work at site.

The TC will make a thorough check of the first EPD verified by an independent verifier to make sure that the EPD® and verification process fulfils the requirement stated in the GPI. The TC may also make additional checks of verifications done by individual verifiers.

It is important that the verifier stays up to date with the development within the International EPD® System, therefore it is required that the verifier is active within the field of environmental declarations. To uphold the recognition as an individual verifier, the verifier must yearly carry out at least one EPD verification, or one LCA leading to a certified environmental declaration or prepare one PCR document. The Secretariat is responsible for following up the verifiers.

5.9.2.1. Competencies required for individual verifiers

The requirements for the qualification of an independent verifier are (all the following criteria have to be fulfilled):

- at least five years of experience in the LCA field,
- at least five independent third party reviews according the ISO 14040 standard,
- audit qualification attestation following the ISO 19011 criteria.

If the independent verifier participates to a training course organized by the International EPD® System, requirements on experiences and external reviews are reduced to 3 years and 3 third party reviews.

ANNEX A – APPLICATION OF LCA METHODOLOGY

An LCA study consists of different stages with regard to the calculations and assessment procedures – goal and scope definition, inventory analysis, impact assessment and interpretation. In traditional LCA studies all background conditions with regard to the LCA calculations have to be defined from the onset of the study.

For an EPD®, the preconditions for the LCA calculations are set from the beginning and described in the programme instructions with further specifications in the Product Category Rules (PCR) document when defining the requirements to be followed. Hence, the development of an EPD does not have to go through an extensive and complete LCA study, but rather to follow the requirements given in the PCR documents, where all the necessary background assumptions are made and justified, and the associated calculations rules defined for the purpose of the application of EPDs. The LCA work done or an EPD is hence much more straightforward and time- and cost-efficient.

The LCA calculations rules described in this section outlines the overall requirements to follow for the International EPD® System. These rules follow the international standards ISO 14040 (*LCA - Principles and procedures*) and ISO 14044 (*LCA - Requirements and guidelines*).

Other references that could be taken into account for the LCA calculation are the ISO/TS 14067, EN 15804:2012, PAS 2050, the GHG Reporting, the ILCD manuals, the EU's Environmental Footprint Guidelines, Nordic Guidelines, AFNOR good practices documents; etc.

A.1. SEPARATION OF THE LCA CALCULATIONS RULES INTO DIFFERENT STEPS

The choice of methods to be used in the inventory analysis often has a major influence on the final results. It is therefore important to specify in detail how the calculations should be carried out. The inventory analysis should give results that are readily transferable for different basic calculations, and the results should be possible to add up with other similar input data from other information modules, PCR modules and EPDs.

In practice, LCA calculations are made differently for the separate LCA stages due to various types of background assumptions, different data availability, different accuracies of the calculated data and different needs for data representativeness and quality. Typically, available data are those from the manufacturing processes which an organisation usually has to regularly report on. These data are usually those being most company and product specific. However, product-specific data can also be collected if it includes production processes in the supply chain over which the organisation has management control, including the packaging and transportation used to deliver the product to a retailer or an end consumer. In most cases there is a lack of specific data covering all the information needs in an EPD. Here, generic data and scenario techniques may be used – some of which are precise enough to comply with the overall rules commonly set in environmental declaration programmes.

Based on these realities, the International EPD® System has adopted an LCA calculations procedure which is separated into different life cycle stages:

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

The main reason for separating these stages is based on the modularity approach chosen and the technical LCA-based calculations aspects described above, which has to be made differently depending on availability of specific information about the product and product category under study. Not only the origin and data specificity differ in the LCA calculations making up an EPD, also a large number of background assumptions such as functional unit, system boundary settings, cut-off criteria and allocation rules may be different as a consequence of the different quality of the data to be used.

Depending on the various types and main focus of an EPD® a so-called "core module" is defined is to highlight where in the life cycle it is expected that the most specific LCA data can be available and delivered by an organisation. Usually the core module is equal to the manufacturing of goods.

With regard to the possibility for EPDs to describe the environmental performance of services, making the use of the products in the centre of the calculation similar to a "core module" (see below Chapter A.4.1) it seems logical to separate downstream processes into two distinct stages – product usage (including operations and maintenance) and end-of-life (including waste handling, incineration, recycling, re-use and deposition). In a full life cycle perspective, an EPD could be regarded to be bundled into 4 separate stages as illustrated below in Figure A.1. Often, more specifically for interim products and parts, refining of the materials and manufacturing is however consisting of more than one EPD, linked along the supply-chain.

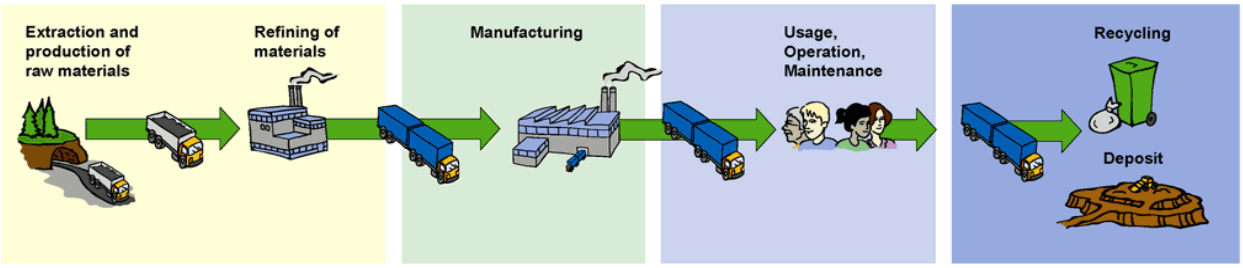


Figure A.1. The life cycle of a product divided into different stages.

Another reason to be mentioned for separating the life cycle into different stages is the fact that it has been judged to be practical from the point of view to deliver a staged approach for preparing an EPD based on the PCR documents. Hence, the rules given in the PCR documents will be separated accordingly - for further information, see Annex C

A.2. FUNCTIONAL UNIT/DECLARED UNIT

The functional unit is the reference unit used to quantify the performance of a product system. The main purpose of the functional unit is to provide a reference to which the inputs and outputs can be linked. The functional unit is important as a basis for the collection, handling and calculation of LCA data to ensure the possibility to "add up" information from EPDs in the supply chain and to be able to compare EPDs within a given product category. Usually comparability rests with the functional unit implying a full life cycle approach – from cradle-to-grave.

The preferred functional unit must be defined and measurable. In practice the functional unit consists of a qualitatively defined function or property (e.g. outer wall surface coverage with a certain level of brightness, for paint) and its quantification via a unit (e.g. 1 m^2). As a general rule, the functional unit shall be expressed in SI units (kg, J, meters etc.). Other units could be used in case they are considered more relevant to address the information (e.g. kW for power and kWh for energy). In order to increase the understanding and usefulness of an EPD, it might be an advantage to define the functional unit according to standardised LCA procedures supplemented with a technical specification of one product unit with parameters relevant for mainly addressing the performance of the product during its use.

For EPDs not covering a full life cycle, e.g. for building products where their further fate and function in terms of product use are unknown, the concept of functional unit is transferred into a so-called declared unit.

A product/product system may in fact have a large number of possible functions, and the function selected for the study depends on the objective and range of application.

Therefore, it should be noted that the use of a product classification system with the objective to identify different products, such as the CPC scheme in the International EPD® System, could not automatically be used as a reference for comparisons.

A.2.1. DEFINITION OF FUNCTIONAL UNIT/DECLARED UNIT

The functional unit is defined as a quantified performance of the product for use as a reference unit in an environmental declaration of the life cycle of a product. A declared unit is defined as a quantity of a product for use as a reference unit for an environmental declaration based on an information module, where an information module is compilation of data covering a unit process or a combination of unit processes that are part of a life cycle for a product.

A.2.2. TECHNICAL SPECIFICATION

The technical specification shall include information sufficient for a customer to assess and evaluate the technical performance and usefulness of a product. The reference service life of a product should be taken into account in the selection of the functional unit. The lifespan in technical terms, i.e. the time for which a product has been designed to last, expressed in relevant units such as years, operating hours or kilometres travelled, is to prefer. If the technical reference service life is difficult to determine, other approximations of the reference service life may be acceptable. The choice of such a term other than the technical reference service life should be clearly justified. Note that the technical service life is not identical or related to guarantee time whether legally binding or offered voluntary. In the case of products that have an actual reference service life being shorter than the technical reference service life, (e.g. as due to changes in fashion the product is discarded before its technical service life has been reached), the estimate on actual reference service life shall be used instead.

A.3. SYSTEM BOUNDARIES

The system boundaries determine the unit processes to be included in the study and what type of "upstream data and downstream data" that could be omitted. System boundary settings are usually made case-wise in the PCRs and reduce the number of required LCA data thereby facilitating the calculations provided that no significant information is lost.

As a general principle all processes "from cradle to grave" shall be included in the study. For products, where their further use is not known, e.g. a building product a "from cradle to gate" approach is usually sufficient with regard to the scope of the EPD for which a declared unit shall be defined/described. For "end-products" a "cradle to grave"-approach is usually relevant, however, with due consideration to the principles of the book-keeping systems approach as advocated in the International EPD® System.

The same general principles apply for EPDs for services since any service activity has to make use of physical resources. In this case, the "production of the service" is regarded as the "core module" instead of the manufacturing processes. The more pronounced difference between goods and services with regard to the PCR work is most likely the relatively distinct focus on defining the responsibilities of the service provider in their use of products, which a service provider to some extent has a management control over. Therefore, actual activities taking place in using products can be more detailed described in contrast to the general scenarios usually dealt with for EPDs for goods.

Deviations from any general rule described above for system boundary settings shall be avoided and if necessary be duly justified in the PCR document.

Detailed rules for the selection of system boundaries are described in ISO 14044. When setting system boundaries for an EPD, it is to prefer to use the principle of "limited loss of information at the final product".

For the EPD purposes, the results shall be presented considering different phases:

- upstream processes;
- core process;
- downstream processes.

A.3.1. UPSTREAM PROCESSES

All relevant unit processes along the upstream supply-chain shall be included. Examples of processes that belongs to upstream steps are:

- extraction and refining of raw materials and production of semi-manufactured goods;
- relevant services such as transport of main parts and components along the supply chain to a distribution point (e.g. a stockroom or warehouse);
- packaging material production.

A.3.3. CORE PROCESS

The core process includes all relevant unit processes taking place within the organisation of the product for which the EPD is issued for shall be included with particular regard to:

- waste treatment processes even if they are carried out by third parties;
- building (or dismantling) of a production site, infrastructure, production of manufacturing equipment and personnel activities is they make up a reasonable portion of the overall environmental impact (e.g. for photovoltaic equipment or wind power);
- impacts due to the electricity production according the proper energy mix hypotheses;
- impacts generated by the production of the fuels burned in the core process
- raw material transportation to the core process.

A.3.4. DOWNSTREAM PROCESSES

All relevant unit processes shall be included. For example this covers:

- transport of the product to the retailer/consumer,

- consumption/loss of electricity and maintenance according to manual instructions when using the product (with indications regarding which environmental impact from maintenance and production of spare parts that is taken into consideration),
- and end-of-life processes of the used product and its packaging. If a service is identified as a core process it does not typically have a downstream process as e.g. generated waste is included in the core module.

A.3.5 SPECIFICATIONS OF DIFFERENT BOUNDARY SETTINGS

The following specifications of different boundary settings are relevant:

Boundary in time shall define/describe the time period, for which the LCI data are recorded, e.g. how long emissions from waste deposits are accounted for.

Boundary towards nature shall define the flow of material and energy resources from nature into the technical system and emissions from the technical system to air, soil and water. Agricultural and similar production systems are part of the technical system, i.e. the elementary flows that leave the field to water or air are to be recorded

Boundary towards geography shall define/describe the geographical coverage of the LCA data including possibilities to handle different regional aspects in the supply chain, if found necessary.

Boundaries in the life cycle shall define/describe what to be included with regards to e.g. extraction and production of raw materials, refining of raw materials, manufacturing of components and main parts, assembly of products, use of products, and end-of-life processes.

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

A.4. CRITERIA FOR THE INCLUSION OF INPUTS AND OUTPUTS (CUT-OFF CRITERIA)

It is important to clarify and describe rules for omitting inventory data which are negligible from the point of view of being relevant in the study. Such so-called cut-off criteria are usually expressed as a specific percentage of the total environmental impact for any impact category that is allowed to be omitted from the inventory analysis. The rules set should be based on the inflow of product and elementary flows to the system and outflow of elementary flows from the system. Other cut-off criteria are discouraged and if these should be recommended in the PCR this has to be duly justified, e.g. in the case of service activities.

