

Verification of EPDs

*in the Danish environmental product
declaration programme*

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Foreword

This guide contains a procedure for verifying environmental product declarations (EPDs) and background material.

The procedure has been prepared by:

The consortium behind development of the EPD programme:

- EKJ consulting engineers ltd (EKJ)
- The Danish Institute for Product Development (IPU)
- Danish Standards (DS)
- The Swedish Environmental Management Council
- Valør og Tinge A/S

With feedback from the associated system group (professional sparring):

- 2.0- LCA consulting, later replaced by Danish Standards (DS)
- Rambøll, later replaced by Hirsbak Consulting
- FORCE Technology
- The Danish Building Research Institute (SBI)
- The Confederation of Danish Industries (DI)
- The Danish Environmental Protection Agency

1. Background

The Danish environmental product declaration programme must fulfil, as a minimum, the requirements in the ISO 14025 international standard, "Environmental labels and declarations – Type III environmental declarations – Principles and procedures". This means the programme must also comply with ISO 14040, Environmental management – Life cycle assessment – Principles and framework", ISO 14044, "Environmental management – Life cycle assessment – Requirements and guidelines", and ISO 14020, "Environmental labels and declarations - General principles".

In relation to ISO standards, verification is defined as follows:

"Verification: confirm, through the provision of objective evidence, that specified requirements have been fulfilled", ISO14025:2006 section 3.9.

The general aim of verification is to ensure the programme is reliable and uniform. This is to be achieved by verifying that the product category rules (PCRs) and background material such as life-cycle assessments (LCAs) and environmental product declarations (EPDs) are prepared in accordance with the applicable standards and guidelines for the EPD programme.

1.1 Abbreviations and definitions

Allocation: Partitioning of environmental exchanges from processes that contribute to more than one product or service, for example, when several products are produced from one process, or if the material from one product is re-used in another product.

Characterisation: Grouping emissions that contribute to the same environmental effect and calculating their equivalent contribution to the given environmental effect.

Consequence LCA: Assessment of the future environmental consequences that will result from the choice of a given product.

EDIP: Environmental Design of Industrial Production, a Danish method for Life Cycle Assessment (LCA).

Environmental aspect: Element of an organisation's activities, products or services that can interact with the environment.

Environmental impact: Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.

EPD: Environmental product declaration.

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, section 3.13).

ISO: International Organization for Standardization – a worldwide federation of national standards bodies.

ISO 14025: DS ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO 14040: DS/EN ISO 14040:2006 Environmental management – Life cycle assessment – Principles and framework.

ISO 14044: DS/EN ISO 14044:2006 Environmental management – Life cycle assessment – Requirements and guidelines.

ISO 14020: DS/EN ISO 14020:2002 Environmental labels and declarations – General principles.

ISO 14021: DS/EN ISO 14021:2001 Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling).

LCA: Life Cycle Assessment. An environmental assessment of the major environmental impacts for the processes of a product or service throughout its life cycle, from “cradle to grave”.

Marginal processes: Processes affected in practice by the market through changes in demand. I.e. processes that are accelerated or decelerated when the market for a product increases or decreases.

Normalisation: calculating the proportion of the characterised environmental effects and resource consumption in relation to society’s background impact for the given effect or resource. The background impact is expressed as “impact per person, per year” for the given effect or resource.

Product: A product or service.

PCR: Product Category Rules.

Primary energy: Process energy and calorific value for materials. The calorific value is the energy contained in the materials that can be utilised through combustion.

System boundary setting: boundary setting of the system being environmentally assessed, i.e. selecting inputs and outputs to be included in the environmental assessment and specifying how to include them, and the environmental impacts and resource consumption the environmental assessment is to be expressed in terms of.

System expansion: Elimination of a product’s secondary services. Elimination takes place by deducting from the environmental assessment the environmental impacts of the products the secondary products will replace in the market.

Technical lifetime: The product’s physical lifetime – the time the product can function normally before becoming worn out.

Technological lifetime: The time the product is expected to be in use before it is realistically disposed of for technological reasons, such as changes in fashion, new technology or new local requirements that lead to the product being scrapped before it is worn out.

2. Contents of an EPD

An EPD must contain information about relevant environmental parameters for the given product over its entire life cycle. The data must be generated using the principles, methods and practices specified in ISO 14040 and 14044. Additional relevant environmental information on parameters not covered by LCA must be provided using other appropriate methods (cf. section 5.3, ISO 14025).

In EPD-DK EPDs are to be reported using a standard report template containing:

- Producer details, including reference for further information (cf. ISO 14025 section 7.2.1(a)).
- Product description and content declaration (cf. ISO 14025 section 7.2.1 (b, c, i)).
- Functional unit and reference flow (the functional unit is a requirement, but specification of the reference flow is not an ISO requirement).

