

THE INTERNATIONAL EPD COOPERATION (IEC)



**INTRODUCTION, INTENDED USES AND
KEY PROGRAMME ELEMENTS**

FOR ENVIRONMENTAL PRODUCT
DECLARATIONS, EPD

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1 INTRODUCTION

Today, the global market is increasingly demanding science-based, verified and comparable information about environmental performance of products and services, mainly originating from several market-based applications, such as information exchange along the supply chain, within the context of environmental management systems and for green purchasing and procurement.

In order to meet this demand, a number of organisations have initiated, developed and established an official Type III environmental declaration programme called the EPD® system. The EPD® system has gradually been converted into a system with an international applicability, open to all interested companies and organisations. Companies and organisations in any country are welcome to join the system to benefit from the potential advantages that the EPD® system can offer as a communication tool for environmental marketing.

1.1 RATIONALE FOR THE INTERNATIONAL EPD® SYSTEM

The almost 10 years of practical experiences of the operation of the EPD® system in several countries both in Europe and Asia call for a revision of the system. The revision is based on the results and experiences gained from the EU LIFE-funded project *Intend* with the objective “to define an EPD scheme that can be applied at international level”. Another reason for the revision is the publication of the international EPD standard ISO 14025 *Environmental labels and declarations - Type III environmental declarations - Principles and Procedures*.

The General Programme Instructions with supporting annexes describes the structure, operation and management of an updated and revised version of the EPD® system in accordance with ISO 14025. The rules is based on a hierarchic approach following the international standards ISO 9001 (*Quality management systems*), ISO 14001 (*Environmental management systems*), ISO 14040 (*LCA - Principles and procedures*), ISO 14044 (*LCA - Requirements and guidelines*) and ISO 21930 (*Environmental declarations for building products*) upon which the General Programme Instructions are placed as illustrated in Figure 1. Adding to this structure is so-called Product Category Rules (PCR) for more detailed instructions on data collection and calculations for the EPDs.

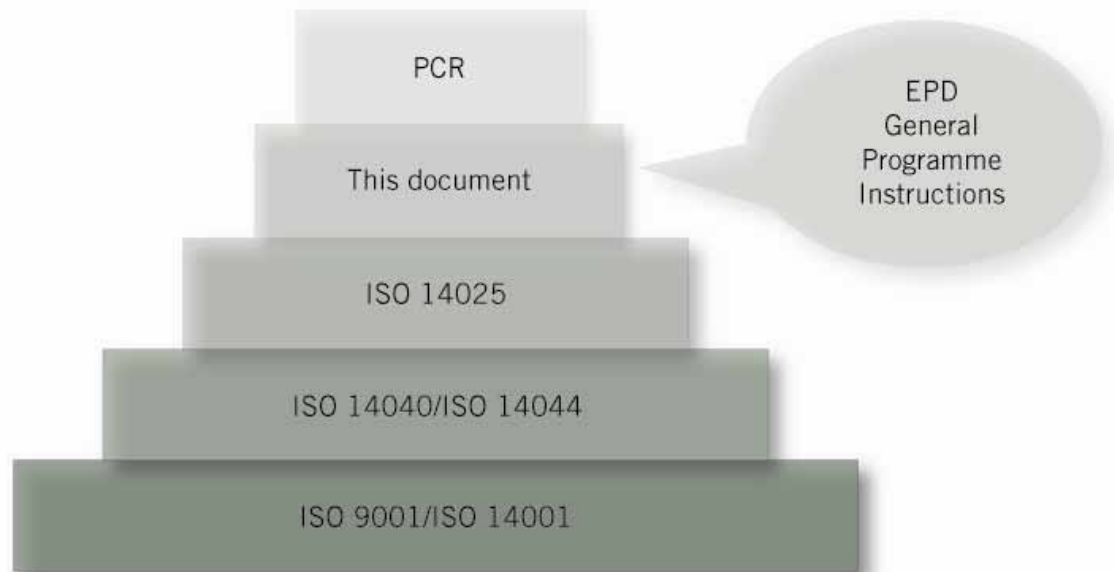


Figure 1. Outline of the hierarchic approach used based upon international standards, EPD General Programme Requirements and PCR documents

As a consequence of the compliance with the international standard many of the principles and procedures advocated in ISO 14025 are not repeated in this document. Instead this document builds on ISO 14025 in further defining and describing selected technical and operational aspects not covered in the standard.