It is important to emphasize that, in most cases, all available data shall be used. Using cut-off rules should not give the perceptions of “hiding” information, but rather to facilitate the data collection for practitioners. It is important to document parts and materials not included in the LCA.

The general idea could be to avoid as much as possible the cut off of environmental aspects. Cut-off should be an output of the sensitivity analysis based on the LCI results and it shall be discussed during the LCA verification. By the way, PCR could detail some specific rule that have to be applied in the specific LCA calculation.

It should be noted that the only way to check for cut-off rules in a satisfactory way is combination of expert judgment based on experience in similar product systems and a sensitivity analysis in which it is possible to understand how the un-investigated input or output could affect the final LCI and LCIA result.

A.5. DESCRIPTION OF DATA AND DATA QUALITY REQUIREMENTS

A LCA calculation needs two different kind of information:

- data related to the **environmental aspects** of the considered system (such materials or energy flows that enter the production system); these data usually come from the company which is performing the LCA calculation;
- data related to the **life cycle impacts** of the material or energy flows that enter the production system. These data usually come from databases.

Data on environmental aspects shall be as much specific as possible and they shall be representative of the studied process.

Data on life cycle of materials or energy inputs could be classified into three categories - *specific data*, *selected generic data* and *other generic data*, defined as follows:

- **specific data** (also referred to as primary data) - data gathered from the actual manufacturing plant where product-specific processes are carried out, and data from other parts of the life cycle traced to the specific product system under study, e.g. materials or electricity provided from a contracted supplier being able to provide data for the actual delivered services, transportation taking place based on the actual fuel consumption and related emissions etc.
- **selected generic data** (also referred to as secondary data) – data from commonly available data sources (e.g. commercial databases and free databases), which are allowed to be used to substitute specific data providing they fulfil prescribed characteristics (see below section A.5.1)
- **other generic data**_- data coming from other generic data sources.

As a general rule, specific data shall always be used if available. It is mandatory to use generic data for the core process, i.e. "the manufacturing processes for goods or service execution/provision of services" as defined more above. For the "upstream" and "downstream processes" and "infrastructure" (as defined in more detail above) also generic data may be used if specific data is lacking. Generic data should especially be used in cases where 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.

Any data used should preferably represent average values for a specific year. However, the way these data are being generated could vary e.g. over time, and in such cases they should have the form of a representative annual average value for a specified reference period.

A.5.1. RULES FOR USING GENERIC DATA

The book-keeping LCA approach in the International EPD® System forms the basic prerequisites for selecting generic data. For allowing the use of selected generic data selected prescribed characteristics for precision, completeness and representativeness must be fulfilled and demonstrated such as:

- Reference year to be as actual as possible, preferably being representative for at least 5 years,
- Cut off criteria to be met on the level of the modelled product system are the qualitative coverage of at least 99% of-both the energy, the mass, and the overall relevance of the flows,
- Completeness where the inventory data set should in principle cover all elementary flows that contribute to a relevant degree of the impact categories, and
- Representativeness of the resulting inventory for the good or service in the given geographical reference should, as a general principle, be better than ± 5 %.

Suitable databases for selected generic data include information about the material flows connected to a number of input materials. Admissible data has to respect the boundaries set in the PCR as well as to meet the requirements of the International EPD® System for data quality, representativeness, review and scope of documentation. If based on these prerequisites, recommendations are given to use selected generic data, such data sources shall be listed in a table in the reference PCR document. Before making use of suitable databases, it is important to primarily select information given separate over the different life cycle stages and, beyond all, to check that the data is free from inclusion of data and calculations outside the system boundaries. Data calculated with system expansion should not be used, but if no other data is available, any "negative flows" should be changed to zero.

If selected generic data or other data that meets the requirements of the International EPD® System is not available as the necessary input data, other generic data may be used and documented.

The environmental impacts associated to other generic data must not exceed 10% of the overall environmental impact from the product system.

A.5.2. DATA QUALITY REQUIREMENTS EXPLANATIONS

Below the main rules for the LCA calculations are presented. Exceptions to these rules must be managed by the verifier if PCR does not give any further details.

A.5.2.1. Upstream processes:

- Data referring to processes and activities upstream in the supply chain, over which an organisation has a direct management control, shall be specific and collected on site
- Data referring to contractors supplying main parts or main auxiliaries should be asked for from the contractor as specific data, as well as infrastructure, if relevant.
- 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 based on the actual transportation mode, distance from the supplier and vehicle load.
- In case specific data is lacking, selected data may be used. If this is also lacking, other generic data may be used – see above.

A.5.2.2. Core processes:

- Goods: Site-specific data shall be used for assembly of the product and for manufacture of main parts as well as for on-site generation of steam, heat, electricity etc., if relevant.
- Services: Specific data shall be used for consumption of materials, chemicals, steam, heat, electricity etc. necessary for execution of the service
- For the electricity used in the process, there are two alternatives: the company buys the energy from the electricity mix on the actual market or from a specific supplier. While in the first case the national electricity mix shall be adopted, in the second case a specific energy mix could be used if available. Electricity production impacts should be accounted for in this priority:
  - RECS or Guarantee of origin from supplier
  - Electricity supplier's residual energy mix
  - National mix/electricity mix on the actual market (preferably residual mix, otherwise national mix).
- 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 based on the actual transportation mode, distance from the supplier and vehicle load.

A.5.2.3. Downstream processes:

With regard to data quality requirements for the *use stage* usually based on scenarios, the following shall apply:

- data on the pollutant 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 the energy mix in the region/country where the product is sold and then used shall be approximated as the OECD electricity mix. For non-OECD countries, in order to adopt a suitable region- or country-specific electricity mix (reflecting approximately the region(s)/countries' share) a similar precision will be required. The mix shall be documented,
- transport of the product to customer shall, as a first option be based on the actual transportation distances. As a second option, it could be calculated as the average distance of a product of that product type transported with different means of transport or, if also such data is not available be calculated as a fixed long transport such as e.g.1000 km distance transport with lorry or 10000 km by airplane, according to product type. The way transportation shall be calculated shall be described in the reference PCR, which should reflect the actual situation to the best extent possible.

With regard to data quality requirements for the *end-of-life stage* based on scenarios, the following shall apply for the information being:

- technically and economically practicable, and
- compliant with current regulations.

A.5.3. DATA QUALITY DECLARATION

Even if compliant with the General programme Instructions and the PCRs, different EPDs may have different quality level depending on the data sources used. For this reason, the EPDs could include an indicator suitable for demonstrate the relevance of specific, selected generic and other generic data.

A.6. ALLOCATION RULES

Allocation is the partitioning of input or output flows of a process or other product systems to the product system under study. Hence, the inputs and outputs must be allocated to the different products according to clearly stated procedures that shall be documented and explained.

As a general rule, the allocation method chosen should be as valid as possible for the whole product system. However, allocation within the manufacturing processes and downstream processes may to be treated different.

Allocation rules must be defined for individual products when the manufacturing processes result in many different kinds of products and where there is only aggregate information available about the total level of emissions. Collection of product-specific information under such circumstances is to prefer to avoid allocation. The method of avoiding allocation by expanding the system boundaries, as advocated in ISO 14044, is not applicable within the framework of the International EPD® System due to the rationale of the book-keeping LCA approach (attributional LCA) used and the concept of modularity.

If allocation cannot be avoided by using a specific data collection, the priorities suggested by the ISO 14040 shall be considered in the procedure definition. In practice the inputs and outputs of the system should be partitioned between its different products or functions in a way that reflects the underlying physical relationships between them; i.e. they should reflect the way in which the inputs and outputs are changed by quantitative changes in the products or functions delivered by the system.

Where physical relationship alone cannot be established or used as the basis for allocation (or they are too time consuming), the inputs should be allocated between the products and functions in a way that reflects other relationships between them. For example, input and output data might be allocated between co-products in proportion to the economic value of the products. If the economical allocation has been used, a specific sensitivity analysis shall be provided to the verifier and the monitoring of the relationship between results and current economic value shall be documented and updated. In case of economical allocation, the PCR shall explain the reference values that shall be used.

The PCR shall clearly specify the allocation method for each product (e.g. for European construction products the rules provided in paragraph 6.4.3 of EN 15804 shall be applied). A.7. Handling of wastes, worn-out products and output flows that are reused or recycled

In the framework of the International EPD® System, specific methodological choices concerning waste handling have to be set. Issues such as upstream and downstream system boundaries, open-loop recycling allocation, multi-input allocation and time-frame should be considered when LCAs are applied to solid waste management systems[10].

All the methodological choices defined below have been set according to the polluter pays principle (PPP).

The Polluter-Pays Principle (PPP) was adopted by OECD[11] in 1972 as an economic principle for allocating the costs of pollution control. According to the OECD PPP is: "*[T]he principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment…this principle means that the polluter should bear the expenses of carrying out the above-mentioned measures decided by public authorities to ensure that the environment is in an acceptable state. In other words the cost of these measures should be reflected in the cost of goods and services which cause pollution in production and/or consumption.*"

This approach links together different product systems where wastes, fully or to some extent, are being further processed to become input materials for subsequent product systems. The delineation between two product systems is considered to be the point where the waste has its "lowest market value". This means that the generator of the waste has to carry the full environmental impact until the point in the product´s life cycle where the waste is transported to a scrap yard or gate of a waste processing plant (collection site). The subsequent user of the waste has to carry the environmental impact from the processing and refinement of the waste, but not the environmental impact caused in the

[10] Finnveden G (1999): Methodological aspects of life cycle assessment of integrated solid waste management systems. Resources, Conservation and Recycling 26, 173–187

[11] OECD (1972) Guiding Principles concerning International Economic Aspects of Environmental Policies.

"earlier" life cycles. This approach referred to as the "Polluter-Pays (PP) allocation method" has the following definition: *The "PP allocation method" designates the responsibility to carry upcoming environmental impact for individual product systems and separates interlinked product systems at the pointing in the life cycle where they have their lowest market value resulting in a business-related approach regarding the differentiation of environmental impacts*. The "PP allocation method" is also (in most cases) in line with a waste generator's juridical and financial responsibilities. The method is illustrated as a general approach in Figure A.2 below:

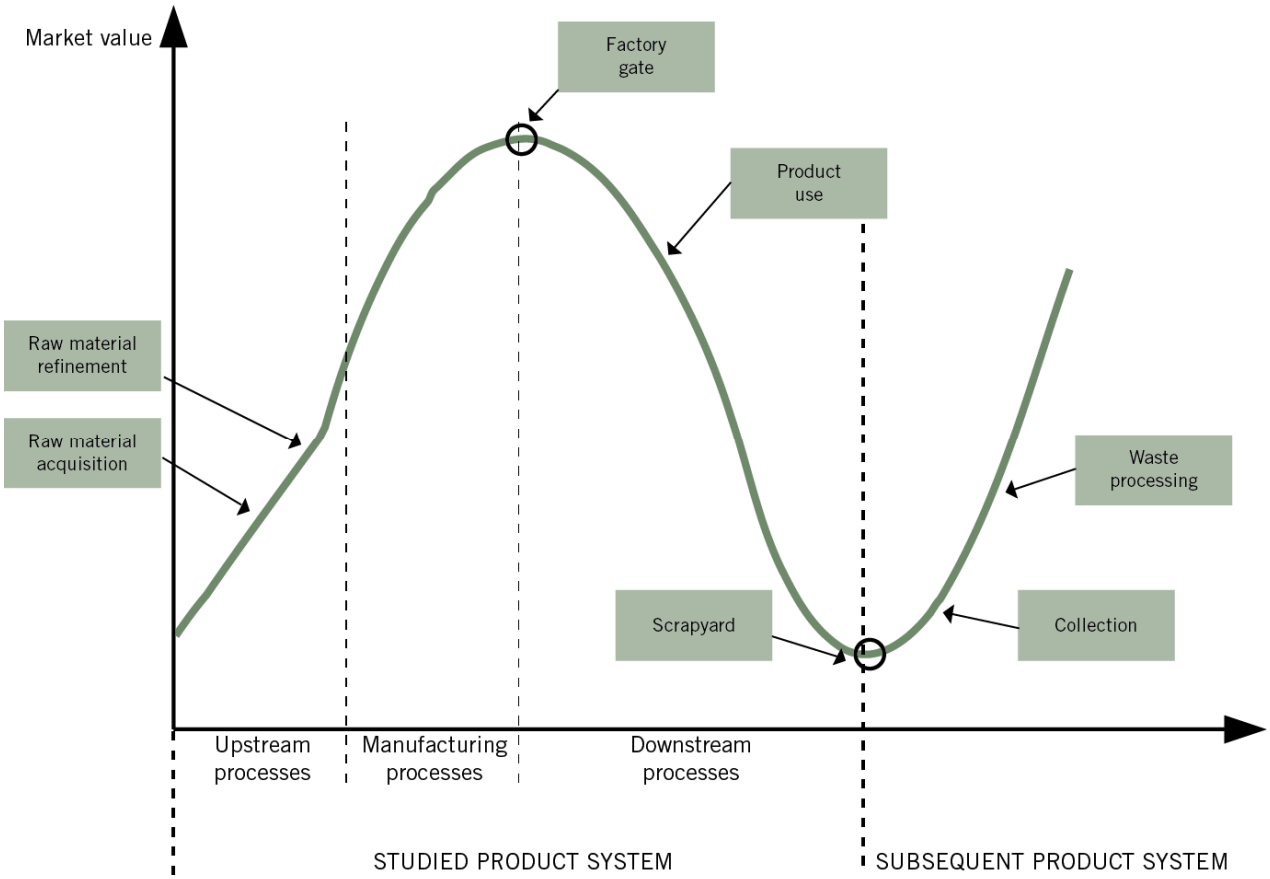


Figure A.2 Outline of the "the PP allocation method"

The "PP allocation method" is further illustrated below in Figure A.3 by describing the consequences for the different types of handling of wastes, treatment of worn-out products and output flows that are reused or recycled.

