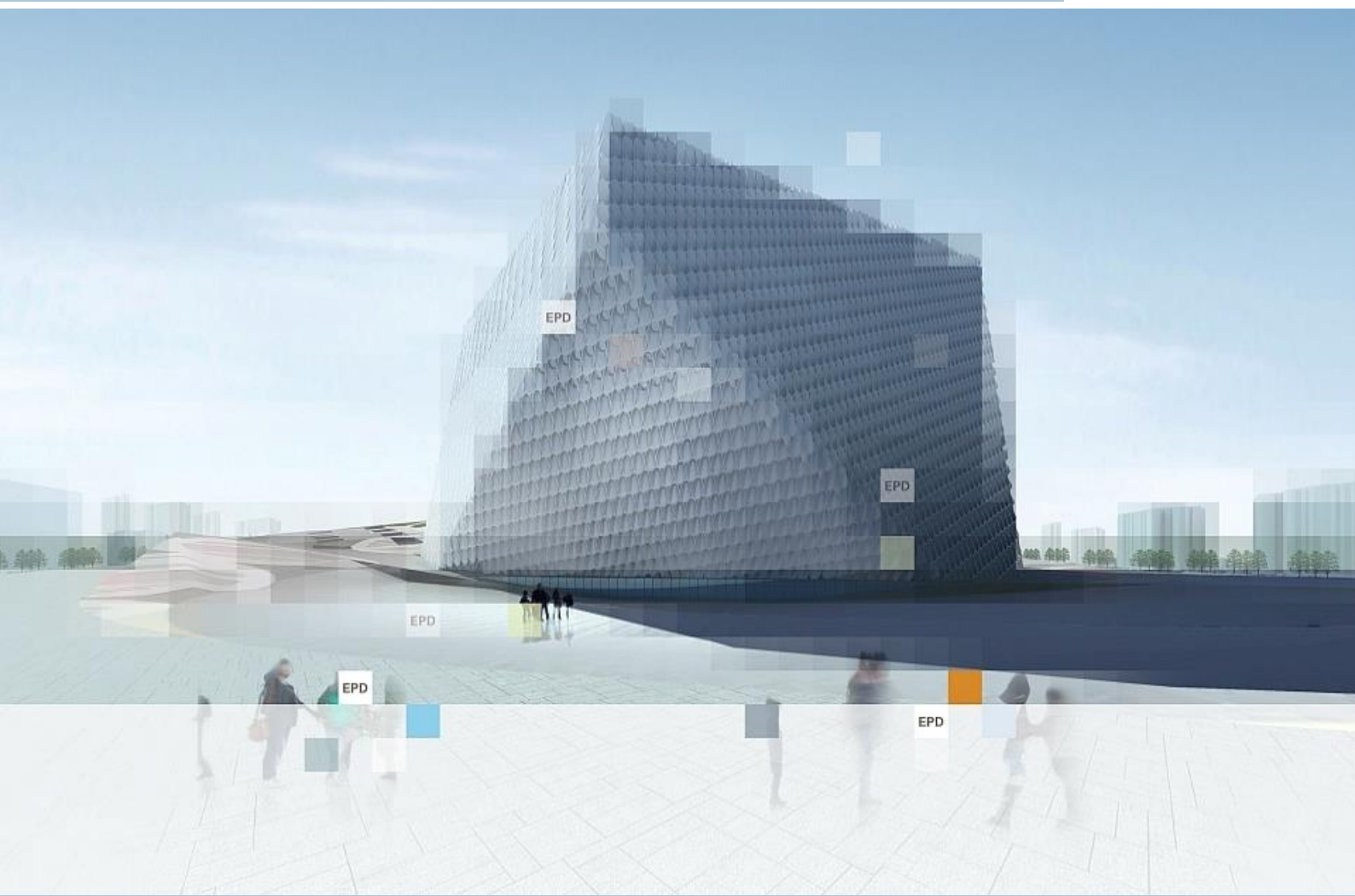


GENERAL INSTRUCTIONS

for the EPD programme of Institut Bauen und Umwelt e.V. (General Instructions for the IBU EPD programme)

Generating Environmental Product Declarations
(Environmental Product Declarations – EPDs)

Version 2.0



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(Environmental Product Declarations – EPDs)

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Tracking the versions of these *General Instructions for the IBU EPD programme*

Version	Comments	Effect
1.0	Fundamental revision and updating with implementation of the newly established verification system and renaming the SVA as SVR. This document replaces the previous “General Principles” (valid as at: 04.04.2013).	31.10.2015
1.1	Adaptations to the current version of the PCR, Part A	24.03.2016
2.0	Fundamental revision and extension	01.01.2021

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Notes

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For the purpose of improved legibility and facilitation of complex formulations, the masculine form is used throughout the document. Use of the masculine form is to be regarded as gender-neutral and expressly does not imply any discrimination, disadvantage or even preference of any gender.

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ABBREVIATIONS

AGB	General Terms and Conditions
CMR	Cancerogenic, mutagenic, reprotoxic substances
en	English
EPD	Environmental Product Declaration
IBU	Institut Bauen und Umwelt e.V.
ILCD + EPD	Specified data format for communicating digital LCA data in XML format (extending the ILCD format for EPDs)
LCA	(Environmental) Life Cycle Assessment
PCR	Product Category Rules
PCR, Part A	Product category rules for building-related products and services, Part A: Calculation rules for the Life Cycle Assessment and requirements on the background report Also: PCR guidelines, Part A
PCR, Part B	PCR guidelines for building-related products and services, Part B: Requirements on the EPD for [name of construction product] Also: PCR guidelines, Part B
SVHC	Substances of Very High Concern
SVR	Expert Council
VK	Verifier Committee
VOC	Volatile Organic Compounds
XML	Extensible Markup Language (markup language for depicting hierarchically structured data in a text file format)

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STANDARDS

EN 15804+A1

DIN EN 15804:2014-07, Sustainability of construction works – Environmental product declarations – Core rules for the construction products product category; German version EN 15804:2012+A1:2013

EN 15804+A2

DIN EN 15804:2020-03, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products; German version EN 15804:2012+A2:2019

ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and declarations – Type III environmental declarations – Principles and procedures (ISO 14025:2006); German and English versions EN ISO 14025:2011

ISO 14040

DIN EN ISO 14040:2009-11, Environmental management – Life cycle assessment – Basic principles and framework conditions (ISO 14040:2006); German and English versions EN ISO 14040:2006

ISO 14044

DIN EN ISO 14044:2018-05, Environmental management – Life cycle assessment – Requirements and instructions (ISO 14044:2006); German and English versions EN ISO 14044:2006

ISO 17029

DIN EN ISO/IEC 17029:2020-02, Conformity assessment – General principles and requirements for validation and verification bodies (ISO/IEC 17029:2019); German and English versions EN ISO/IEC 17029:2019

ISO 21930

ISO 21930:2017-07, Sustainability in buildings and engineering works – Core rules for environmental product declarations of construction products and services

Note:

As a general rule, the standards in these General Instructions for the IBU EPD programme are referred to using the abbreviated headings as indicated in the above list of standards.