The EPD programme described in this document is referred to as *the international EPD[®] system* and is intended for applicability on a global scale. It is also meant to support emerging and existing EPD programmes in separate countries as well as programmes operated by any type of organisations where there is an interest for international harmonisation and coordinated efforts to avoid international trade implications. The international EPD[®] system is open for any interested party as well as for all goods and services.

The international EPD[®] system will be able to coordinate and integrate data and information among various programmes related to environmental labelling (Type I, II and III). In this way stakeholders can undertake an integrated approach to the distinct schemes. As an example EPDs and PCRs can be used as a reference to develop the criteria for further product groups or to update existing ones in Type I ecolabelling programmes.

The operation of the international EPD[®] system is supported by an international EPD website - www.environdec.com - including various types of information of both general and practical character.

The general programme instructions to the international EPD[®] system have been prepared as a joint effort between a large number of organisations/parties/persons and subject for an open international consultation process.

2 INTENDED USES

An EPD is defined as "providing quantified environmental data using predetermined parameters and where relevant, additional environmental information" (ISO 14025).

One of the main purposes with an EPD is to provide the basis for a fair comparison between goods and services having the same principal function based on their inherent environmental performance. EPDs have also the advantage of being able to communicate and add up relevant environmental information along a product's supply chain as well as to reflect the continuous environmental improvement of products and services over time.

EPDs add new market dimensions in informing about environmental performance of goods and services with guiding principles such as product functionality, transparency and scientific relevance. The fact that EPDs could be regarded as a multi-issue and multi-audience tool make them also cost-effective with regard to their range of communication.

The international EPD® system aims to ensure objectivity, comparability and credibility in communicating the environmental performance within clearly defined and classified product categories and service types. The system approach covers separate products and services as well as wholly or partially assortments of products and services covering a whole branch.

Today, product-related environmental issues are becoming an increasingly strategic concern for the business sector. This can be seen in the development of environmental management systems around the world, where systems tend to focus more on the importance of information about the environmental performance of products and services. The concern regarding environmental issues is also growing in other sectors of society as well as the environmental conscience of the general public.

In meeting these requirements the businesses and organisations must have objective and reliable information about environmental aspects of products and services, so that they can place the information in their own contexts and make their own decisions. Despite the rather challenging task to describe complex processes in the environment, the overall goal of an EPD is to provide relevant, verified and comparable information to meet the various needs within both in the supply-chain, for Eco-design and in green purchasing and procurement.

An EPD can be used by any organisation wanting to acquire more knowledge about the environmental aspects of their products, to reduce the environmental impact of products under their life cycles, and to communicate with all interested parties and potential and users about their overall environmental performance. The international EPD® system is designed to meet various information needs within the supply-chain and for end products both in the private and public sector as well as for more general purposes in information activities and marketing. One of the main objectives for EPDS outlined in ISO 14025 is to assist purchasers and users to make informed comparisons between products.

For those providing the information, EPDs shall provide opportunities for giving a quantitative and verified description of the environmental performance of products, viewed from a comprehensive life cycle assessment perspective. Specific elements of importance are objectivity, neutrality and flexibility. EPD providers can also have very good use of the information, e.g. for eco-design. For those receiving/using the information, EPDs can be used as source information in conjunction with the requirements for factual-based and comparable environmental information in public and private purchasing and procurement, and as assistance for such purchasers in making informed assessments of the environmental performance of the products provided by suppliers, distributors and

contractors. Specific elements of importance are comparability, credibility and the continuous up-dated information.

The fact that EPDs are neutral and do not contain any value-based judgements enables their use in communication on a wide international scale. It is up to the users of the information to make their evaluation and assessment of the environmental performance of the products based on the information in the declarations. However, some users may want make further assessments and evaluation of the data in the declarations to better understand the relative environmental magnitude of the information i.e. for rating and rewarding. The EPDs are meant to serve as seed document with a verified pool of information for further elaboration of the data for various market applications. Examples of such elaborations are given in Annex E: Guidance on communicating EPD information.