If the suggested "PP allocation method" causes problems from the point of view of giving an accurate description of the environmental benefits of a product, there is a possibility to address product-specific allocation rules and justify this in the PCR document and present an additional approach with quantitative information in the EPD under "Additional environmental information".

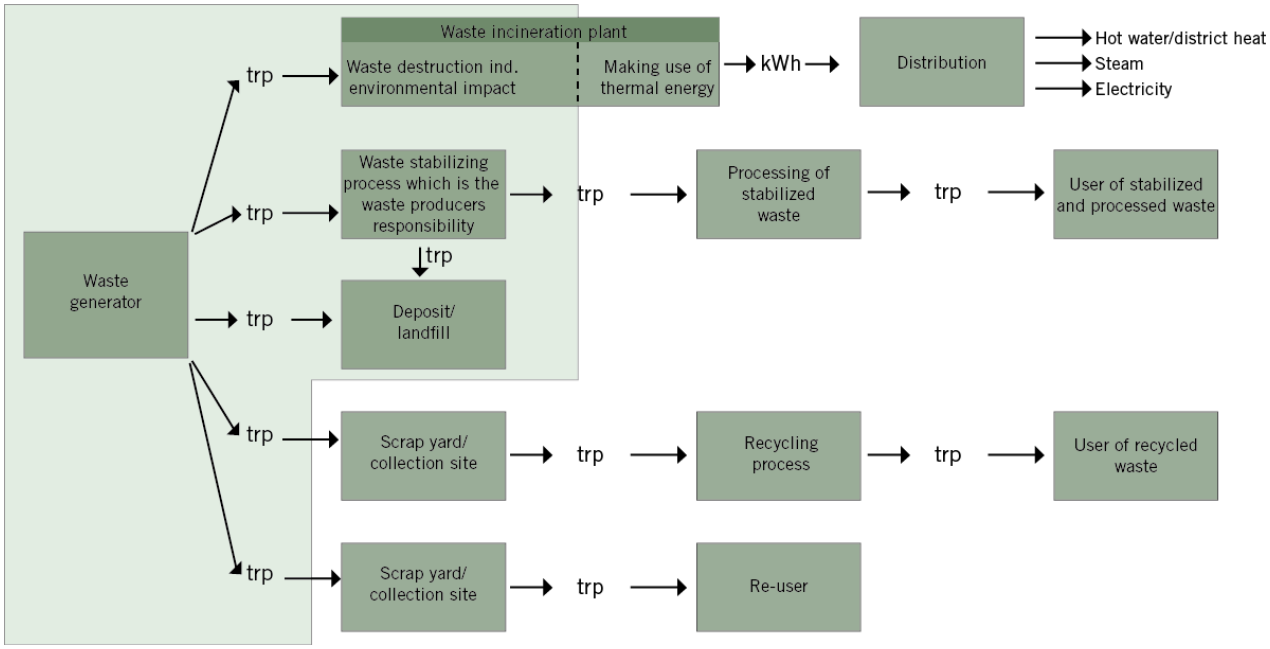


Figure A.3 The "PP allocation method" illustrated for the various types of waste treatment options included in various process stages. The encircled area indicates the environmental impact that has to be carried by the waste generator.

A.7. HANDLING OF WASTES, WORN-OUT PRODUCTS AND OUTPUT FLOWS THAT ARE REUSED OR RECYCLED

A.7.1 MANAGEMENT OF WASTES GENERATED ALONG THE PRODUCTION CHAIN

The treatment processes (final disposal) of wastes generated by the activities included in the system boundaries should be included in the LCA calculation. When it is not possible for some reasons (such as database framework or lack of information), the amount of wastes and the destination shall be declared.

The calculation of the environmental impacts due to the management of the product and its packaging at the end of the useful life could be quite variable depending mainly on the destination of the product (if it is B2B or B2C) and on the waste treatments chains available where the product and or the packaging have to disposed. For these reasons, the end of life could be evaluated using the scenario approach showing the results for different possible options.

For the purposes of the EPD preparation, the final disposal processes include:

- landfilling that has to be attributed to the studied process;
- incineration. For the calculation of impacts related to incineration, as a default option 50% of the impacts shall be attributed to waste treatment and 50% to the energy recovery.

In case that waste flows are sent to material recycling or energy recovery or other recovery (e.g. composting), impacts should be borne by the product under study until it enters the facility gate where the recycling or recovery processes take place (e.g. transportation to the facility shall be included). Even if benefits related to the material recovery have to be considered out of the system boundaries, an estimation of the avoided impacts due to such recovery could be made and declared in the other information section.

Deviations may be accepted and declared. All the assumption on the inclusion or not of waste treatment processes shall be clearly declared in the EPD.

A.7.1.1. Clarification about downstream processes

The calculation of the environmental impacts due to the management of the product and its packaging at the end of the useful life could be quite variable depending mainly on the destination of the product (if it is B2B or B2C) and on the waste treatments chains available where the product and or the packaging have to disposed.

For these reasons, the end of life could be evaluated using the scenario approach showing the results for different possible options. Even if further details shall be discussed during the PCR preparation, the following general rules shall be considered:

- a specific scenario should be defined and impacts calculated;
- qualitative information could be acceptable when a scenario cannot be defined;
- when some average scenarios are considered, they shall be representative for the area where the product gets the end of life.

Further information could be added in the PCR preparation. A reference for this could be the EN 15804:2012 *"Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products".*

A.7.2. INPUT OF RECYCLED MATERIALS/ RECOVERED ENERGY

In case recycled materials or recovered energy are used as input resources in a system, impacts arising from all processes occurred to deliver the material/energy should be borne by the product under study (e.g. treatment of waste prior to recycling and/or waste incineration shall be included). A 50% / 50% economic allocation between earnings from waste treatment service and heat/electricity produced could be used as default scenario for incineration with energy recovery. The risk of double-counting must be taken into consideration.

Any deviations from these rules shall be handled in the specific PCR or clearly justified.

A.7.2.1. Clarification about Input of Recycled Materials/ Recovered Energy

Secondary raw materials used in the production system shall be accounted adopting the following approach:

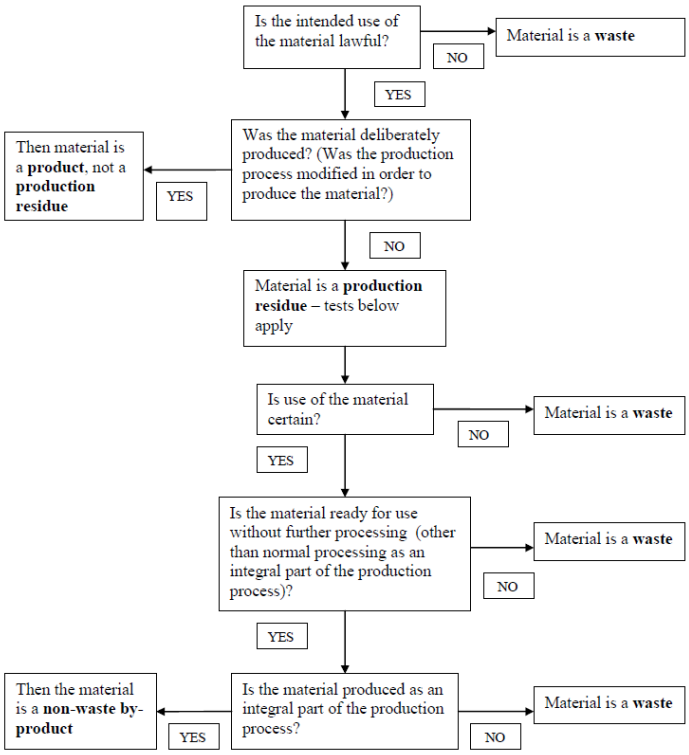
- the environmental impacts related to the "previous life" shall not be considered;
- the processes needed to prepare the secondary raw material to the new use shall be considered;
- if the secondary raw material contains energy (such plastic scrap), the amount could be estimated considering the gross calorific value and presented as secondary energy resource (feedstock energy from waste or scraps or similar);
- if the secondary raw material does not contain energy (such glass scrap), the quantity that enters the system shall be considered as secondary raw material.

It is important to consider that internal scraps are not considered as secondary raw material. See Annex F for more information.

A.7.3. OUTPUT TO MATERIAL RECYCLING/ENERGY RECOVERY PROCESSES – WASTE AND BY-PRODUCT

The calculation approach is different when wastes fulfil some criteria that enable them to be considered by-products. This distinction is important especially in terms of allocation because a by-product shall not be considered free from "environmental burden". For this reason an allocation procedure must be carried out. The following decision tree can be helpful. (Figure A.4)[12]:

[12] COMMISSION OF THE EUROPEAN COMMUNITIES, 2007. COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT on the Interpretative Communication on waste and by-products [pdf]. Available at: http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0059en01.pdf Even if this reference document is not the latest version, it has been considered because of its clarity. The latest EU waste directive (2008/98/EC) adopts the same approach and the same definition of by – product (Article 5 of EU directive 2008/98/EC)



Outputs of the system used for energy production processes (waste to energy processes) shall never be considered by-products.

Even if the reference document for the decision tree is not the latest updated European document in term of waste, it has been used as reference because of its clarity. The last EU waste directive is the EU directive 2008/98/EC and it adopts the same definition of by – product (crf. *Article 5* of EU directive 2008/98/EC).

In the EPD document, information about by-products shall be reported according the following table.

Name of by-product	Criteria that enable the output to be considered a by-product instead of a waste	Originating process	Intended use	Allocation method

A.8. SPECIFICATION FOR GWP CALCULATION

The calculation of the Global Warming Potential (GWP) needs some clarifications because of some complexities that may be encountered during the calculation procedures. Some specific public documents are already available or in process about carbon footprint of products such as ISO/TS 14067 and PAS 2050.

In this document the main issues are treated starting from the PAS 2050:2011 that could be considered as main reference for the PCR preparation and consultation

Emissions of greenhouse gases shall include where appropriate, emissions and removal arising from fossil sources, biogenic sources and direct land use change. The reference PCRs may require the reporting of GWP in separate sub-indicators for the different sources.

A.8.1. GHG EMISSIONS AND REMOVALS TO BE INCLUDED IN THE GWP CALCULATION

Both emissions to the atmosphere and removals from the atmosphere shall be accounted for the assessment of the overall GHG emissions of the product being assessed. This assessment shall include the gases arising from both fossil and biogenic sources for all products, with the exception of human food and animal feed products.

For food and feed, emissions and removals arising from biogenic sources that become part of the product must be excluded. This exclusion shall not apply to:

- emissions and removals of biogenic carbon used in the production of food and feed (e.g. in burning biomass for fuel) where that biogenic carbon does not become part of the product;
- non-CO_2 emissions arising from degradation of waste food and feed and enteric fermentation;
- any biogenic component in material that is part of the final product but is not intended to be ingested.

Emissions and removals of biogenic carbon shall be reported separately.

A.8.2. CARBON SEQUESTRATION

Where some or all removed carbon will not be emitted to the atmosphere within the 100-year assessment period, the portion of carbon not emitted to the atmosphere during that period shall be treated as stored carbon. Following issues shall be taken into account:

- carbon storage might arise where biogenic carbon forms part or all of a product (e.g. wood fibre in a table), or where atmospheric carbon is taken up by a product over its life cycle (e.g. cement),
- while forest management activities might result in additional carbon storage in managed forests through the retention of forest biomass, this potential source of storage is not included in the scope of the International EPD® System.