1 INTRODUCTION

This document contains the general instructions of Institut Bauen und Umwelt e.V. (IBU) for its EPD programme. An EPD is an Environmental Product Declaration and therefore a type III environmental label in accordance with the international *ISO 1405* standard. This standard regulates the principles and processes for type III environmental labels but does not contain any sector-specific specifications. An EPD communicates verifiable, exact, non-misleading environmental information for products and their applications. Accordingly, it supports scientifically sound, fair decisions and creates an incentive for continuous improvement of environmental quality using the respective market mechanisms.

As a general rule, a type III environmental declaration contains life cycle assessment (LCA) data and possible additional environment-related details. Life cycle assessment data draws conclusions on environmental aspects and potential environmental impacts (e.g. use of resources and environmental impacts of emissions) over the course of a product's life, from the provision of raw materials through production, application, waste treatment, recycling and/or final disposal. Establishing the life cycle assessment data is based on the *ISO 14040* and *ISO 14044* standards which define the requisite principles, framework conditions, methods and applications.

In line with its alignment towards building-related products and services, the EPD programme of the IBU verification body is based on the European *EN 15804+A1* and *EN 15804+A2* standards as well as the international *ISO 21930* standard as an alternative, along with *ISO 14025* as sector-specific regulations. The *EN 15804+A1/A2* and *ISO 21930* standards regulate the basic requirements on EPDs for construction products and services, thereby forming the foundation for standardised quality of information in Europe and the world. These standards follow a consistently horizontal alignment which is why they can be applied for all construction products and building-related services. Apart from the essential calculation rules for the LCA, they also specify how evidence on indoor air quality and emissions in soil and water are to be managed, and set out the basis on which the data sets are to be verified.

EN 15804+A2 will replace *EN 15804+A1* as of November 2022. Both standards can be used in the meantime.

Thanks to the consistent alignment of the IBU EPD programme towards these standards, the EPDs generated within the framework of this programme comply with international requirements and can be applied across national borders.

These *General Instructions for the IBU EPD programme* take consideration of the principles and requirements on verification bodies outlined in *ISO 17029*. They and all documents developed within the framework of the IBU EPD programme are protected by copyright. The instructions are freely available and can be downloaded free of charge from the IBU website and printed (<https://ibu-epd.com>).

This document should be referred to as follows:

Institut Bauen und Umwelt e.V. (2020): General Principles for the EPD programme of Institut Bauen und Umwelt e.V., version 1.2 (<https://ibu-epd.com>)

2 AREA OF APPLICABILITY AND PROGRAMME OBJECTIVES

2.1 AREA OF APPLICABILITY

These *General Instructions for the IBU EPD programme* regulate services within the framework of generating and publishing Environmental Product Declarations (EPDs) which are listed by the verification body at Institut Bauen und Umwelt e.V. in accordance with *ISO 14025* and *EN 15804+A1*, in particular

- the provision of guidelines for generating EPDs,
- the approval of (partially) automated software systems (software tools) for generating EPDs by independent third parties in accordance with *EN 15804+A1/A2* and/or *ISO 21930* and *ISO 14025*, and
- the verification of EPDs by independent third parties in accordance with *ISO 14025* in compliance with the regulations of the *EN 15804+A1/A2* and/or *ISO 21930*.

2.2 OBJECTIVES OF THE IBU EPD PROGRAMME

The objective of the IBU EPD programme is to promote sustainable building by generating, distributing and applying EPDs. Independent, reviewed, professionally-grounded and consistent environment-related information on building-related products and services based on LCAs is made available for communication between companies and between companies and users.

IBU supports harmonisation of EPDs in Europe. The EPDs of the IBU EPD programme contain the European core EPD in accordance with *EN 15804+A1/A2* which is compatible with the ECO platform, the European platform for EPDs for construction products. As an alternative, the EPDs of the IBU EPD programme can contain the international core EPD in accordance with *ISO 21930*. The verification body at IBU ensures compliance of its PCR guidelines with these standards and also ensures the requisite updates of its documents.

2.3 SCOPE OF THE IBU EPD PROGRAMME

The EPDs generated using the Institut Bauen und Umwelt e.V. programme involve so-called type III Environmental Product Declarations in accordance with *ISO 14025* in combination with product group-specific standards, primarily *EN 15804+A1/A2* and/or *ISO 21930* for building-related products and services.

Building-related products are materials, products, components, construction kits or construction systems produced for the manufacture or use of a building or structure.

Building-related services are, e.g. the provision of heat or cleaning and maintenance work.

The programme is available to all interested groups, in particular companies manufacturing construction products or building-related products. Participation in the IBU programme is voluntary.

3 ORGANISATION OF THE IBU EPD PROGRAMME

3.1 PROGRAMME BODIES

The verification body at Institut Bauen und Umwelt e.V. is a specified part of Institut Bauen und Umwelt e.V. which is the owner of the programme outlined in this document. It is responsible for managing and operating the programme and makes decisions on issuing verification statements. Its individual tasks are outlined in section 5.3.

The verification body must be advised by the independent Expert Council (SVR) with respect to all questions on the EPD programme and professional further development thereof. The SVR has the tasks outlined in section 6.3. It advises the verification body in terms of compliance of the programme rules and documents with the relevant standards and also confirms the professional suitability of the verifiers charged with verifying EPDs and approving software tools within the framework of the IBU EPD programme.