- Life-cycle based data (LCI and LCA data) (cf. ISO 14025, section 7.2.1(g) and 7.2.2).
- Additional environmental information (cf. ISO 14025 section 7.2.1(h)).
- Life cycle and omissions (cf. ISO 14025 section 7.2.1(j)).
- Brief description of the major environmental processes (not an ISO requirement)
- Standard comments on comparability (cf. ISO 14025 section 7.2.1(k)).
- Verification (cf. ISO 14025 section 7.2.1(j)).
- References to the PCR, etc. (cf. ISO 14025 section 7.2.1(e)).
- The name of the EPD-DK (cf. ISO 14025 section 7.2.1(d)).
- Publication date and period of validity (cf. ISO 14025 section 7.2.1(f)).
- References to further information (cf. ISO 14025 section 7.2.1(l))

An EPD can be seen as the result of an environmental assessment based on LCA principles. In other words, an EPD does not contain rules for boundary setting, basic data, calculation methods or selection of environmental parameters, only the results of these. The rules for boundary setting, basic data and methods are available in the product category rules and programme instructions.

3. EPD verification requirements

Verification within the EPD-DK must fulfil, as a minimum, the requirements in ISO 14025 for Type III environmental product declarations.

The standard contains the following requirements for EPD verification:

Verification must:

- be conducted by an independent, approved person, or a review panel (cf. section 8.1.4)
- be based on a standard procedure that ensures the EPD fulfils the programme instructions (cf. section 8.1.1)

3.1 Verification

Verification must ensure that the EPD:

- is prepared in accordance with ISO 14020, ISO 14021 section 5, and ISO 14025 (section 7.2.4.a, 8.1.1)
- fulfils the programme instructions of the EPD programme (cf. ISO 14025 section 8.1.1)

Verification must further ensure that the EPD background report, the LCI (statement of inputs and outputs), the EPD for parts of the life cycle (information modules) and additional environmental information (cf. ISO 14025 section 8.1.3):

- conform to the associated PCR
- conform to ISO 14040 and ISO 14044
- conform to the programme instructions of the EPD programme
- have precise, complete, representative, and reproducible data evaluation which specifies sources and uncertainty estimates
- have accurate, high-quality and precise LCA-based data
- have high-quality and precise additional environmental information
- possibly define further tasks for the EPD programme

The LCA-based information, including data and calculations, is verified following the principles for critical review in ISO 14040 and 14044. Verification should assess whether:

- The LCA (EPD background report) conforms to international standards, ISO 14040 and ISO 14044 (cf. ISO 14040, section 3.44).
- Method, data, interpretation and reporting requirements conform to LCA principles (ISO 14040, section 7.1).
- Classification, characterisation, and (if carried out) normalization, grouping and weighting are complete and documented such that it is possible to interpret the LCA (cf. ISO 14040 section 7.3.1).
- The methods used are scientifically and technically valid (cf. ISO 14044 section 6.1)

- The data used is appropriate and reasonable in relation to the goal of the study (cf. ISO 14044 section 6.1).
- The interpretations reflect the limitations identified and the goal of the study (cf. ISO 14044 section 6.1)
- The report is transparent and consistent (cf. ISO 14044 section 6.1)

3.2 Approved verifiers

Verifiers must be independent and must not have been involved in the execution of the background report or the EPD or have conflicts of interests resulting from their position in the organisation (cf. ISO 14025 section 8.2.1).

Verifiers must have the following competencies (cf. ISO 14025 section 8.2.2):

- Knowledge of relevant sector, product and product-related environmental aspects.
- Process and product knowledge of the product category.
- Expertise in LCA and methodology for LCA work.
- Knowledge of relevant standards in the fields of environmental labelling and declarations and LCA.
- Knowledge of the regulatory framework within which requirements for Type III EPDs have been prepared.
- Knowledge of the Danish environmental product declaration programme and general knowledge about Type III declarations.

Upon being appointed to perform a specific verification, verifiers must write a brief CV to be used to assess whether they fulfil the required competencies. The CV must be sent to the EPD secretariat for approval.

3.3 Reporting

Verification reporting must contain:

- Affirmation that the EPD correctly reflects the informations in the background report information (cf. ISO 14025 section 8.1.4).
- Assessment of whether the aspects specified in section 4.2 of this guide are completely described in the EPD.

The independent verifier shall report observations from the verification, taking into account the confidentiality of the data. This report shall be available to any person upon request (cf. ISO 14025 section 8.1.4).

4. Verification of EPDs

This section contains verification of EPDs in the EPD-DK.