A.8.3. OFFSETTING

GHG emissions offset mechanism shall not be used at any point in the assessment of the GHG emissions of the product.

The organisation could declare its participation to some offsetting programme in the other information section of the EPD or single issue EPD.

A.9 ECOLOGICAL AND WATER FOOTPRINT CALCULATION

When the LCA is applied to a biomass production process, it could be interesting to adopt other indicators suitable for an "easy to communicate" declaration of the product footprints. For this reason, the International EPD® System suggest during the PCR development or in the EPD preparation, to consider the use of the Ecological Footprint and the Water Footprint as optional information.

The PCR may further specify the use of other footprint calculations. More information is also available on:

- the Global Footprint Network, for the ecological footprint (http://www.footprintnetwork.org);
- The Water Footprint Network, for the water footprint (http://www.waterfootprint.org).

In any case the information provided in the EPD shall be verified.

A. 10 INTRODUCING THE POSSIBILITY TO DECLARE SOCIAL AND ECONOMIC ASPECTS

Even if the International EPD® System is fully devoted to the environmental declarations and the first aim is to fulfil the standard ISO 14025, it is possible for the EPD also to include other relevant sustainability indicators as additional and voluntary information. Environment is just one of the pillars of the sustainability considered in a wide concept; also social and economic aspects should be considered for a complete evaluation of a product or a service. Sometimes work on minimizing the environmental impact can be in conflict with other sustainability issues. An example could be the housing systems in egg production facilities: it is quite probable that the lowest carbon footprint is reached by using the smallest breeding cages, which might not be the most preferable solution considering animal welfare issues. In these cases, it might be relevant to in addition to the environmental impact also give information on the impact relative to the size of the breeding cages.

Another example could be information resulting from so called social-LCA, giving information about a products impact on different social indicators as working conditions, child labour etc.

During the PCR preparation and consultation the stakeholders could discuss which sustainability indicators that could (or must) be declared in the EPD.

In any case all the information added in the EPD, must be verified during the EPD verification.

Further information of which indicators that could be used can be obtained by the Global Reporting Initiative documents available on www.globalreporting.org.

A.11 DATA PROCESSING FOR REPORTING

The data collected are meant to be used to report on the consumptions and emissions calculated during the inventory analysis phase and to convert the raw data into potential impacts for various pre-selected environmental effects on a regional or global scale as identified in the impact assessment stage. As advocated in the ISO 14025, it is important to separate EPD information being either generated from the inventory analysis or further processed through impact assessment calculations.

EPD information shall also include, where relevant, so-called additional environmental information, related to environmental issues other than the environmental information from PCR information modules, LCI- or LCA-calculations. This information shall be separated from other parts of the EPD and has to comply with a number of requirements associated with the recommendations given in ISO 14021 on “Self-declared environmental claims”. As a consequence of this, it is recommended that an organisation keep good track of and as well as a record of the necessary background information supporting the data given for other environmental information.

For information about what type of data and information to be included in the EPD – see the General Programme Instructions, Chapter 4: Declaration requirements and format.

ANNEX B – PMI: A CLASSIFICATIONS SCHEME FOR PRODUCT CATEGORIES

B.1. INTRODUCTION

The International EPD® System has introduced a classification scheme for harmonisation and organisation of PCR documents referred to as the *PCR Module Initiative* (PMI). A general recognised classification scheme for the definition of product categories is of vital importance for a voluntary system with international applicability due to the need to identify PCR work under consideration as well as to facilitate the development of PCR documents and the handling and approval of the PCR review panel.

There exist a number of product classification schemes systems on the market such as CPA (*Classification of Products by Activity*), CPV (*Common Procurement Vocabulary*) and HS (*Harmonised Commodity Description and Coding System*), most of which are based on the NACE codes – an international system for the division of business sectors. A common denominator of these schemes is that they usually define a special product without any distinct relationship between them.

CPC (Central Product Classification)[13] is an UN-based scheme for statistical division of product categories and service types, which seems to be the best approach to use for establishing a PCR structure as it relates on supply chain/ life cycle approach. CPC is not meant to replace other product classification schemes, but aims primarily to a harmonisation of them. Hence, the CPC is a sort of a coordination instrument to be used both nationally and internationally.

Following the CPC scheme for giving the PCR work a clear and logical structure easy to communicate, the PCR documents will be based on separate "information modules" (as advocated in ISO 14025) to supplement other modules building up a logical PCR structure. A PCR structure following the CPC scheme can be used to clearly specify what type of data quality criteria to fulfil for each information module. It also will give clear instructions about which product groups or system boundaries to choose in upcoming PCR development work. The CPC scheme will also help in separating the type of general PCR rules that are valid for many similar types of products and, hence, could be included in the overall PCR rules for a cluster of products with the same origin.

A tailor-made PCR structure to suit the specific needs of EPD has a great influence on the PCR management as a whole and will substantially contribute to facilitate the workload and associated costs for developing PCR documents. Hence, the PMI concept is a key element in the International EPD® System and has the following main advantages:

- it results in a clear definition of information modules after an international recognised division of industry sectors, enabling the separation of "responsibilities of PCR work" between different sectors as well as a base for specifying data quality requirements in other parts (upstream and downstream) of the products life cycle.
- LCA calculation rules can be described on different hierarchic levels within one specific information module. Even if a PCR document refers to a "small" product, the calculation rules can, in a stringent way, be defined for a much "broader" product group. As long as the PCR document clearly describes the relevant calculation rules (linked to a well-defined CPC code) some of these can also be valid for fairly similar products
- An accepted and general applicable PCR structure based on CPC codes will give clear indications about what type of product categories or system boundaries to recommend for upcoming PCR work.
- The overarching structure referring to a "core information module" for gate-to-gate conditions, i.e. the manufacturing processes, as the basic foundation of a PCR document could well support the development of an upcoming SME-oriented staged approach for EPD work.

B.1. THE CPC SCHEME

CPC is a complete product classification scheme covering goods and services. It is based on the physical characteristics of goods or on the nature of the services rendered. Each type of good or service distinguished in the CPC is defined in such a way that it is normally produced by only one activity as defined in the *International Standard Industrial Classification of all economic activities* (ISIC). Conversely, each activity of the ISIC is defined in such a way that it normally produces only one type of product as defined in the CPC (where each type of product may have a number of individual products coded under it). So far as is practically possible, an attempt is made to establish a one-to-one correspondence between the two classifications, each category of the CPC being accompanied by a reference to the ISIC

[13] http://unstats.un.org

class in which the good or service is mainly produced. The CPC covers products that are an output of economic activities, including transportable goods, non-transportable goods and services.

The CPC scheme is, as far as possible, based on a hierarchic life cycle perspective, i.e. material, manufacture and products belong to the same group. Adding to the principles of other product classification schemes, CPC could be regarded as a hybrid between those and a formal life cycle system. The CPC scheme does not always start from the acquisition of raw materials, but instead offers a logical structure for the development of PCR documents. Assuming that the PCR documents are developed on a sector level, the CPC scheme is more logical than any other product classification scheme.

The CPC scheme has a wide coverage and there is one category for all products and services being traded on national and international markets. The codes used in the CPC scheme are hierarchic and purely decimal based, as a maximum, on digits.

- Sections – one digit code;
- Divisions – two-digit code;
- Groups – three-digit code;
- Classes – four-digit code;
- Subclasses – five-digit code

B.2. THE CPC-BASED PCR STRUCTURE

The PCR documents describe the type of information to be given about a product and the EPD from a life cycle perspective as well as how this information shall be generated. The CPC scheme provides an approach for coding information modules which linked together can describe a products life cycle. While the PCR document regulates how a full EPD can be generated for product categories, the CPC scheme is used for coding and defining the information modules.

An example of such an approach a PCR document is given below for "*Milk and milk-based products*":

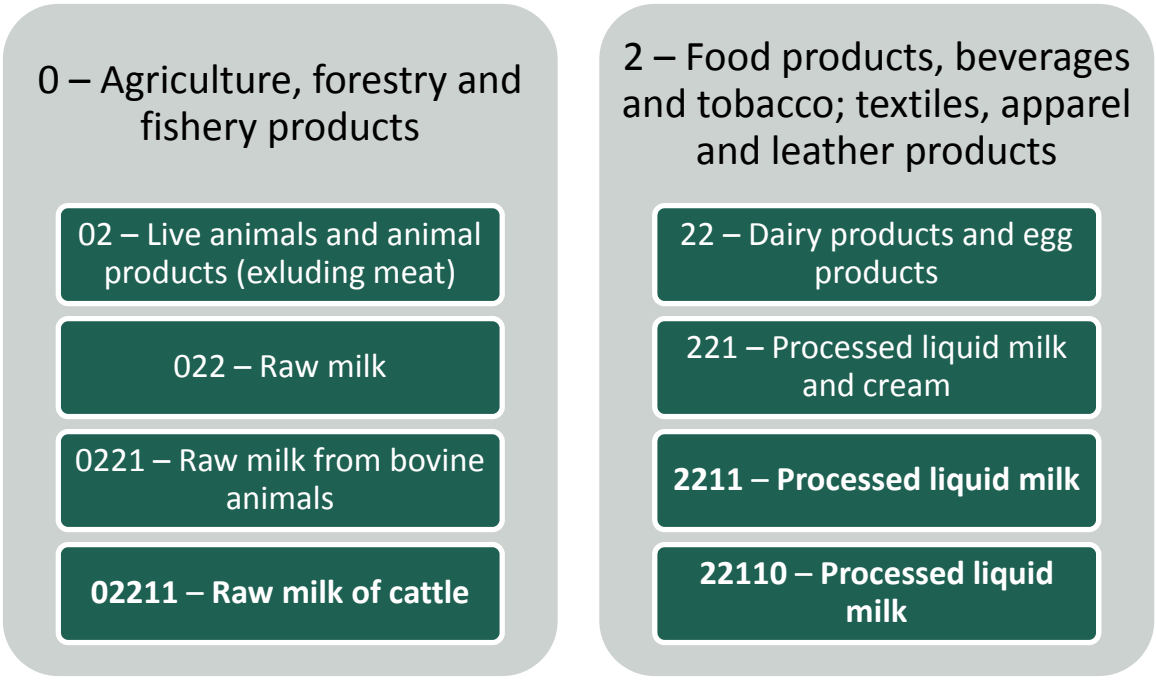


Figure C.1 Outline of the principles of the CPC classification scheme

The two-digit code (divisions) typically defines an industry specific product group (e.g. division 22. *Dairy products*) which may have a number of individual products coded under it (e.g. group 221. *Processed liquid milk and cream*). Thus, the two-digit code, and sometimes the one digit code, may be used to define industry specific information modules, which when combined build up specific product life-cycles in a horizontal dimension. Each one of these also provides an embedded vertical structure going from a general product group to more specific individual products.

The use of the CPC system leads to a structure for PCR documents in two dimensions:

- a "horizontal" dimension describing the product´s value chain divided according to business sectors, i.e. building on CPC-coded information modules, and
- a "vertical" dimension defining each information module (with a further delineation of each such section into subclasses).

B.2.1. STRUCTURING THE PCR DOCUMENT ACCORDING TO THE LCA STAGES

The CPC concept forms the basis for a PCR structure to:

- provide a structure for industry specific PCR Basic Modules, or rather the PCR core module and up-streams modules as well as down-streams modules within the product group system boundary, and
- open up for differentiated, but defined levels of requirements in the PCR document, i.e. part of the requirements may be applicable on a generic product group level, part of the requirements may be limited to selected individual products.

This approach is illustrated below where A stands for a raw material acquisition, B for semi-manufacturing of goods, C for the manufacturing of the product, E for use of the product and E for end-of-life treatment (EOL):

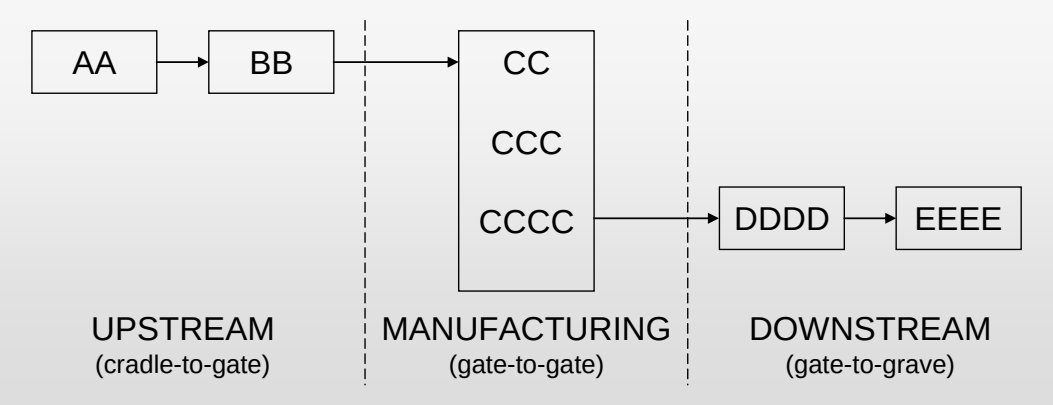


Figure C.2 Outline of the principles to apply the CPC classification scheme to the various life cycle stages.