The verifiers are independent third parties with verified specialist qualifications and experience who are not employees of Institut Bauen und Umwelt e.V. but rather commissioned by its verification body to verify EPDs and approve software tools for generating EPDs. The requirements on verifiers are outlined in section 8. In order to further develop verification practices, the verifier committee is formed from among their circle whose tasks are outlined in section 7.1.

Commissioning external verifiers ensures that the verification body responsible for issuing verification statements is not involved in planning and implementing the respective verification process.

The verification body at IBU reports to the IBU Board of Management on the recommendations of the SVR within the framework of its advisory activity. The Board is entitled to reject these recommendations. Furthermore, the Board is also responsible for appointing and dismissing the members of the SVR.

All IBU bodies are committed to its goal of making and supporting professional, independent and impartial verification decisions.

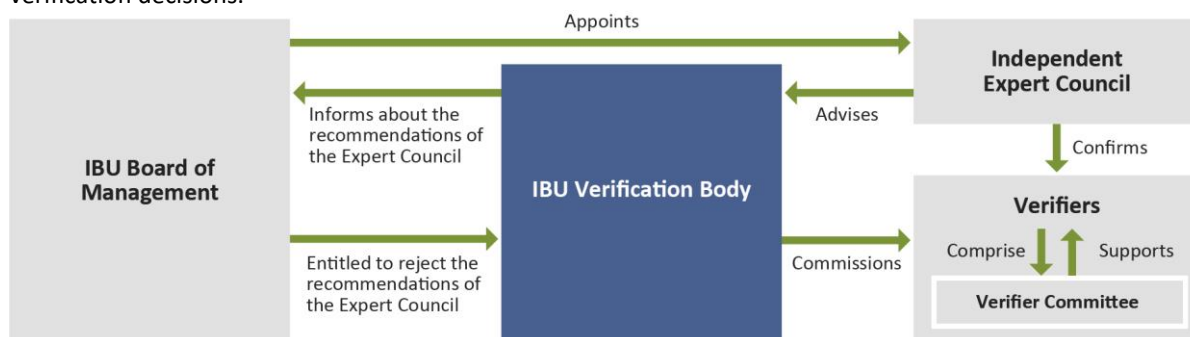


Fig. 1: Bodies of the IBU EPD programme and their essential functions

3.2 INCORPORATING INTERESTED PARTIES AND THE PUBLIC

By advising the IBU verification body in maintaining and further developing the IBU EPD programme, the Expert Council (SVR) comprising experts from various institutions such as universities, administrative bodies and private companies incorporates interested parties in programme operation. The Product Category Rules (PCR guidelines, Parts A and B) drawn up or reviewed by the Expert Council for generating EPDs (see section 10) are widely disclosed and made available for comment in accordance with ISO 14025.

This is done by publishing the documents in the IBU database system (<https://epd-online.com/>) and on the IBU website (<https://ibu-epd.com/ibu/sachverstaendigenrat-svr/sachverstaendigenrat-beschluesse/>), ensuring that all interested parties are incorporated. The internet-based forum (<https://ibu-epd.com/forums/forum/ibu-pcr-forum/>) offers an opportunity for all interested persons to make comments. Comments by interested parties are recorded by the IBU verification body and directed to the independent Expert Council and to the respective product group committee (see section 10.1) for discussion, review and assessment.

4 GENERAL RULES OF THE IBU EPD PROGRAMME

4.1 NORMATIVE BASES OF THE PROGRAMME

Environmental Product Declarations which are positively verified and published within the framework of the IBU EPD programme comply with the international *ISO 14025* standard on type III Environmental Product Declarations. The requirements for building products and building-related services are further specified by the *EN 15804+A1/A2* and/or *ISO 21930* standards.

Compliance by the programme with standards and compliance of the EPDs with the PCR guidelines (see section 10) is ensured by the IBU verification body in collaboration with the Expert Council (see sections 5.3 and 6).

4.2 KEY DOCUMENTS

The following documents are of relevance for generating and verifying EPDs within the framework of the IBU EPD programme:

- these *General Instructions* for the IBU EPD programme,
- PCR guidelines, Part A: “Calculation rules for the Life Cycle Assessment and requirements on the Background Report”,
- specific PCR guidelines, Part B: “Requirements on the EPD” which is to be applied for building products with similar requirements and functions (product group and/or product category),
- the General Terms and Conditions (AGB) of IBU,
- the IBU Articles of Association (statutes, bylaws and fees regulation).

4.3 CONTRACTUAL BASES AND ASSIGNMENT

The client commissions Institut Bauen und Umwelt e.V. to either verify an Environmental Product Declaration (EPD) or review a limited individualised EPD or to approve a software-based tool for generating EPDs. This assignment is implemented by the verification body at Institut Bauen und Umwelt e.V. as part of Institut Bauen und Umwelt. With the exception of EPDs from approved EPD tools, EPDs must be reviewed and verified using the IBU online tool (<https://epd-online.com>). Tools to be approved must be registered via the IBU online tool. Unless otherwise agreed, assignments for verifications and approvals are issued via the IBU online tool.

As the owners of an Environmental Product Declaration can only be the manufacturer of the declared product or a group of manufacturers, the assignment for EPD verification or tool approval is only awarded by the later owner of the Declaration or his legally authorised representative. When accepting an assignment, the IBU verification body can assume the legally effective authorisation of a third party.

A verification is assigned when an EPD generated is approved for verification by a client in the IBU online tool. Approval of a software tool is assigned analogously by redirecting the tool for approval via the IBU online tool. Each time an assignment is awarded to the IBU verification body, the client acknowledges and is bound by the essential contractual bases.

These are:

- the General Terms and Conditions (AGB) of IBU,
- the IBU programme rules (these *General Instructions for the IBU EPD programme*, the instructions PCR, Parts A and B), and
- the IBU Articles of Association (statutes, bylaws and fees regulation).

Clients wishing to participate in the IBU EPD programme are required to pay the respective fees according to the applicable fees regulation.

4.4 PROGRAMME FEES

The cost rates for services provided by the IBU verification body are published in the Institut Bauen und Umwelt e.V. fees regulation.