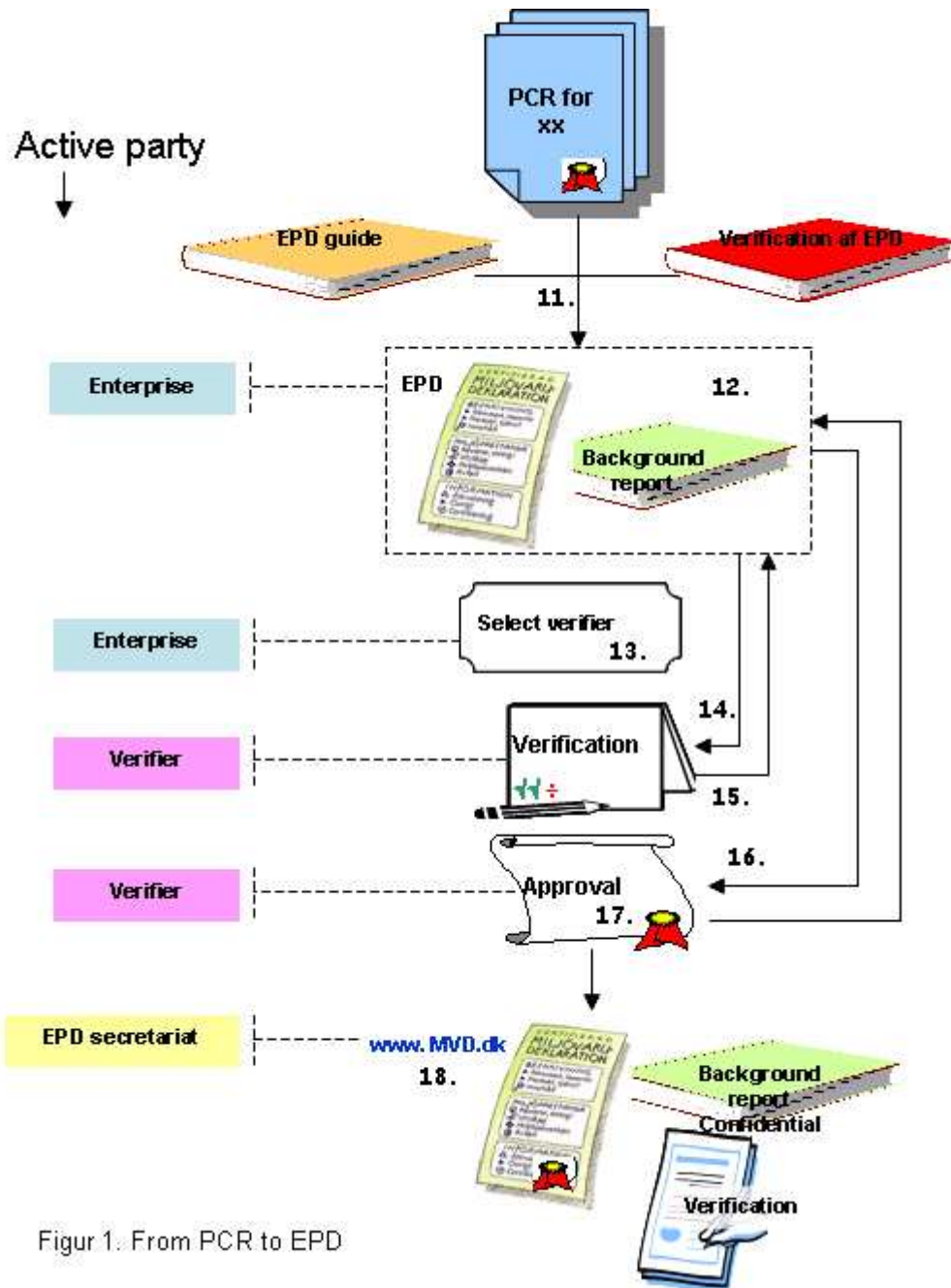
4.1 Verification process

The background report for the EPD that the enterprise prepares in accordance with the PCR and programme instructions can be a LCA.

11. The given enterprise notifies the secretariat that they wish to prepare an EPD under the programme. The EPD secretariat sends them an electronic template for the background report and EPD, the relevant PCR, and the "Verification of EPDs" guide.
12. The enterprise prepares the background report and EPD. The enterprise may contact the EPD secretariat during the process if they have questions.

13. The enterprise appoints a person from the EPD secretariat's list of verifiers to verify the enterprise's background report and EPD. The enterprise contacts the verifier to arrange a timetable for the work.
14. The enterprise sends a draft background report and EPD directly to the verifier.
15. The verifier verifies the background report and EPD in accordance with the "Verification of EPDs" guide and prepares an interim verification report and sends it to the enterprise.
16. The enterprise edits the background report and EPD and returns the documents to the verifier. If necessary, a meeting is held with the verifier.
17. Once the background report and EPD are finalised and have been approved by the verifier, he or she prepares the final verification report and sends it to the enterprise and the EPD secretariat.
18. The EPD secretariat publishes the EPD at www.mvd.dk. The background report is stored by the EPD secretariat as a reference. The background report may be treated confidentially if enterprises so wish. However, the verification report must be available to interested parties who request to see it.