The PCR document should be structured accordingly, but this does not dramatically change the way the PCR document previously have been outlined. However, it introduces a CPC-coded core information module offering both a homogeneous hierarchic structure to define the product group at different levels of details (vertical within the core module) as well as a distribution of "responsibilities for PCR work" between different branches (developed within other modules). The rationale behind this is that a specific industry sector/branch has the best knowledge and competence to develop the parts in the PCR document belonging to its own NACE-code (CPC code), but not usually not for other industry sectors (suppliers and customers). The PCR structure also enables the LCA calculations rules for different parts of handling the information within the core module to be placed on different hierarchic levels, also making it possible to develop information modules for rather "small" and specific product groups within a hierarchic system where substantial parts of the calculation rules have a more broader and general applicability.

A PCR structure following the CPC system can be used to clearly specify what type of data quality criteria to fulfil for each information module. It also will give a clear instruction about which product groups or system boundaries to choose in upcoming PCR development work.

The CPC system will also help in separating the type of general PCR rules that are valid for most products and, hence, could be included in the overall PCR rules. For the suggested CPC structure, the PCR document will be referred to as "information modules" to be supplemented with other similar modules or relevant useful information, which is described below in more detail.

B.2.2.1 The PCR upstream modules

The CPC scheme enables information modules upstream manufacturing to be clearly defined and provide a basis for setting the data quality requirements, regardless if such data are available or not. In most cases, in the early phase of the development of environmental declaration programmes, there will be a lack of PCR documents for parts of the value chain upstream.

The following rules apply on a general basis:

- in case there exists PCR documents for upstream modules will these describe the requirements for system boundaries and data quality requirements for the collection and preparation of product- and supplier-specific data. If an actual EPD is available from a supplier, this information shall be used as a data source (or as a specification of demand for relevant data quality),
- in case there is a lack of relevant PCR documents or EPDs, selected generic data sources can be used and shall be referred to in the PCR document. If these selected generic data do not supply the required upstream information, other generic data, fulfilling the so-called "10%-rule" will be accepted to use (see 5.1). The CPC structure shall be used to clearly define the data quality requirements valid for each relevant information module,
- these rules do not change the data quality requirements for upstream processes compared to the current premises, but rather offer a more logical structure easy to communicate.

B.2.2.2. The PCR core modules for gate-to-gate conditions

The CPC structure is based on information modules for gate-to-gate conditions supplemented with other information modules for the remaining part of the life cycle or different types of substitution information.

The vertical hierarchic separation in the CPC structure enables a similar separation to be made of the rules in the PCR document having the advantage of harmonisation between different products with principally the same origin. In the example given above for "Milk and milk-based products" is it plausible that the rules for the cradle-to-gate part of the LCA in most cases can be defined on a "division- or, in some cases, a group level" (i.e. for two- or three-digit codes), while the rules in the PCR document for complementary information maybe have to be defined on a lower level (i.e. three- to five digit codes).

By specifying requirements for a clear separation of different PCR rules, the development of highly specific and "small" PCR documents can be avoided. Making use of the CPC structure for "sections" and "divisions" will lead to products with a similar origin will be given an "industry section specific" hierarchic structure. This will substantially facilitate the PCR work concentrating the information module to the manufacturing of a selected industry sector.

B.2.2.3. The PCR downstream modules

The calculation rules for the PCR downstream modules are usually based on scenarios the use and end-of-life (EOL) stages. These rules are similar to the present PCR structure, but can in some cases, depending on the relevant characteristics for the product group under study, specify rules on a higher and more general coding level.

ANNEX C – GUIDANCE ON PCR DEVELOPMENT

C.1. INTRODUCTION

This annex gives detailed guidance on PCR-development within the International EPD® System. The PCR development aims to be compliant with the "Guidance for Product Category Rule Development"[14], with some minor exceptions.

The PCR development process consists of five phases:

1. Initiation
2. Preparation
3. Consultation
4. Approval and publication
5. Update

C.2. INITIATION

The initiation phase includes the following elements:

- Appoint a PCR moderator
- Consider available PCRs
- Seek cooperation with other parties
- Constitute the Product Category Stakeholder Consultation Group
- Announcement of the initiation of the PCR work on the International EPD® System website

C.2.1. APPOINT A PCR MODERATOR

There is a need to closer link external experts to help and support the programme operator in developing and updating PCR documents, as for the foreseeable future, there will be a number of countries with no national programmes running. Also the intended applicability of the International EPD® System on a global market might lead to a too high workload for programme operator in case PCR development has to be handled with limited external help.

The work to be carried out for the PCR development process needs strong coordination. Therefore, it is of vital importance that the work is led by a person familiar with the EPD approach as well as having the necessary basic LCA understanding. This work shall be carried out in close cooperation with the programme operator.

To safeguard a successful outcome of the PCR development work, the International EPD® system nominates a *PCR moderator* to take on the role as a leading person in the PCR preparation process.

Among the tasks to undertake for the PCR moderator would be:

- to invite parties to take part in the development of PCR documents,
- to be responsible for the overall drafting the PCR proposal,
- to help in appointing a Product Category Stakeholder Consultation Group,
- to take actions to guide people in the open consultation process via the PCR Forum,
- to collect comments,
- to revise the document accordingly to the comments received, make a short summary of comments included and rejected (and their rationale) and publish it on the PCR Forum,
- to draft the final PCR proposal,

[14] Guidance for Product Category Rule Development, Product Category Rule Guidance Developmen Initiative Collaborative Work, version 1.0, 2013. www.pcrguidance.org.

- to alert all people being involved in the process about the final outcome of the work and the publication of the document on the International EPD® System website, and
- to maintain as the contact person during the time when the PCR document is being used on the market for e.g. collecting suggestions for upcoming revisions (in case this is not durable, the PCR moderator is requested to suggest another person capable of taking over the duties).

It is recommended that the PCR moderator reviews relevant scientific papers available or submitted during the preparation, as appropriate.

C.2.2. CONSIDER AVAILABLE PCRS

Harmonisation of PCR documents is a cornerstone in the International EPD® System due to its international applicability. Therefore, the development of PCR for a product category should be done considering readily available PCR documents in the same product category and the appropriate market area, as advocated in ISO 14025. When starting up PCR work, it is therefore important as a first step to search for available PCR documents, which could be done by making use of the existing PCRs developed within the framework of the International EPD® System. If a relevant PCR document already exists in another environmental declarations programme it is important to examine the basic LCA approach taken to find out if the degree of consistencies with the approach taken in the International EPD® System. As a general rule appropriate information from other PCR document should be used to the extent possible. If a PCR does not exist for the product category of interest, this has to be prepared and approved in accordance to the procedure for developing a PCR document within the framework of the International EPD® System.

The specific approach for structuring PCR documents taken in the International EPD® System based on the PMI-concept could lead to a staged approach in the development work. After the definition of the product category under study giving it the relevant CPC code, it might be possible to identify a PCR module at a lower more basic (e.g. on a two-digit level) already existing and valid. In such a situation the identified PCR module shall be used, resulting in less work and costs to develop the PCR.

C.2.3. SEEK COOPERATION WITH OTHER PARTIES

Developing PCR documents should always be done as a co-operative effort including as many interested parties as possible, e.g. representatives different companies and branch organisations to ensure a broad acceptance and reproducibility of the calculation rules. In case of single companies initiating the work to develop PCR, it is especially important to seek co-operation with other parties that may be interested to participate in the work. This work can be supported by the programme operator. The other parties selection shall include specific and or local stakeholder interested in the product under study.

The Guidance for Product Category Rule Development gives some examples of stakeholders that should be included in the PCR development.

C.2.4. CONSTITUTE THE PRODUCT CATEGORY STAKEHOLDER CONSULTATION GROUP

The seeking of cooperation with other parties should be followed by an activity carried out jointly by the PCR moderator and the programme operator to form a core expert group - referred to as the *Product Category Stakeholder Consultation Group* - representing the product category and willing to take part in the preparation of the PCR. The programme operator has a special responsibility to ensure that relevant stakeholders are being contacted.

The programme operator shall publish the members of the group on the PCR website before the open consultation.

C.2.5. PLANNING OF THE PCR DEVELOPMENT

The PCR moderator shall, before the announcement of the PCR, send in a time plan for the PCR development process. The time plan shall give estimate date when the draft PCR will be available for open consultation. This information will be published on the website when the PCR is announced. If the time plan is revised the PCR moderator shall inform the Secretariat. If the development procedure is delayed without any information from the PCR moderator, the Secretariat can stop the PCR development process.

C.2.6. ANNOUNCEMENT OF THE INITIATION OF THE PCR WORK ON THE INTERNATIONAL EPD® SYSTEM WEBSITE

When a decision is taken to start the work developing a PCR document, this shall be announced to the programme operator being responsible for handling such an announcement. The announcement may be accompanied by selected

information of relevance for the PCR work. It is compulsory to indicate the PCR moderator to contact for further information.

The programme operator will make information public available about the upcoming PCR work on the website, searchable database and social media. The immediate announcement of a PCR document under preparation is important due to several reasons, e.g. to inform and engage interested parties to be involved in the work (which should be done by contacting the PCR moderator) and to avoid parallel work within the same product category in another environmental declarations programme, if found relevant.

The PCR moderator shall inform the Secretariat about relevant industry and trade publications were PCR development should announced.

C.3. PREPARATION

The preparation phase includes the following elements:

- Use of relevant PCR Basic Module as guidelines
- Use of the International EPD® System PCR template
- Identify the pre-set categories of parameters to be included in the EPD
- Specify the LCA-based content of the PCR document
- Select relevant additional environmental information

C.3.1. USE OF PCR BASIC MODULES

The International EPD® System has introduced PCR-Basic Modules to provide guidance for the PCR-development. As described in Annex B the PCR-modules are categorised according to the CPC two digit level. When developing a PCR, the relevant CPC-code(s), on three, four or five digit level should be identified according to chapter 3.1. The PCR-Basic Module contains the information needed to develop a PCR within that specific CPC-code, some of the text can be used directly and some text needs to be defined in the PCR.

C.3.2. USE OF THE INTERNATIONAL EPD® SYSTEM PCR TEMPLATE

To align the PCRs developed within the International EPD® System, a specific template has been developed. The PCR moderator shall use the PCR template available on the website.

C.3.3. IDENTIFY THE PRE-SET CATEGORIES OF PARAMETERS IN THE EPD

The International EPD® System describes a minimum set of pre-set categories of parameters applicable to all product categories. These categories of parameters might be supplemented by other categories of parameters if found relevant to the product group under consideration. The complete set of pre-set categories of parameters may not therefore be identical for all product categories. Pre-set categories of parameters may also include other data not derived from the LCI/LCA-based calculations which are to be reported as additional environmental data. The PCR-module can provide some guidance on which categories to use.

C.3.4. SPECIFY THE LCA-BASED CONTENT OF THE PCR DOCUMENT

Most of the information included in an EPD is derived from LCA-based calculation. It is therefore important that a PCR document covers the relevant key LCA information, such as:

- choice and definition of functional unit or declared unit,
- choice and description of system boundaries,
- choice of specific cut-off criteria,
- choice of allocation rules,
- choice of underlying data, to indicate specific and generic data used,
- choice of selected parameters for description of environmental performance (additional to the ones described to be included in the general format),
- selection of a specific database if some data are very significant for the final result.

The preparation of PCRs shall focus on these issues that are complementary to the General Programme Instructions and specific to the product category under study.

C.3.5. SELECT RELEVANT ADDITIONAL ENVIRONMENTAL INFORMATION

The EPD shall include, where relevant, additional information related to environmental issues e.g.:

- Data that are not part of the LCA study
- Information on existing management systems or other certification programmes applied to the product
- Information on preferred waste management options
- Information on activities related to Social Responsibility

For more information about issues to consider, see the Chapter 3.