4.5 PREVENTING MISUSE OF THE PROGRAMME AND LOGO

The generally applicable laws protecting intellectual property and the regulations agreed in the IBU bylaws shall apply. If IBU and/or the IBU verification body discovers misuse relating to the programme and/or logo, IBU will be obliged to pursue it in accordance with the IBU bylaws.

IBU publishes information regarding the misuse of the EPDs issued via the IBU EPD programme and misuse of the trade mark on the programme owner's websites under the heading "News".

4.6 MUTUAL RECOGNITION OF OTHER PROGRAMMES

Institut für Bauen und Umwelt e.V. maintains mutual recognition of other specified programmes for generating verified EPDs on the basis of ISO 14025, EN 15804+A1/+A2 and ISO 21930. Agreements governing mutual recognition comprise the following contents:

- scope of mutual recognition (e.g. restriction to certain product categories),
- structure of licence fees,
- process for harmonising and developing PCR,
- review processes,
- process for registering and publishing EPDs,
- process for ensuring the validity of mutual recognition.

The list of current agreements governing mutual recognition is available at www.ibu-epd.com.

4.7 LANGUAGE

The reference language for the IBU programme is German. All important documents in the IBU EPD programme are also made available in English. EPDs can also be generated in English. The translation of EPDs into other languages is supported.

5 IMPLEMENTING THE IBU EPD PROGRAMME

5.1 OWNER OF THE IBU EPD PROGRAMME

Institut Bauen und Umwelt e.V. is the owner of the IBU EPD programme. Institut für Bauen und Umwelt e.V. bears overall responsibility for managing and operating the programme. The IBU EPD programme is implemented by the IBU verification body, whereby the verification body is supported by the Board of Management at IBU (see section 3.1), internal personnel, external verifiers and the Expert Council (SVR).

5.2 COMPETENCE OF INTERNAL PERSONNEL AT THE VERIFICATION BODY

Internal personnel at the IBU verification body has the requisite administrative and specialist competencies for managing and operating the programme. These include:

- basic knowledge of life cycle analyses, critical reviews of LCAs and verification of EPDs,
- knowledge of the product-related environmental aspects in the construction sector,
- detailed knowledge of the IBU EPD programme and its rules,
- detailed knowledge of the relevant standards and norms for environmental labels and declarations and LCAs,
- detailed knowledge of the relevant standards for conformity assessment and verification activities, and
- knowledge of quality management methods.

5.3 TASKS OF THE VERIFICATION BODY

The tasks of the IBU verification body can be allocated to the following four areas:

- programme administration,
- developing the PCR guidelines,
- generating EPDs, and
- approving software tools for generating EPDs and implementing the verification of EPDs.

The IBU verification body carries out the following individual tasks for Institut für Umwelt und Bauen e.V.:

Programme administration:

- Drawing up, maintaining and communicating these *General Instructions for the IBU EPD programme* including the development of basic rules and processes,
- Monitoring the development of the standards based on the IBU EPD programme and organising any requisite adaptations of the programme documents in collaboration with the SVR,
- Implementing, maintaining and documenting the process for continuous improvement of the programme,
- Compiling and publishing the SVR recommendations intended for the public,
- Incorporating interested parties in the form of open consultation (see sections 3.2 and 10.1),
- Checking that these *General Instructions for the IBU EPD programme* are followed,
- Managing and updating the programme website, the IBU online tool and the database system,
- Managing confidential manufacturer information,
- Updating the templates and basic documents as well as publishing on the IBU website,
- Reviewing the application documents by potential verifiers for completeness and specialist competence on the part of the applicant,
- Appointing and registering verifiers confirmed by the SVR,
- Safeguarding a sufficient number of verifiers,
- Reviewing the specialist competence of SVR members to be appointed,
- Proposing members for the Verification Committee (VC),
- Clarifying questions arising during the verification process with the VC if the tasks of the SVR are not affected,
- Documenting the questions and recommendations of the VC, informing the verifiers of VC draft resolutions for the SVR,
- Offering further training measures,

- Informing the Board of Management of the recommendations of the SVR and informing the SVR if these recommendations are rejected by the Board,
- Restricting the use or declaring the invalidity of and/or revoking EPDs and excluding manufacturers from participation in the IBU EPD programme in justified cases, and
- Responding to objections and complaints, possibly by involving the SVR.

PCR guidelines:

- Commissioning the independent Expert Council as an independent third party to draw up and update and/or review the PCR guidelines and co-ordinating the process (see sector 6.3),
- Examining the recommendations of the SVR on the PCR guidelines and updating the PCR guidelines,
- Proposing product groups for which PCR guidelines, Part B, are formulated and making text templates available for drawing up EPDs,
- Supporting the working groups in which product group-specific PCR guidelines, Part B, are drawn up on the basis of the template of the IBU verification body (see section 10.1), and
- Publishing the PCR guidelines and handling the comments in public circles.

Generating EPDs:

- Being available as a contact partner for manufacturers wishing to generate an EPD,
- Supporting the manufacturers in matters relating to the declaration system and, where desired, in the neutral selection of suitable consulting companies ("LCA auditors") for recording the data, calculating the LCAs or creating software tools,
- Safeguarding the quality of EPDs by means of a final review, insofar as the EPD has been generated in the IBU online tool (this is generally the case except for EPDs created with EPD tools). Within the framework of the final review, the document is reviewed in terms of orthography and language by a specialist agency and it is examined for plausibility and completeness by the Managing Director of IBU or his representative, and
- Supporting the digitalisation processes.

Verification of EPDs and approval of software tools:

- Commissioning the verifier confirmed by the SVR as an independent third party with planning and implementing verification of an EPD and/or approving a software tool for generating an EPD,
- Allocating an EPD to be verified or a tool to be approved to a verifier,
- Examining and evaluating the verification and approval reports submitted by the verifiers for completeness, suitability and compliance with these *General Instructions for the IBU EPD programme*,
- Examining the reasons if an EPD cannot be verified or a tool cannot be approved,
- Deciding on and issuing the approval and/or verification statement,
- Issuing the registration and/or declaration numbers, the association's logo and period of validity for verified EPDs,
- Publishing verified EPDs in the IBU database system and in other databases, and
- Ongoing monitoring of validity.