The basic process, from PCR to approval of the EPD, is illustrated in Figure 1.



Figur 1: From PCR to EPD

4.2 What must be verified

To ensure good, uniform verification, the items listed below in sections 4.2.1 – 4.2.15 must be reviewed. These items have been selected on the basis of the general and product category rules of the EPD programme, based in turn on ISO 14025, ISO14040, ISO 14044, ISO 14020 and the Guide to critically reviewing LCAs (N. Caspersen, H. Wenzel 2002).

The purpose and target group are not required in the EPD, but would be relevant to include in the background report.

The following items must be verified in the EPD and the associated background report.

4.2.1 Manufacturer

- Has the manufacturer's name and contact information been supplied?
- Has a source for further information been provided?

4.2.2 The product

Does the product description contain the following information?

- The product's primary characteristics.
- The product's secondary characteristics.
- The product's content declaration in accordance with the PCR.

4.2.3 Definition of functional unit/reference unit

Is the functional unit:

- Qualitatively described based on the service?
- Quantified based on the service and durability/lifetime?
- Consistent with the functional unit prescribed in the PCR?

4.2.4 Life-cycle phases

- Does the EPD cover the life-cycle phases specified in the PCR?
- Is it clear which life-cycle phases have been omitted and which have been included?

4.2.5 Minimum requirements for system boundary setting

- Have specific boundary setting criteria been used for processes, inputs and outputs in accordance with the requirements in the PCR and programme instructions?
- Have the major boundary setting uncertainties been assessed in the background report?

4.2.6 System expansion

- Have steps been taken to ensure the system has only been subject to boundary setting for the primary product or service for which the EPD has been prepared?
- Have the secondary products, such as by-products or services been specified, and have the significant ones been eliminated from the system by deducting the services the secondary products replace in accordance with the requirements in the PCR and programme instructions?

4.2.7 Allocating common processes across several products

Have the processes common to several products and not eliminated during system expansion been allocated using the methods specified in the PCR and programme instructions?

4.2.8 Data types and sources

- Has the data prescribed in the PCR and programme instructions been used?
- Is the data appropriate for use? I.e. is it temporally representative and sufficiently precise? Is the uncertainty acceptable and are the data references reliable?
- Have the data sources been described in the background report, i.e., has data based on specific measurements, mass balance calculations and experience been used?

- Has data aggregation been correctly described and carried out? Correct data aggregation can be verified by randomly sampling the significant data aggregations.

4.2.9 LCA-based environmental information

Environmental inputs and outputs

- Have the required environmental emissions to soil, water, and air prescribed in the PCR been stated?
- Has the total resource consumption required in the PCR been stated?
- Has the total volume of waste required in the PCR been stated?
- Has the energy consumption required in the PCR been converted to primary energy and stated?
- Have the environmental impacts required in the PCR been presented in a table, divided into the defined life-cycle phases, and as a total?

Calculated environmental impacts (characterisation)

- Are the calculated environmental impacts prescribed in the PCR presented in a table, divided into the defined life-cycle phases, and as a total?
- Have environmental impacts been converted using the EDIP method factors specified in the programme instructions?
- Has the conversion been done correctly? Correct conversion can be verified by randomly sampling the significant conversions.

4.2.10 Additional environmental information

- Is the environmental information prescribed in the PCR shown in the EPD?
- Has the additional environmental information been provided as prescribed in the PCR?

4.2.11 EPD period of validity

Has space been provided to insert the EPD period of validity once verification is complete and the EPD has been approved?

4.2.12 Explanation for omitted processes, inputs and outputs

Has an accurate sensitivity assessment been performed, and does it contain the following?

- Assessment of whether the omitted processes and life-cycle phases have been omitted in accordance with the prescribed boundary setting criteria.
- Assessment of whether the included processes and life-cycle phases are significant in accordance with the prescribed boundary setting criteria.
- Assessment of whether the specified process types and data sources and types comply with the requirements in the programme instructions.
- Assessment of whether uncertainty for omission/inclusion of processes and data is acceptable.

4.2.13 Verification

- Has the name, organisation and contact information for the PCR panel chairman been stated?
- Does the EPD state that the verification has been carried out by an external verifier?
- Has the name of a third party verifier been stated?

4.2.14 EPD reporting and background reporting

- Has the EPD-DK template for EPD and the background report been used and are all sections used and fulfilled?
- Is the background report transparent and consistent?