C.4. CONSULTATION

All proposals for PCR documents developed must be subject to an open consultation procedure before officially being approved. The consultation phase includes the following elements:

- Identify the consultation parties to be involved
- Prepare the open consultation procedure
- Invite/alert people to take part in the open consultation
- Modify the draft PCR document according to comments received

The consultation approach of the International EPD® System will secure a fairly strict and generally-accepted procedure enabling all interested parties to interact. Probably the single most important work element is to identify the relevant parties to be involved in the consultation process so that they cover all principal stakeholders, which is suggested to be carried out as cooperation between the PCR moderator and the programme operator in creating the Product Category Stakeholder Consultation Group.

The open consultation procedure is considered to be satisfactory in case the PCR work and the documents to comment on have been accurately notified to a Product Category Stakeholder Consultation Group consisting of persons/organisation sufficiently covering the industrial sector under study both on a national and regional basis. The procedure carried out shall guarantee credibility and easy to participate for any interested party, Hence, it has to be carried out in an transparent way giving anyone concerned easy access to information and documents to avoid criticism of being selective, non-understandable and difficult to join.

C.4.1 IDENTIFY THE RESPONSIBLE PARTIES TO BE INVOLVED

The programme operator shall actively reach out to relevant stakeholders. The following parties should be involved in the open consultation procedure:

- *any interested part* asking specific questions about the PCR or people/organisations requesting to be invited to the consultation,
- *the Product Category Stakeholder Consultation Group* for covering and handling specific issues related to the relevant product category under study/discussion,
- *other relevant stakeholders within the industry, LCA/EPD experts, member organisations* of the International EPD® system and *verifiers* within the International EPD® System
- *the PCR moderator* responsible for administrating the comments received during the consultation phase. The PCR moderator may also continue selected duties later on when the PCR document is subject for update,
- *the programme operator* responsible for administrating the website and cover any activity related to the PCR development process during their approval, publication and updating phases.

C.4.2. PREPARE THE OPEN CONSULTATION PROCEDURE

Open consultations should be carried out as an open internet-based participatory process making use of the PCR Forum. Open consultations can also, supplementary to this procedure, have the form of a public meeting.

An open internet-based consultation via the PCR Forum expands the possibility to broaden the participation of stakeholders from different parts of the world. The use of the PCR Forum also has the advantage that it facilitates participation from interested parties having difficulties to attend meetings, e.g. NGOs and environmental groups.

A public meeting provides the possibility for interested parties to actually meet and discuss the PCR proposal. It also gives the possibility for the company/branch organisation to early inform about upcoming EPDs to appear on the market.

A public announcement of the open consultation shall be presented on the International EPD® Systems website by the programme operator and preferably also by the parties preparing the PCR as appropriate. It is therefore important for the PCR moderator to be in close contact with the programme operator prior to the open consultation.

C.4.3 INVITE/ALERT PEOPLE TO TAKE PART IN THE OPEN CONSULTATION

Open consultation via the PCR Forum shall be carried out in cooperation between the PCR moderator and the programme operator to make the necessary preparations on the Internet. This cooperative effort involves:

- the preparation of the PCR proposal to be discussed,
- the publication of the document on the website, and
- direct contact with members of the Product Category Stakeholder Consultation Group and other relevant stakeholders with information that the PCR document is open for discussion and comments, They should be actively encouraged to spread information about the consultation to other relevant stakeholders.

At the onset of the open consultation procedure all members of the Product Category Stakeholder Consultation Group and other relevant stakeholders may preferably receive a separate mail informing them about the upcoming consultation to take place with guidance on where to find the relevant document as well as information on how to respond and give comments via the PCR Forum. A deadline for the consultation period shall also be given. The open consultation period lasts for eight (8) weeks.

It is the ambition of the International EPD® System to maintain contact with the members of the Product Category Stakeholder Consultation Group even after the consultation process in order to keep them informed about experiences and progress made by using the PCR in practise. This activity will hopefully motivate members of the Product Category Stakeholder Consultation Group to maintain as group members until a revision of the PCR is about to take place.

Open consultation via public meetings shall be arranged by the parties involved in the preparation of the PCR. Aspects to consider include:

- Invitations should be sent to representatives for authorities, branch- or interest organisations, companies and organisations relevant to the product or service and other parties with an interest to take part of the meeting including all relevant international parties
- Possibilities shall be given to provide written comments
- An overall and understandable presentation of the International EPD® System shall be available for the audience
- Comments received at the meeting shall be documented and considered in the final version of the PCR proposal

C.4.4. MODIFY THE DRAFT PCR DOCUMENT ACCORDING TO COMMENTS RECEIVED

Following changes or amendments in the PCR proposal as a result of the open consultation procedure, the PCR moderator shall submit a final version of the PCR proposal to the TC acting as the PCR review panel for approval.

The PCR moderator shall make a short summary of the comments received and the resulting changes in the document and publish it on the PCR Forum. It is also recommended that the PCR Moderator replies individually to all stakeholder that have provided comments during the consultation.

C.5. APPROVAL AND PUBLICATION

The approval and publication of PCR documents include the following elements:

- finalisation of PCR proposal
- the PCR review procedure
- disclosing open information about the approval of the PCR document

- setting the validity of PCR documents

C.5.1 FINALISATION OF THE PCR PROPOSAL

The PCR moderator is responsible for drafting the final PCR proposal taken into due consideration to the comments received during the open consultation procedure. A draft report shall be prepared including a short description of the open consultation process carried out, the parties participating in the consultation, the main comments received and how these have been handled. In case certain comments have not been considered, this has to be justified.

The PCR moderator shall inform about the finalisation of the PCR proposal via the PCR Forum and send the proposal and the associated PCR draft report to programme operator for review by the TC.

C.5.2. THE PCR REVIEW PROCEDURE

The PCR review procedure is carried out by a panel associated to the International EPD® System called the *Technical Committee* (TC). The TC consists of selected persons knowledgeable in the field of LCA/PCR/EPD and working both in official organisations, companies and research organisations. See section 2.1.4 for more information on the TC.

The members of the TC and the acting chairperson are presented at the website to the International EPD® System.

The TC shall meet regularly (not necessary in-person meetings) to be able to efficiently carry out the review of proposed PCR documents.

The review shall address the following:

- that the PCR development process have been carried out according to these General Programme Instructions
- the compliance according to relevant standards and the general programme instructions regarding the choices for the LCA (system boundaries, allocation rules, etc.)
- how the PCR moderator have handled the feedback received during the open consultation.

The review procedure can either lead to:

- the full acceptance of the PCR proposal,
- the acceptance of the PCR proposal with comments to be fulfilled, or
- the need for further clarification and amendments required by the TC.

In case the TC gives comments on PCR proposals, it is the responsibility of the PCR moderator to follow up that these comments are considered in the preparation of the final version of the PCR document. In case the TC needs further clarifications or amendments to the text, the PCR moderator is responsible for providing the TC with a new version of the PCR document.

If the PCR moderator does not comply with the comments from the technical review, the Secretariat may terminate the PCR development process.

C.5.3. DISCLOSING OPEN INFORMATION ABOUT THE APPROVAL OF THE PCR

As soon as the PCR document is approved, the programme operator shall publish it on the International EPD® System website with associated information presented on the website including general information about the scope of the PCR and CPC codes, registration identity, PCR moderator, contributors in the preparatory work, etc. together with the possibility to directly comment on the document via the PCR Forum. The comments and recommendations made by the TC in the approval procedure of the PCR shall be publicly available upon request. The responsible parties may provide more detailed background materials and reports developed in the process of preparing the PCR document, if found relevant.

C.6. VALIDITY OF PCR DOCUMENTS

The validity of PCR documents is usually specified for a pre-determined period of time from the date of the approval. The validity is announced on the website. It is important that a PCR document has a validity time with a reasonable sufficient length to safeguard market stability.

A PCR document may be referring several PCR modules at different hierarchic levels according to the CPC classification scheme. The period of validity may differ between separate PCR modules due to the consistency over time with regard to the prescribed LCA calculations. The period of validity should preferably be linked to the hierarchic level of the PCR

modules in the CPC classification scheme, where PCR modules on a lower digit level (being less product-specific) may be accurate for a longer time period. The period of validity shall be subject for a judgement of the consistency of the LCA calculation on a case-by-case basis with input from the PCR moderator and settled by the programme operator.

A reasonable average period of validity may be in the range of three to five years. When the validity time is about to expire the PCR moderator shall initiate a discussion with the programme operator how to proceed with extending the period of validity.

C.6.1 UPDATING

A PCR document is valid for a pre-determined period of time, where after the document shall be revisited in case there is a need for an update. An update prior the time of the official expiration of the PCR document could be initiated due to various reasons such as new LCA-based information generated in the relevant industry sector, special market demands not covered in the existing PCR document or comments received during the validity period of the document being of sufficient technical relevance.

It is important to simplify the procedure for updating a PCR document with the necessary involvement of interested parties. A reminder of the need for an eventual update of a PCR document may be indicated on the website. The updating phase includes the following elements:

- possibilities to give comments on PCR documents
- updating following comments received
- prolonging the period of validity following no comments received

C.6.2. POSSIBILITIES TO GIVE COMMENTS ON PCR DOCUMENTS

The predetermined validity time for PCR documents enables the possibility to prepare an eventual update of a PCR document at regular intervals. PCR documents can be reviewed whenever needed, provided significant and well-justified proposals for changes or amendments are presented. It is possible for any interested party to comment on the PCR document during the period when the document is in use. These comments will be filed by the programme operator and valuable as inputs when the PCR document is subject for an update.

Comments on the PCR documents can be provided either directly via the PCR Forum or from the programme operator.

In case of any substantial and immediate change of the document is required, such a request can be sent to the programme operator. The request will be processed through the TC, which will decide upon the urgency of the matter. In case the request is found appropriate, the programme will inform the PCR moderator and initiate the revision process.

C.6.3. UPDATE FOLLOWING COMMENTS RECEIVED

The PCR moderator shall be engaged in the updating of a PCR document and lead/supervise the revision process. In case no PCR moderator exists for the product category under study, the programme operator shall initiate the process also trying to engage another person to accept taking the role as PCR moderator.

The revision process should start well before the validity time for PCR document expires to give due time for announcing and collecting comments. An update of an existing PCR document usually takes less time compared with the preparation of the initial document.

The PCR moderator shall announce the updating process over the PCR Forum clearly indicating the time for providing comments. In case a Product Category Stakeholder Consultation Group exists, they shall be engaged in the work and informed about the possibility to give comments on the document.

C.6.4. PROLONGING THE PERIOD OF VALIDITY FOLLOWING NO COMMENTS RECEIVED

In case no comments have been received on available PCR documents, the programme operator can prolong the validity of the document, providing there are good reasons for extending the validity of the document, e.g. by a special market request. In such a case, a less formal open consultation is to recommend for checking the accuracy of the document by means of consulting the parties initially engaged in the preparation of the original document or by involving the Product Category Stakeholder Consultation Group, if existent. If there are no major technical changes in the document, the Secretariat can publish the new version without involving the TC.

ANNEX D – EPD PROCESS CERTIFICATION: REQUIREMENTS

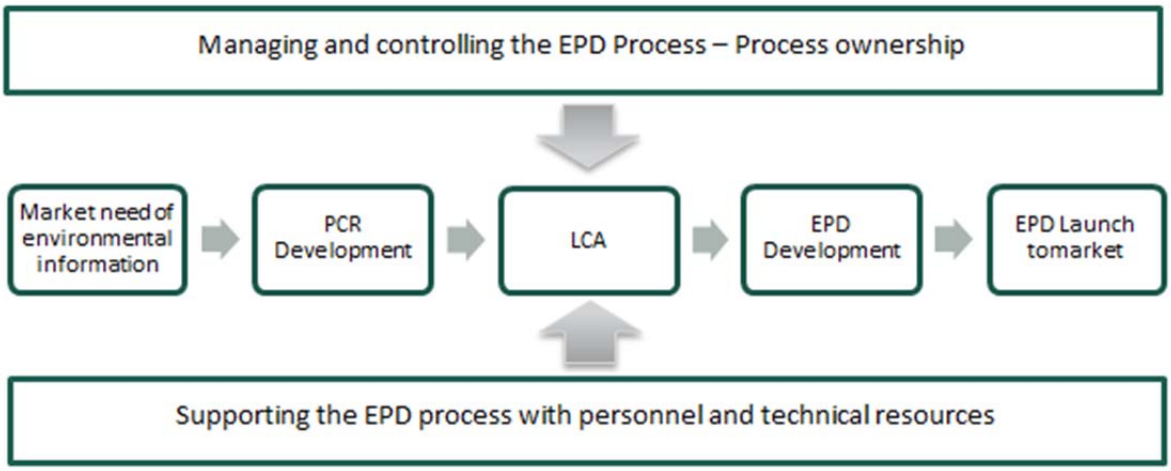
D.1. INTRODUCTION

In the normative document – General Programme Instructions – chapter 4.7 "Internal Verification (EPD process certification)" is described an activity where organisations can develop and launch EPDs without a third party certifier being involved in each case. This document clarifies how companies shall apply a systemised manner and specifically the demands that need to be verified by a third party verifier.