6 THE INDEPENDENT EXPERT COUNCIL (SVR)

6.1 MEMBERS OF THE SVR

The independent Expert Council (SVR) usually comprises between 8 and 11 natural persons. The SVR is comprised of members from the areas of the environmental and construction authorities, the construction sector, test facilities, standardisation, science and environmental associations. The members of the SVR are listed by name on the IBU website.

The Board at IBU appoints the members of the SVR at its own proposal or at the proposal of the SVR, whereby the Board ensures that the appointed member has sufficient specialist competence in accordance with section 6.2 and that the SVR as a whole has an adequate combination of perspectives and competencies relating to the interested parties.

A member belongs to the SVR for a consultation period of 5 years. Re-election is possible.

The members of the SVR participate in the meetings in person. They are entitled to vote, as well as being independent and impartial. A proxy with voting rights is only possible in justified exceptions.

The SVR appoints a chairman from among its members. This person chairs the SVR meetings and acts as an arbitrator in disputes within the SVR.

The chairman of the Verifier Committee must be a member of the SVR.

Involvement in the SVR is non-remunerated. Expenses are remunerated.

6.2 COMPETENCIES OF SVR MEMBERS

The members of the Expert Council display the following competencies:

- Background knowledge on relevant sectors of the construction industry and on product-related environmental aspects,
- Basic knowledge of LCAs,
- Knowledge of the *ISO 14025*, *EN 15804+A1/A2* and *ISO 21930* standards and norms of relevance for environmental labels and declarations and LCAs as well as the legal environment in their scope of application, and
- Knowledge of the IBU EPD programme.

6.3 TASKS OF THE SVR

The Expert Council (SVR) advises the IBU verification body with regard to compliance of these *General Instructions for the IBU EPD programme with ISO 14025*.

The SVR draws up recommendations for the PCR guidelines, Part A, in compliance with *EN 15804+A1* and examines the PCR guidelines, Part B, for compliance with *EN 15804+A1/A2* and/or *ISO 21930* on behalf of the IBU verification body in order to supply comparable and consistent EPDs in the IBU EPD programme.

PCR, Part A, outlines the calculation rules for an LCA based on the EPD in compliance with *EN 15804+A1/A2* and/or *ISO 21930* and the requirements on the documentation for the LCA in a background report (project report). This includes details concerning

- specifying the scope and objectives of the LCA study on which the EPD is based,
- specifying the functional or declared unit,
- selecting the modules to be declared, their system boundaries and allocating processes to modules,
- horizontal allocation and calculation rules, and
- product group-specific rules for the LCA.

The various B-parts are examined by the SVR in terms of compliance with the specific requirements on Environmental Product Declarations for the respective product groups. This entails examination in terms of

- compliance with the *EN 15804+A1/A2* and/or *ISO 21930* and the applicable Part A concerning the details on the scope of application of the EPD,
- completeness and appropriateness of the information required in terms of the description of the product and application thereof,
- compliance of the information on the LCA with the specifications of the standards of relevance for the IBU EPD programme,
- completeness of the technical information supplementing the LCA,
- completeness and appropriateness of transport, installation, usage and end-of-life scenarios, and
- sound scientific justification of the supplementary information.

The SVR also advises the IBU Board and verification body with regard to the development and interpretation of the relevant standards.

The Expert Council supports the verification body in the selection of suitable verifiers by

- examining within the framework of a personal discussion with the verifiers the requirements on their qualification formulated in these *General Instructions for the IBU EPD programme*,
- conducting two verification processes under supervision (see section 8.2),
- conclusively addressing the report by supporting verifiers on supervision, and
- recommending the measures to be regarded as suitable further training for the verifiers.

Following examination of their competence by the IBU verification body and confirmation of their suitability by the SVR, the verifiers are appointed and registered by Institut für Bauen und Umwelt e.V.

Furthermore, the SVR is entitled to recommend that the verification body releases verifiers from their activities, e.g. if the verifier has been inactive for 2 years (e.g. by non-participation in compulsory verifier meetings (see section 8.3)).

The SVR has the possibility to view the verification and approval documents, i.e. background reports, EPDs and possibly evidence on the part of the manufacturer on the respective LCA data. The SVR must treat as confidential all manufacturer data and information of which it becomes aware. It is to be included in specialist dispute topics on EPDs and tools in an effort to clarify the respective matter (see section 12.6).

The SVR compiles certain recommendations intended for public disclosure in a document which is continuous and sorted by topic. The IBU verification body makes the respectively current compilation of these documents publicly available to the SVR in a suitable manner. This is done by publishing on the IBU website (<https://ibu-epd.com/ibu/sachverstaendigenrat-svr/sachverstaendigenrat-beschluesse/>) and in the IBU database system (<https://epd-online.com>). Insofar as they can be described as general explanations or notes, experience gained from verifications is included therein.

7 THE VERIFIER COMMITTEE

The Verifier Committee (VC) comprises at least 2 natural persons who have independently conducted at least 20 verifications within the framework of the IBU EPD programme at the time of joining the Committee. The VC appoints its members itself. Institut für Bauen und Umwelt e.V. has a right of proposal which is exercised by the IBU verification body.

The VC appoints a chair from among its own members.

7.1 TASKS OF THE VERIFIER COMMITTEE

The goal of the work of the VC is to further develop a standardised and professionally grounded practice of verification. The VC

- is the contact partner for questions arising on the part of the verifier during the verification process,
- conducts a meeting at least once a year, possibly in electronic form, in which questions relating to practical verification and further training of the verifiers are clarified,
- draws up draft resolutions for matters for which the SVR is responsible (SVR responsibility is derived from these tasks. The SVR is particularly responsible for matters which concern fundamental aspects of interpretation of the PCR, Parts A and B, and these *General Instructions for the IBU EPD programme* or changes thereto.),
- co-ordinates with the IBU verification body to clarify matters from the verification process if the tasks of the SVR are not affected, and
- notifies the verifiers of recommendations for the verification process and further training measures within the framework of the annual verifier meeting to which all verifiers are invited by the IBU verification body.

7.2 SUPPORT BY THE IBU VERIFICATION BODY OF THE VERIFIER COMMITTEE

The IBU verification body documents questions and decisions by the VC.