3 KEY PROGRAMME ELEMENTS

It is of vital importance to develop an EPD programme in close cooperation with potential users of EPDs on the market in order to meet the multi-faceted demands on product-related environmental information provided in an EPD. The international EPD[®] system introduces a number of key programme elements not described in, but within full range within the overall objectives in ISO 14025, to motivate and facilitate a broad use of EPDs in the private and public sector and in all types of organisations regardless of size or type of operation. The 10 most prominent of these key programme elements are listed below:

<i>Purpose</i>	<i>Element identification and principal approach</i>
Complying with principles set in ISO 14025 on modularity and comparability	1. “Book-keeping LCA approach” 2. A Polluter-Pays (PP) allocation method
Simplifying work to develop Product Category Rules (PCR)	3. PCR Module Initiative (PMI) for structuring PCR into modules according to international classification 4. PCR moderator for leadership and support on the PCR work 5. Pre-certification of EPDs
Secure international participation in PCR work	6. Global PCR Forum for open and transparent EPD stakeholder consultation
Facilitating identification and collection of LCA-based information	7. Selective data quality approach for specific and generic data
Broaden market applications of EPDs	8. Introducing Sector EPDs 9. Introducing “Single-issue EPDs”
Expand possibilities for organisations to issue EPDs in a cost-effective way	10. Introducing “EPD process certification”

These key programme elements are shortly introduced below. More detailed information on these key elements is given in other parts of the General Programme Instructions and Annexes, which also is indicated.

3.1 A “BOOK-KEEPING LCA APPROACH” TO GUARANTEE SUFFICIENT DATA TRACEABILITY AND CREDIBLE VERIFICATION

With regard to the overall objectives of EPDs and their main applications on the market as outlined above, the international EPD[®] system has been designed to be a “book-keeping system” for handling and communicating environmental aspects relevant for the life cycle of a product which actually has taken place.

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.

While the international EPD[®] system is not a “prediction tool”, it has the ambition to help and guide any user of EPD information so it can meet different market expectations and applications, also enabling to foresee also the consequences likely to happen in the future e.g. for different purchasing alternatives. These aspects will be dealt with in [Annex F: Guidance on interpreting EPD information.](#)

For more information, see [Annex A: Application of LCA methodology.](#)

3.2 A “POLLUTER-PAYS (PP)” ALLOCATION APPROACH TO ENSURE MODULARITY AND COMPARABILITY

It is important to set clear and well-motivated principles for linking different technical systems together and to find a market-oriented approach for separating one product system from a subsequent product system when materials are being recycled and used along the value chain (open loop recycling) still adhering to the principles of comparability and modularity.

The approach taken in the international EPD[®] system makes a separation between two product systems at the point (usually at the scrap yard/collection site) where the material has its lowest “market value”. Such an approach will secure the possibility of adding up information in the supply chain and making comparisons possible of the environmental performance between different EPDs.

This principle, referred to *the Polluter-Pays (PP) allocation method*, is defined in the following way: *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. Incorporated burdens, such as energy or metal-content will be equally born by the subsequent users.*

The PP allocation method gives clear environmental motives for making use of recycled materials. It also provides the possibility that the recycling process is described with actual data (and not scenarios) for the product system making use of the recycled material. If there are justified reasons for providing generic, and not site-specific, information about recycling, such information can be amended in the EPD as appropriate.

For more information, see [Annex A.7: Allocation rules](#).

3.3 A PCR CLASSIFICATION APPROACH TO FACILITATE AND HARMONISE PCR WORK

The PCR work is the probably most vital element to develop and coordinate in a proper way within an EPD programme. The international EPD[®] system introduces a PCR classification scheme building on a hierarchic approach to develop “PCR modules” in order to reduce the workload with developing, carrying out consultations and approving them. The main rationale of the approach taken is to simplify and harmonise PCR work and to avoid market confusion and to avoid trade implications.