This clarification contains generic information in chapter 1 – 3 and 7, and normative claims in chapter 4 – 6. At third party verification the claims in the normative chapters 4 - 5 will be verified primarily.

D.1.1. DESCRIPTION OF THE EPD PROCESS

The activity to develop EPD shall follow a certain process pattern:



Such a process shall be established and controlled by necessary procedures and activities.

D.1.2. DESCRIPTION OF THE EPD PROCESS CERTIFICATION ACTIVITY

The internal EPD process certification process shall be outlined according to the PDCA principle:

Planning: Setting up resources needed for this activity, assessment plans and defining criteria's for approval. Records of this shall be kept.

Doing: Execute assessments according to plan, with trained internal staff at defined intervals and according to the approval criteria's. Records of this shall be kept.

Checking: Internal independent party shall verify that the EPD process certification activity is outlined well and works effectively and according to the norms.

Acting: Finally the management shall certify by a written statement that the above process works properly and effective and according to the norms. The statement shall be updated annually.

D.1.3. DESCRIPTION OF THE EPD PROCESS THIRD PARTY VERIFICATION ACTIVITY

The EPD process shall be verified by an independent third party verifier. Such a verifier shall be an accredited body for certification of products/processes. The verifications shall be done as an accredited service under the supervision of an accreditation body.

D.2. NORMATIVE REFERENCE

See ISO 14001:2004, ISO 9001:2008, ISO14040 series and the General Programme Instructions.

D.3. TERMS AND DEFINITIONS

TERM	DEFINITION
EPD	Environmental product declarations
PCR	Product category rules
CPC	UN Central Product Classification, classification system used for PCR
LCA	Life cycle assessment
EPD process	Chain of activities within an organisation that links together in a certain systemised pattern, from an initial start-up to a final result as the launch of the EPD.
EPD process owner	Personnel having authority and responsibility in managing the EPD process from start to final EPD.
EPD responsible publisher	Personnel having authority and responsibility regards when publish EPD to external party
EPD process assurance	An internal activity within an organisation that assure the reliability, the relevance and independence in the handling of the EPD process. The assurance of the EPDs shall have same value as if EPD has been certified by a third party verifier.
EPD process assessment	An internal activity within the organisation that regularly with certain frequency assess the EPD process to certify it appropriateness.
EPD process certification verification	An external third party verification made by an accredited body, to verify the internal EPD process assurance.

Table D.1. Terms and definitions

D.4. THE EPD PROCESS

D.4.1 GENERAL REQUIREMENTS

The organisation shall establish, document, implement and maintain a systemized EPD process and continually improve its effectiveness in accordance with the requirements of this document.

The organisation shall:

a) determine the sequence and interaction of the EPD process and other processes within the company,

b) determine criteria and methods needed to ensure that both the operation and control of the EPD process are effective,

c) ensure the availability of the resources and information necessary to support the operation and monitor of the EPD process,

d) monitor, measure where applicable, and analyse the EPD process, and

e) implement actions necessary to achieve planned results and continual improvement of the EPD process.

Where an organisation chooses to outsource any part of the EPD process that affects the conformity of the EPD result, the organisation shall ensure control over such process parts.

D.4.2. DOCUMENT REQUIREMENTS

The documentation of the EPD process shall include:

a) a general description of the EPD process

b) documented procedures and records required by this document.

D.4.3. MANAGEMENT RESPONSIBILITY

Top management shall ensure that responsibilities and authorities related to the EPD process are defined and communicated within the organisation. An EPD process ownership shall be defined as well as a defined responsible publisher of the EPDs.

Top management shall explicitly declare its intensions and ambitions with the EPD process in form of one or several policies, strategies or similar type of documents.

Top management shall annually – based on results from internal assessments and external verifications – evaluate the EPD process concerning its effectiveness, relevance and appropriateness and make conclusions and actions needed for continuous improvement of the EPD process.

D.4.4. PROVISION OF RESOURCES

The organisation shall determine and provide the resources needed to implement and maintain the EPD process and continually improve its effectiveness.

Personnel performing work affecting conformity to the EPD process requirements shall be competent on the basis of appropriate education, training, skills and experience.

The organisation shall:

a) determine the necessary competence for personnel performing work affecting conformity to the EPD process requirements

b) where applicable, provide training or take other actions to achieve the necessary competence,

c) evaluate effectiveness of the actions taken,

d) ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the conformity of EPD process requirements, and

e) maintain appropriate records of education, training, skills and experience.

The organisation shall determine, provide and maintain the infrastructure needed to achieve conformity to the EPD process requirements. Infrastructure includes as applicable,

a) workspace and associated utilities,

b) process equipment (both hardware and software), and

c) supporting services (i.e. information systems).

See Section 5.9.2.1.

D.4.5. PLANNING OF THE EPD PROCESS

The organisation shall plan and develop the EPD process for the EPD realisation. Planning of EPD realisation shall be consistent with the requirements of the GPI norm. In planning of EPD realisation, the organisation shall determine the following as appropriate:

a) Sources and version of PCR / CPC requirements

b) Sources and version of GPI norm requirements

c) the need to specify activities within the EPD process and to provide specific resources for that (i.e. data collection, LCA calculation, LCA result review, EPD preparation, EPD review, maintenance of the EPDs validity and representativeness),

d) required verifications of the content of the EPDs delivered from the EPD process,

e) records needed to provide evidence that the EPD realisation process meet the EPD process certification requirements.

D.4.5.1 PCR/CPC/ PSR development or status check

The organisation shall determine the requirements related to the PCR/CPC and review the EPD to be launched, prior to the realisation of EPDs and this shall ensure that:

a) PCR/CPC requirement exists

b) the organisation has the ability to meet the defined requirements.

Records such status check and actions arising from the review shall be maintained.

In case of no existing PCR for the actual product category, then organisation shall initiate the development of such rules according to the GPI norm.

D.4.5.2. Planning of the LCA activity and development of EPDs

D.4.5.2.1 Planning of the LCA activity
The organisation shall plan the LCA activity according to the ISO14040 series and in connection to requirements in PCR/CPC and other norms in the General programme instructions (GPI).

D.4.5.2.2. Planning of EPD development activity
The organisation shall plan the EPD development activity according to the requirements in PCR/CPC and other norms in the General programme instructions (GPI).

In case of pre-certified EPDs, these shall be included in the EPD process as well.

If EPD process owner intends to develop "single-issue EPDs" i.e. climate declarations, these shall also be covered by the EPD process.

D.4.6. OPERATION OF THE EPD PROCESS

D.4.6.1 Collecting information

The organisation shall ensure that collected data conforms to specified data need requirements. The type and extent of control applied to the data collection activity shall be dependent upon the effects the gathered information will have on the LCA result and the EPDs representativeness.

The organisation shall establish and implement controlling activities necessary to ensuring that the information used in LCA for EPDs will be relevant, consistent and up-to date.

D.4.7. OPERATION OF THE LCA ACTIVITY AND DEVELOPMENT OF EPDS

D.4.7.1 Operation of the LCA activity

The organisation shall plan and carry out LCA activities under controlled conditions. Controlled conditions shall include, as applicable:

a) the availability of information that describes the characteristics of the actual product group,

b) the availability of work instructions, as necessary,

c) the use of suitable equipment,

d) the availability and use of critical reviews of LCA results.

D.4.7.2. Operation of the EPD development activity

The organisation shall plan and carry out EPD activities under controlled conditions. Controlled conditions shall include, as applicable:

a) the availability of information that describes the characteristics of the actual product group,

b) the availability of work instructions, as necessary,

c) the use of suitable equipment and communication tools,

d) the availability and use of internal or external verification of EPDs.

Some information in EPDs are not connected to LCA, but shall be planed and controlled similarly, securing sources and quality of data.

According to the GPI norm, EPDs shall include mandatory statements. The part concerning third party verifier will in this context mean the third party verifier certifying the EPD process.

D.4.7.3. Maintenance of the EPD during its validity

The organisation shall preserve the developed EPDs representativeness during its scheduled time of validity by keeping an EPD register for valid EPDs.

The EPD process shall contain measures that identify changing conditions that risks making the EPDs out of date or not representative. Efficient control and applicable action shall be applied to such identified risks.

D.5. EPD PROCESS ASSURANCE

D.5.1 EPD PROCESS ASSESSMENT

The organisation shall conduct internal EPD process assessments at planned intervals to determine whether the EPD process:

a) conforms to the planned arrangements, to the requirements of this annex to the GPI and to the EPD process requirements established by the organisation

b) is effectively implemented and maintained

An assessment programme shall be planned, taking into consideration the status and importance of the activities within the EPD process to be assessed, as well as the results of previous assessments. The assessment criteria, scope, frequency and methods shall be defined. The selection of assessors and conduct of assessments shall ensure objectivity and impartiality of the audit process. Assessors shall not assess their own work.

A documented procedure shall be established to define the responsibilities and requirements for planning and conducting assessments, establishing records and reporting results. Records of the assessment results shall be maintained.

The management responsible for the activity being assessed shall ensure that any necessary corrections and corrective actions are taken without undue delay to eliminate detected nonconformities and their causes. Follow up activities shall include verification of the actions taken and the reporting of these results.

D.5.2. EPD MANAGEMENT REVIEW

Top management (or representative having the role as EPD process owner) shall review the organisations EPD process at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the EPD process.

Records from such reviews shall be maintained.

D.5.1.1. Review input

The input to management review shall include information on

a) results from internal assessments,

b) reaction from EPD audience and other stakeholders,

c) EPD process performance and EPD conformity verifications done by third party verifier,

d) status on preventive and corrective actions,

e) follow up actions from previous management reviews,

f) changes that could affect the launched EPDs, as well as the development of new EPDs,

g) recommendations for improvement.

D.5.1.2. Review output

The main output of the review is the EPD process assurance statement, which assures the conformity of the present EPD process with the GPI and this this annex to the GPI.

Other outputs from the management review shall include any decisions and actions related to

a) improvement of the effectiveness of the EPD process and its activities,

b) improvement of individual EPDs related to input from EPD audience or other relevant stakeholders,

c) resource needs.

D.6. EPD PROCESS CERTIFICATION

During the time of validity of EPDs following the EPD process, as a complement to the internal assurance activity, there shall be a verification done by an independent third party verifier.

The verification shall be done annually and cover the EPD process and the internal EPD process assurance activity. The verification shall follow the praxis from audit management systems i.e. ISO 14001 or ISO 9001. The verification is an accredited service and is done under supervision of an accredited body.

The result is an EPD process certificate, stating that the EPD process and EPD process assurance activity follows the General Programme Instructions and this document.

A valid certificate is a necessity for an organisation for being allowed acting under the paragraph 5.8 in the General Programme Instructions.

EPDs developed by a certified EPD process according to this annex to the GPI, shall be considered as equal to a third party certified EPD.

ANNEX E – GUIDANCE ON COMMUNICATING EPD INFORMATION

E.1. INTRODUCTION

An EPD is an informative communications tool that organisations may use to disseminate information regarding the environmental performance of their products or services. Professional buyers and individual consumers are more and more taking environmental requirements into account. This increases the need for communicating reliable environmental information. EPDs are aimed at a diverse group of audiences through internal and external communications.

EPDs can effectively be used in business-to-business (B2B), business-to-public authorities (B2P) and business-to-consumers (B2C) communications. B2P- and B2C-communication, when the customer needs detailed and reliable environmental information on the supplied products and services, or even in environmental communication towards stakeholders, if this is considered as a competitive opportunity.

It is important to consider the information needs of different purchaser and user groups, such as large business, small and medium-sized enterprises and public procurement agencies. One of the main objectives of EPDs is to assist purchasers to make informed comparisons between products belonging in the same product category.

E.2. EPD – DOCUMENT FEATURES

The International EPD® System does not have requirements on the layout of the document or on the format of presentation as long as the requirements in chapter 4 in the General Programme Instructions are fulfilled.

E.3. EPD®SYSTEM LOGOTYPE

A special EPD logotype has been developed to ensure a well-known identity of the International EPD® System to be used on all official printed materials and declarations connected to the system to avoid confusion with other types of product-related environmental labels and declarations.

E.3.1. THE GREEN YARDSTICK

The logotype symbolizes a yardstick, a standardized tool for objective measurement. The EPD measures the environmental performance of products and services in an objective and standardized way.