The VC draft resolutions for the SVR are collected by the IBU verification body, compiled in a document and passed on to the SVR for a decision and to the verifiers for information purposes.

Relevant questions and decisions on the part of the VC are made accessible to the public appropriately by the IBU verification body in co-ordination with the VC.

8 VERIFIERS

8.1 REQUIREMENTS ON VERIFIER QUALIFICATIONS

The minimum requirements on verifier competence are:

- an engineering or science degree (from a university or advanced technical college) or equivalent training,
- knowledge of the product-related environmental aspects in the construction sector; evidence of at least 3 years of environmental work experience in the construction sector or a related professional field or at least 3 years of professional experience in building-related environmental analyses or environmental management,
- knowledge of processes and products in the sectors which IBU covers with the EPDs,
- expertise in LCA methods and knowledge of the respective standards; evidence in the form of three LCAs in various product categories and evidence of independent application of LCA calculation programmes (e.g. with GaBi, Umberto, SimaPro),
- knowledge of critical LCA reviews and/or verification of EPDs by equivalent programme owners or operators, whereby this is the case if the verifiers-to-be have carried out at least 3 verifications of EPDs in programmes with which the IBU verification body has agreed mutual recognition (or the equivalent), or has carried out at least 3 critical reviews of LCAs,
- knowledge of the respective standards in the area of environmental labels and declarations, and
- knowledge of the IBU EPD programme and its rules.

8.2 APPROVAL PROCESS FOR VERIFIERS

The approval process for new verifiers in the IBU EPD programme entails the following steps:

- The application papers by a potential verifier received by the IBU verification body are examined there for completeness and professional competence.
- Complete documents are presented to the SVR. If fundamentally suitable, the applicant is invited for an interview with the SVR.
- Only following a successful interview with the SVR can the applicant commence with two verifications under the supervision of an experienced IBU verifier (min. 20 EPDs reviewed). The report on verifications under supervision is submitted to the SVR. The SVR uses it as a basis to recommend approval of the verifier with IBU.
- The IBU verification body appoints and registers the respective verifier for Institut für Bauen und Umwelt e.V. and publishes his name on the IBU website after reviewing the recommendation of the SVR.

8.3 REQUIREMENTS ON FURTHER TRAINING FOR VERIFIERS

Verifiers involved in the IBU EPD programme must undergo regular further training. This entails at least participation in the annual verifier meeting.

If further training measures are offered by the IBU verification body or the Verifier Committee, participation shall also be compulsory for all verifiers. If a verifier repeatedly refuses to participate in further training measures, he will be excluded from verification within the framework of the IBU EPD programme unless he provides evidence of further training undergone elsewhere.

9 IBU EPD PROGRAMME ENVIRONMENTAL PRODUCT DECLARATIONS (EPDS) AND GENERATION THEREOF

9.1 STRUCTURE AND CONTENT OF EPDS

EPDs in the IBU EPD programme have a uniform structure and contain at least the content specified in the *EN 15804+A1/A2* and/or *ISO 21930* (core EPD). The core EPD can be supplemented to include additional specified information which is specified in the respective PCR guidelines, Part B (IBU EPD).

The contents of the EPD must be generated by the manufacturer in accordance with the requirements of the generally applicable PCR guidelines, Part A, and the PCR guidelines, Part B, of relevance for the respective product group, regardless of whether it involves a core EPD or an IBU EPD.

The LCA-based information in an EPD can contain the following in line with the specifications in the standards referred to above:

- Only the product stage: Such an EPD comprises the provision of raw materials, transport and manufacturing with the associated processes. This EPD is referred to as “from cradle to plant gate” and is based on information modules A1 to A3.
- The product stage and selected other life cycle stages: Such an EPD is referred to as “from cradle to plant gate, with options” and is based on information modules A1 to A3 plus other modules, e.g. the modules for the construction phase A4-A5, the modules for the disposal phase C1 to C4, and information module D on credits and encumbrances outside the system boundary.
- The life cycle of a product: In this case, the EPD comprises the product stage, installation in the building, application and maintenance, replacement, demolition, waste management for reuse, recovery, recycling and landfilling. Such an EPD is referred to as “from cradle to grave”. All A1-C4 information modules are taken into consideration. Information module D can be incorporated in this EPD. In this case, the EPD is referred to as “from cradle to grave, including Module D”.

More information on the LCA information in an EPD and the contents of the information modules is available in *EN 15804+A1/A2* and/or *ISO 21930*.

9.2 ADDITIONAL INFORMATION IN IBU EPDS

An IBU EPD must contain additional information on the product as well as the LCA calculation rules and LCA results.

The following additional information on the product must be provided in an IBU EPD:

- delivery status,
- more detailed information on SVHC, CMR and biocides,
- manufacture,
- environment and health during production,
- product processing/installation,
- environment and health during processing and installation,
- packaging,
- condition of use,
- environment and health during use,
- extraordinary effects (fire, water, mechanical destruction),
- reuse phase,
- disposal, and
- evidence (if relevant for the product group, e.g. on VOC emissions and leaching).

Furthermore, an IBU EPD must also contain the following information on the LCA calculation rules and LCA results:

- estimates and assumptions,
- cut-off criteria,
- background data,
- data quality,
- period under review,
- allocation, and
- interpretation of the LCA results (text).

9.3 TYPES OF EPDS AND CLASSIFICATION OF PRODUCTS

9.3.1 Overview

Within the framework of the IBU EPD programme, both individual manufacturers and groups of manufacturers can declare their products. Accordingly, a distinction is made between manufacturer declarations and manufacturer group declarations. Manufacturer groups can be, e.g. associations. Both manufacturer declarations and manufacturer group declarations can be specific, average, representative or so-called model declarations which are explained in Fig. 2. In the case of manufacturer group declarations, manufacturers have the possibility of individualisation with the possible scope depending on the type of declaration.