The PCR documents are structured in modules primarily according to an UN-based product classification scheme (*CPC, Central Product Classification*) which in comparisons with other international product classification schemes seems to demonstrate a good compliance with a life cycle concept being the basis in all EPD programmes. The CPC classification scheme suits well to facilitate calculation rules to follow for PCRs with the rationale to found a well-structured product identification easy to communicate. Further differentiation or combination of CPC codes or classification according to CPC does not preclude references to any other type of classification system, such as CPA or CPV, which could be indicated on the EPDs.

The CPC classification scheme is helpful for outlining general and common LCA-based calculation rules for cradle-to-gate and gate-to-gate data to be valid to the maximum extent in as many PCR documents as possible. Using the CPC classification scheme will help in streamlining PCR work by making the broadest possible use of already accepted and processed LCA calculations rules for such PCR modules.

For more information, see [Annex C: PMI – A classification scheme for product categories](#).

3.4 APPOINTMENT OF A PCR MODERATOR TO FACILITATE THE WORK TO DEVELOP PCR

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, it is recommended to establish a close partnership between the programme operator and a so-called *PCR moderator* to facilitate a transparent and resource-efficient work process of developing and approving PCR documents.

For more information, see [Chapter 2.5.1: Initiation](#).

3.5 A PRE-CERTIFICATION APPROACH TO STIMULATE EPD WORK IN LEAD ORGANISATIONS

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 both single-issue EPDs (such as Climate Declarations), Sector EPDs and full EPDs.

Pre-certification allows a company meeting the requirements set forth in Chapters 1 and 3 in the General Programme Instructions for the product under study to officially register an EPD in the case a relevant PCR document does not exist. However, such a registration is only valid for a restricted time period during which the PCR is being developed.

The overall objective with pre-certification is to simplify the process of developing the PCR as relevant EPD information for the product category is available for consideration and information. By having a pre-certified EPD as an illustrative example of relevant information to be included in an EPD, it simplifies the process to develop relevant and market-oriented rules for the PCR work.

At the same time, pre-certification gives a company the possibility to early inform its customers and the market in general of the work carried out to improve the environmental performance of its products indicating its capacity and management control over the supply chain. Hence, it gives incentives for a better uptake of EPD work in environmentally-progressive organisations.

For more information, see [Chapter 2.6: Pre-certification as an element to develop PCR documents](#).

3.6 SECURE INTERNATIONAL PARTICIPATION IN PCR WORK THROUGH AN INTERNET-BASED GLOBAL PCR FORUM

ISO 14025 states that harmonisation of general programme instructions for EPDs and particularly the PCRs should be encouraged between different programmes. To ensure comparability, programme operators are encouraged to work cooperatively to achieve harmonisation of the programmes. Programme operators can facilitate harmonisation when developing PCR for a product category and in the appropriate market area.

The international EPD[®] system has developed the so-called *Global PCR Forum* to secure an open international participatory process enabling all interested parties and stakeholders to give comments on proposals for PCR documents within the framework of EPD. In order to suit the need for an easy access and handling of comments provided by any user, the Global PCR Forum builds on specifically designed on-line internet-based services.

The overall purpose of the Global PCR Forum is to:

- be used as a marketplace for an open communication and dialogue to take place between PCR stakeholders on any issue related to LCA/PCR/EPD,
- enable questions and answers on any related PCR area or document existing in the GEDnet PCR Library 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 Global 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 moderator or programme operator.

For more information, see www.environdec.com - Developing PCR/Global PCR Forum

3.7 A SELECTIVE DATA QUALITY APPROACH TO MAKE BEST USE OF AVAILABLE LCA INFORMATION

It is important to identify what types of LCA-based data that is available and of sufficient quality and representativeness as well as appropriateness for the specific PCR to be used for an EPD. The market appreciation of EPDs most likely rests upon the best use of existing data perceived to be relevant and site-specific to the maximum extent possible. The international EPD[®] system makes a distinction between different types of LCA-based data possible to access and use in EPDs and direct this selection of data in the various stages of an LCA – the upstream, the manufacturing and the downstream processes – as a basis for the PCR work. Such an approach simplifies the collection of recommended data as well as the identification and search for better and updated data.