E.3.2. USE OF THE LOGOTYPE

The EPD® logotype can be used in connection with e.g. advertisement, on products and their packaging materials. It is also possible to add more explanatory supplementary information if needed. The EPD® logotype can be used in many ways for different market applications, for example:

- On the declarations - the logotype with no additional information
- On products and packaging materials - logotype together with the given registration number, the relevant CPC code and referring to the website (www.environdec.com) for more information.
- On all types information materials - if a company/organisation wants to use selected information from the EPD for various purposes they shall indicate that the data is taken from an EPD, use the logotype together with the given registration number, the relevant CPC code and referring to the website (www.environdec.com) for more information.
- Supplementary information - if the company/organisation would like to include information about any of its management systems, either being a quality or environmental management system (e.g. ISO 9001, ISO 14001 or EMAS), or other systems related to e.g. Supply Chain Management, Social Responsibility, ILO Conventions, Occupational Health and Safety, as long as they can be verified.
- The EPD shall only be used with a reference to the registration number and the website of the International EPD® System www.environdec.com
- The EPD® logotype is only allowed to be used within the framework of the International EPD® System or based on special agreements with the programme operator, the IEPDC.

An example on how to use the logotype on an EPD is illustrated below.

CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION

S-P-XXXXX www.environdec.com

If a company/organisation chooses to use information from the declaration in other information material, they shall state that the data is taken from a certified environmental declaration, use the logotype and quote the given registration number and web site for more information as the examples below illustrates.

An information label may be used in conjunction with advertising product or services and on products or on the packaging of products. The reason for the information label is to provide the party which comes into contact with the product with information that the product has a registered environmental product declaration and that additional information on and description of the contents in the declaration are available on the Internet. This information label shall have the following wording:

This product/service has a Certified Environmental Product Declaration giving information about the environmental performance, contents and recycling which has been controlled and verified according to the requirements of the International EPD® System.
Registration number: S-P-XXXXX
More information is available on: www.environdec.com

Clarifications:

- the words *contents* and *recycling* shall be used only if such information is included,
- the registration number is shown here as S-P-xxxxx, the exact particulars are given in the registration confirmation.
- the words "*This product/service*" can be replaced by the name of the product/service, provided that the full designation of the product/service is used in the same way as in the certificate issued by the certification body.

If only an information label is used for giving information on the environmental product declaration and in conjunction with or in a manner that may affect private consumers, the following wording shall be used:

This product/service has a Certified Environmental Product Declaration giving facts about the environmental performance without valuation. The declaration has been controlled and verified according to the requirements of the International EPD® System.
Registration number: S-P-XXXXX
More information is available on: www.environdec.com

E.3.2.1. Other logotype formats

The logotype is also available in the following formats:

	Main logotype, grayscale. Only to be used on black and white printings
	Main logotype, negative. Only to be used on dark background.
	Main logotype, black and white, negative. Only to be used on black and white with dark background.
	Should only be used when the place for the logo is limited. The variants of the small logotype (grey scale, reversed) should only be used as described above.
	Small logotype with registration number.

E.3.3. SUPPLEMENTARY INFORMATION ABOUT ENVIRONMENTAL MANAGEMENT SYSTEMS

If the company/organisation has an environmental management system according to ISO 14001 and/or EMAS information acknowledging this can be added in the lower part of the information label. The following text shall be used: (Name of the company/organisation) has a verified environmental management system according to ISO 14001 and/or EMAS.

E.4. SINGLE ISSUE LABEL

As an extreme synthesis of the LCA results, a standardized standalone label could be used for the declaration some specific environmental impact, for example Global Warming Potential related to the entire life cycle of the product system under analysis. It could be presented on the company' web site or directly on the pack or in any document directly related to the environmental declaration of the product according to the company communication policy and strategy. Using a single issue label related to the International EPD® System is only allowed if agreed on with the programme operator.

ANNEX F – DEFINITIONS

Allocation

Partitioning the input or output flows of a process or a product system between the product system under study and one or more other product systems [ISO 14040:2006]

Biogenic carbon

Carbon which is contained in biomass [ISO 14067:2010]

Biogenic CO_2

CO_2 obtained by the oxidation of biogenic carbon [ISO 14067:2010]

Biomass

Material of biological origin excluding material embedded in geological formations or transformed to fossilized material and excluding peat. This includes organic material (both living and dead) from above and below ground, e.g. trees, crops, grasses, tree litter, algae, animals and waste of biological origin, e.g. manure [ISO 14067:2010]

Carbon dioxide equivalent (CO_2 equivalent)

Unit for comparing the radiative forcing of a greenhouse gas to carbon dioxide. The carbon dioxide equivalent is calculated using the mass of a given GHG multiplied by its global warming potential [ISO 14064:2006]

Carbon footprint

Net amount of greenhouse gas emissions and greenhouse gas removals, expressed in CO_2 equivalents. The CO_2 equivalent is calculated using the mass of a given GHG multiplied by its global warming potential. [ISO 14067:2010]

Comparative assertion

Environmental claim regarding the superiority or equivalence of one product versus a competing product that performs the same function [ISO 14040:2006]

Competence

Demonstrated personal attributes and demonstrated ability to apply knowledge and skills [ISO 19011:2002]

Consumer

Individual member of the general public purchasing or using goods, property or services for private purposes [ISO 14025:2006]

Co-product

Any of two or more products coming from the same unit process or product system [ISO 14040:2006]

Cut-off criteria

Specification of the amount of material or energy flow or the level of environmental significance associated with unit processes or product system to be excluded from a study [ISO 14040:2006]

Data quality

Characteristics of data that relate to their ability to satisfy stated requirements [ISO 14040:2006]

Elementary flow

Material or energy entering the system being studied that has been drawn from the environment without previous human transformation, or material or energy leaving the system being studied that is released into the environment without subsequent human transformation [ISO 14040:2006]

Energy flow

Input to or output from a unit process or product system, quantified in energy units. Energy flow that is an input can be called an energy input; energy flow that is an output can be called an energy output. [ISO 14040:2006]

Environmental aspect

Element of an organisation's activities, products or services that can interact with the environment [ISO 14040:2006]

Environmental impact

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects [ISO 14001:2004]

Environmental label / declaration

Claim which indicates the environmental aspects of a product or service. An environmental label or declaration may take the form of a statement, symbol or graphic on a product or package label, in product literature, in technical bulletins, in advertising or in publicity, amongst other things. [ISO 14020:2000]

Feedstock energy

Heat of combustion of a raw material input that is not used as an energy source to a product system, expressed in terms of higher heating value or lower heating value. [ISO 14040:2006]

Functional unit

Quantified performance of a product system for use as a reference unit [ISO 14040:2006]

Global warming potential (GWP)

Factor describing the radiative forcing impact of one mass-based unit of a given GHG relative to an equivalent unit of carbon dioxide over a given period of time [ISO 14064:2006]

Greenhouse gas (GHG)

Gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere, and clouds. GHGs include among others carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6) [ISO 14064:2006]

Greenhouse gas emission (GHG emission)

Total mass of a GHG released to the atmosphere over a specified period of time [ISO 14064:2006]

Greenhouse gas removal (GHG removal)

Total mass of a GHG removed from the atmosphere over a specified period of time [ISO 14064:2006]

Hazardous Waste

Hazardous waste is waste that poses substantial or potential threats to public health or the environment.

Impact category

Class representing environmental issues of concern to which life cycle inventory analysis results may be assigned [ISO 14040:2006]

Impact category indicator

Quantifiable representation of an impact category. The shorter expression "category indicator" is used for improved readability [ISO 14040:2006]

Information module

Compilation of data to be used as a basis for a Type III environmental declaration, covering a unit process or a combination of unit processes that are part of the life cycle of a product [ISO 14025:2006]

Interested party

Person or body interested in or affected by the development and use of a Type III environmental declaration [ISO 14025:2006]

Life cycle

Consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal [ISO 14040:2006]

Life cycle assessment (LCA)

Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle [ISO 14040:2006]

Life cycle impact assessment (LCIA)

Phase of life cycle assessment aimed at understanding and evaluating the magnitude and significance of the potential environmental impacts for a product system throughout the life cycle of the product [ISO 14040:2006]

Life cycle interpretation

Phase of life cycle assessment in which the findings of either the inventory analysis or the impact assessment, or both, are evaluated in relation to the defined goal and scope in order to reach conclusions and recommendations [ISO 14040:2006]

Life cycle inventory analysis (LCI)

Phase of life cycle assessment involving the compilation and quantification of inputs and outputs for a product throughout its life cycle [ISO 14040:2006]

Offsetting

Mechanism for compensating for the carbon footprint of a product through the prevention of the release of, reduction in, or removal of, an equivalent amount of GHG emissions in a process outside the boundary of the product system. Examples of offsetting include external investment in renewable energy technologies, energy efficiency measures and afforestation/reforestation [ISO 14021:2010]

Organisation

Company, corporation, firm, enterprise, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration [ISO 14001:2004]

PCR review

Process whereby a third party panel verifies the product category rules [ISO 14025:2006]

Polluter-Pays Principle (PPP)

The principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment [...] this principle means that the polluter should bear the expenses of carrying out the above-mentioned measures decided by public authorities to ensure that the environment is in an acceptable state [OECD, 1972]

Post-consumer material

Material generated by households or by commercial, industrial and institutional facilities in their role as end-users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain. [ISO 14021:1999]

Pre-consumer material

Material diverted from the waste stream during a manufacturing process. Excluded is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Process

Set of interrelated or interacting activities that transforms inputs into outputs [ISO 9000:2005, definition 3.4.1 (without notes)]

Product

Any goods or service [ISO 14024:1999]

Product category

Group of products that can fulfil equivalent functions [ISO 14025:2006]

Product category rules (PCR)

Set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories [ISO 14025:2006]

Product system

Collection of unit processes with elementary and product flows, performing one or more defined functions, and which models the life cycle of a product [ISO 14040:2006]

Programme operator

Body or bodies that conduct a Type III environmental declaration programme. A programme operator can be a company or a group of companies, industrial sector or trade association, public authorities or agencies, or an independent scientific body or other organisation. [ISO 14025:2006]

Raw material

Primary or secondary material that is used to produce a product. Secondary material includes recycled material. [ISO 14040:2006]

Recycled content

Proportion, by mass, of recycled material in a product or packaging. Only pre-consumer and post-consumer materials shall be considered as recycled content.

Recycled material

Material that has been reprocessed from recovered material by means of a manufacturing process and made into a final product or into a component for incorporation into a product. [ISO 14021:1999]

Recovered material (secondary material)

Material that would have otherwise been disposed of as waste or used for energy recovery, but has instead been collected and recovered as a material input, in lieu of new primary material, for a recycling or a manufacturing process. [ISO 14021:1999]

Recovered energy

Energy recovery from waste materials refers to the collection and conversion of waste material into useful energy. This includes any collection and conversion of waste materials from industry, home, business or public service facilities.

Reference flow

Measure of the outputs from processes in a given product system required to fulfil the function expressed by the functional unit [ISO 14040:2006]

Releases

Emissions to air and discharges to water and soil [ISO 14040:2006]

Sensitivity analysis

Systematic procedures for estimating the effects of the choices made regarding methods and data on the outcome of a study [ISO 14040:2006]

Stakeholder

Person, group of people or organisation that can affect, be affected by, or perceive to be affected by a decision or activity [ISO 14067:2010]

Supply chain

Those involved, through upstream and downstream linkages, in processes and activities delivering value in the form of products to the user. In practice, the expressions “product chain” or “value chain” are often used [ISO/TR 14062:2002]

System boundary

Set of criteria specifying which unit processes are part of a product system [ISO 14040:2006]

Third party

Person or body that is recognized as being independent of the parties involved, as concerns the issues in question. “Parties involved” are usually supplier (“first party”) and purchaser (“second party”) interests. [ISO 14024:1999]

Transparency

Open, comprehensive and understandable presentation of information [ISO 14040:2006]

Type III environmental declaration

Environmental declaration providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information. The predetermined parameters are based on the ISO 14040 series of standards, which is made up of ISO 14040 and ISO 14044. The additional environmental information may be quantitative or qualitative. [ISO 14025:2006]

Type III environmental declaration programme

Voluntary programme for the development and use of Type III environmental declarations, based on a set of operating rules [ISO 14025:2006]

Unit process

Smallest element considered in the life cycle inventory analysis for which input and output data are quantified [ISO 14040:2006]

Verification

Confirmation, through the provision of objective evidence that specified requirements have been fulfilled [ISO 9000:2005]

Verifier

Person or body that carries out verification [ISO 14025:2006]