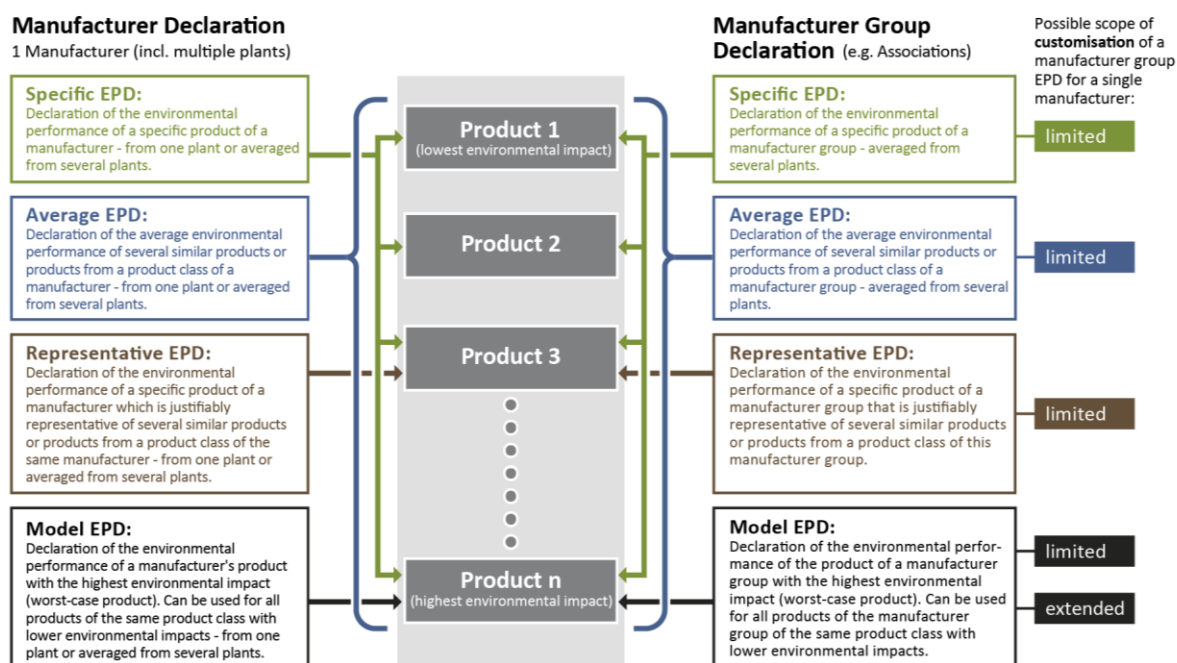


Fig. 2: Types of Environmental Product Declarations in the IBU EPD programme

9.3.2 Manufacturer declarations

Manufacturers have the possibility to declare the environmental performance for a specific product (specific EPD) or for the average of a class or group of products (average EPD). If the product or product group is manufactured in various plants of the manufacturer's, it is possible to declare the environmental performance on the basis of the average values of various plants.

Furthermore, a manufacturer can select a (typical) product which is representative for a certain product class and declare the environmental impacts for it representing the entire product class (representative EPD). The selection of the representative product must be justified.

Furthermore, a manufacturer also has the possibility to draw up a so-called model EPD for his products in accordance with section 9.3.5. This Declaration refers to the product with the greatest environmental impacts

(worst-case product) and can therefore also apply for the manufacturer's products which have lower environmental impacts. The worst-case product can also be a virtual product which is declared as a representative for real products.

In the event of average and model EPDs as well as representative EPDs, there is a requirement that the products depicted here must be comparable. They must comply with the same function and belong to the same product class. The requirements listed in section 9.3.4 must be observed.

9.3.3 Manufacturer group declarations

Manufacturer groups can declare products in joint declarations. These manufacturer group EPDs are also referred to as sector EPDs or association EPDs.

The manufacturers and product names integrated in the LCAs of the manufacturer group EPDs must be listed in the background report to the EPD.

Within the framework of the IBU EPD programme, the same types of declarations are considered for manufacturer groups as for individual manufacturers. Accordingly, it is possible to declare the environmental performance for specific products (specific EPD), for the average of a product family (average EPD), for a representative (typical) product (representative EPD) or for the product of a product group with the greatest environmental impacts (model EPD). In the event of average and model EPDs as well as representative EPDs, there is a requirement that the products depicted here must be comparable. They must comply with the same function and belong to the same product class. The selection of the representative product must be justified. The requirements listed in section 9.3.4 must be observed. Section 9.3.5 must be observed when generating model EPDs.

Note: Where these *General Instructions for the IBU EPD programme* refer to a manufacturer as a client or declaration owner, this also always means manufacturer groups as declaration owners.

9.3.4 Classifying products to be declared jointly

Declaring the environmental performance of various products in a joint EPD can reduce the effort for a manufacturer and take the form of an average, model or representative EPD. This requires the products to belong to the same product class or product group.

As a general rule, it is up to the respective manufacturer to classify his products under the conditions that

- classification is transparent and described in a comprehensible manner and
- the values of the LCA can be derived from the product class in line with the rules to be documented (e.g. by conversions in terms of density, volume etc.) and
 - the average environmental impacts of the product group (average EPD) or
 - the environmental aspects of a representative product with justification of representativity including selection of the typical characteristics (representative EPD) or
 - the product with the greatest environmental impacts (model EPD) are declared.

Classification is part of the verification content. The selection of products covered by an average EPD, a representative EPD or a model EPD must be described. Apart from a general product description, the names of the products and/or product groups including all product codes are to be generally indicated in the EPD. This ensures that the ensuing average EPD, representative EPD or model EPD contains sufficient information for the products covered by the EPD and it can be used in a building LCA.

9.3.5 Model EPDs

For products whose material composition is essentially the same, the product with the greatest potential environmental impacts (worst-case product) can be selected and declared as representative for every other product in the same class or group. This type of declaration is also referred to as a worst-case EPD. Typically, model EPDs are generated by associations which use them to support their members on the topic of sustainability and with the aim of making such model EPDs available to all members.

The following regulations apply for generating model EPDs:

- The process and criteria for the definition of a product class must be described in the EPD background report. This requires indications of the product description, composition of ingredients, typical areas of application and technical product features.
- The scope of applicability of the model EPD must, as described below, be defined by specifying the product with the greatest environmental impacts (worst-case product) either via the derivation of maximum values for the main drivers of the LCAs of products in the product group under review or via the development of a points system.
- Furthermore, guidelines must be drawn up which serve the manufacturer and/or association members or a manufacturer group as guidelines on how they can determine for their specific product whether it falls under the scope of applicability of the model EPD and can be used for the product. The guidelines can refer to either the naming and explaining of maximum values for parameters and/or the points system.
- The approach for implementing the rules outlined above must be described in the background report on the model EPD.
- The EPD of the worst-case product must depict in a transparent manner the impact categories and life cycle inventory analysis data displaying the greatest environmental impacts.