The selection of different data sets are made into three categories: specific data (from parts of the life cycle, specifically manufacturing processes, being product- or site-specific information), selected generic data (from commercial databases and other public accessible and free-of-charge databases that meet the quality and representativeness requirements) and other generic data (from various other sources and which may only contribute a limited share to the product system). The selected generic data are mandatory to use and requirements on selected generic data are defined programme-wide. Special guidance and recommendations regarding using selected generic data can be required and inserted in the PCRs for different product categories, if found relevant. Selected generic data can be regarded as a substitute for some of the specific data while not for the core process (“manufacturing”) of the product for which the EPD is issued.

Product- or site-specific data can often be of confidential nature because of competitive business requirements, intellectual property rights or similar legal restrictions. Such shall not be made public, as the EPD typically only provides data aggregated over the full life cycle, or relevant portions of the life cycle. To avoid presentation of any kind of sensitive confidential data, such data may be described in classes or intervals. Data identified as confidential that is provided for the independent verification process shall be kept confidential.

For more information, see [Annex A.6: Description of data and data quality requirements](#).

3.8 A “SECTOR EPD APPROACH” TO ALLOW BENCHMARKS FOR TARGETING PRODUCT IMPROVEMENTS

A growing interest from many Industrial Associations is focused on “product-type EPDs” (in contrast to product-specific EPDs) based on average data for the whole product group, possibly further differentiated for well-defined geographical areas. The international EPD[®] system makes this possible by introducing so-called *Sector EPDs*.

Sector EPDs open a number of interesting applications, the most prominent being:

- the use as representative averages for the upstream and manufacturing processes in the search and development of more product-specific PCR documents,

- the use as a sector bench-mark for separate producers manufacturing or offering products and services in the same product category,
- the use as a guidance tool indicating the general environmental performance of a product category e.g. for planners, designers and architects in the construction sector not needing information from specific products from selected suppliers available on the market.

Sector EPDs may also be used by public procurers as orientation (as a reference) for the general environmental performance of a product category, upon which product-specific EPDs may be used as a means of proof by producers (or distributors) accepted by the purchasers.

It is important to emphasize that sector EPDs can not be used by single producers to communicate environmental performance of its own products as they do not actually exist in the marketplace. Sector EPDs may also support the development of type I labelling programmes, by providing underlying data for the definition and/or updating of product groups criteria.

For more information, see [Chapter 4.6.4: Sector EPDs](#) and [Annex E: Guidance on communicating EPD information](#).

3.9 “SINGLE-ISSUE EPDS” TO BETTER SUIT SPECIFIC CUSTOMER AND MARKET DEMANDS

EPD information is sometimes considered to be unspecific and too wide as they cover all relevant aspects of the environmental performance of a product. In most cases EPD information has very distinct user needs to meet, e.g. for checking the absence of hazardous chemicals, for information about the use of renewable or non-renewable resources, about the potential environmental impact for a selected impact category or about suitable ways to recycle/reuse of the product in the end-of-life stage.

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 greenhouse gases, expressed as CO₂-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.

The LCA methodology to follow, e.g. the collection of inventory data and the subsequent converting of this data to e.g. impact categories for issuing a “single-issue EPD” shall follow the same rules as for creating a “full EPD”. It is not necessary to convert the collected input data to all impact categories included in a full EPD, nor to present other potential environmental impact than the aspect chosen for the “single-issue EPD”. A single-issue EPD shall be clearly announced in the reporting format as well as the belonging to the International EPD[®] system.

For more information, see [Chapter 3.9: Single-issue EPDs](#) and [Annex E: Guidance on communicating EPD information](#).

3.10 PROCESS CERTIFICATION TO EXPAND THE POSSIBILITY FOR ORGANISATIONS TO ISSUE EPDS IN A COST-EFFECTIVE WAY

There is a need for a new approach to the verification procedure for organisations in their work to collect data, conduct LCA and create EPDs on a regular basis if they would like to expand their EPD activities as the EPDs successively will be subject for recurrent reviews and updating. 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. 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.

For more information, see [Chapter 4.7: Internal verification](#) (EPD process certification).