9.3.5.1 Deriving maximum values for the main drivers of product LCAs

Maximum values for the main drivers of the product LCAs are derived as follows:

- For the product group under review, the potential environmental impacts for all indicators and the respective modules to be declared must be evaluated and described with regard to their material composition, process-related parameters (e.g. energy consumption) or conceivable scenarios across the entire life cycle (e.g. transport distances) for as many different products as possible. This preliminary analysis serves towards determining the environmental indicators of particular relevance, the inputs and outputs contributing most to these environmental impacts (so-called drivers), and validity for a certain geographical region. The drivers determined as essential must account for at least 80% of the environmental impact per indicator.
- The LCA is often influenced by only a few drivers. Technically justified maximum values are specified for these drivers which, when combined, lead to a worst-case result. If the LCA result is dominated, e.g. by heat consumption, electricity consumption and the use of two primary materials as essential drivers, realistic maximum values are specified for electricity and heat consumption with which the LCA is then calculated. The more predominant of the two primary materials is analysed with a maximum share of the product from a technical perspective; the second of the two primary materials is analysed for the remaining material volume of the product.
- If the result of this consideration does not correspond with a worst-case consideration for all indicators of the impact estimate, supplementary worst-case estimates can be made for individual indicators and the corresponding maximum values defined. Alternatively, a points system can be developed in accordance with section 9.3.5.2.

9.3.5.2 Developing a points system

As an alternative to deriving maximum values, the products with the greatest environmental impacts can be specified using a points system. This requires the following steps:

- For a product in a product class or group whose material composition makes it representative for a variety of similar products in the product group (typical or representative product), the potential environmental impacts for all indicators and the respective modules to be declared must be evaluated and described first. This preliminary analysis serves towards determining the environmental indicators of particular relevance, the inputs and outputs contributing most to these environmental impacts (so-called drivers), and validity for a certain geographical region. Essential drivers include all data sets totalling up to 80% of the environmental performance per indicator.
- For the development of a points system on the basis of which the impacts of the inputs and outputs recognised as drivers on the selected potential environmental impacts (the respective indicator results) of the products in a group can be compared and weighed against each other, LCA results must be calculated for the product selected as representative of the product group and for the environmental indicators regarded as of relevance. Scaling and possibly weighting are used to establish scores for all inputs and outputs of the relevant processes.

- The points system thus established must be used for all products within the product group. For this, the scores for the individual inputs and outputs are multiplied by the respective product inputs (ingredients and raw materials) and outputs (emissions). The points thus calculated are added. The product for the product group with the highest total number of points is defined as the worst-case product.

A detailed explanation of generating model EPDs with development of a points system can be found in Annex A.

9.3.6 Individualisation of manufacturer group declarations

Member companies of associations may individualise their manufacturer group EPDs, whereby a distinction is made between so-called limited individualisation which is possible for average, model and representative EPDs and so-called extended individualisation which is only possible for model EPDs. Individualisation must be registered with the verification body. The verification body generates a copy of the EPD to be individualised which the manufacturer can then edit in the IBU online tool. This is also used for commissioning the verification body with the review and/or verification and publication of the individualised EPD. The manufacturer must submit to the IBU verification body confirmation from the manufacturer group on which the EPD is based when registering individualisation to the effect that he is entitled to implement individualisation.

9.3.6.1 Limited individualisation (without verification)

Limited individualisation of an average, model or representative EPD by a manufacturer group is conditional to the individualising manufacturer having been involved in generating the manufacturer group EPD, i.e. his plant data has been incorporated in the EPD LCA. However, the manufacturer group (e.g. association) generating the EPD to be individualised can also specify deviating regulations from this. These must be indicated in the background report on the manufacturer group EPD and examined by the verifier. Limited individualisation enables the manufacturer to indicate his name and logo on the manufacturer group EPD. The following framework conditions apply in this case:

- Ownership of the declaration remains within the association and is indicated on the front page of the EPD.
- The logo of the association as the owner of the declaration must be depicted on the front page of the EPD. Furthermore, the name of the manufacturer as well as his logo (embedded in the large product image) and specific product names can also be indicated. The corporate logo and the association logo on the front page must not be larger than the IBU logo.
- The name and number of the respective manufacturer group EPD and the name of the declaring manufacturer group must be indicated in the area of applicability of the EPD.
- The contents of the manufacturer groups (page 2 ff) after the front page may not be changed in the individualised EPD.
- The date of applicability of the individualised EPD must correspond with the applicability of the manufacturer group EPD. The issue date corresponds with the publication date.

As an option, the manufacturer can create a PDF attachment with additional product information (e.g. dimensions, technical features, processing or even references to the manufacturers' pages in brochures, declarations of performance etc.) and publish it in the IBU online tool as an annex to the individualised EPD.

The IBU verification body examines the changes made by the manufacturer for correctness, supplements the original declaration number to include the company identifier of the individualising company and updates the year and EPD serial number. Re-verification does not take place.

More extensive individualisation of average and representative EPDs of manufacturer groups such as changing the ownership of the declaration and other EPD content after the front page is not possible.

9.3.6.2 Extended individualisation (with verification of type D)

Manufacturers can individualise model EPDs (worst-case EPDs) of a manufacturer group to their specific product and publish in their own name. The following framework conditions apply in this case:

- Ownership of the declaration is transferred to the manufacturer and is indicated on the front page of the EPD.

- The name and number of the respective manufacturer group EPD and the name of the original declaring manufacturer group must be indicated in the area of applicability of the EPD.
- The manufacturer can make changes to details on the specific features of his product, manufacturing thereof and his organisation.
- Insofar as product-based evidence is required in the PCR, this must be obtained by the manufacturer for his specific product and included in the EPD.
- Furthermore, the contents of the manufacturer groups (page 2 ff) after the front page may not be changed in the individualised EPD.
- The date of applicability of the individualised EPD must correspond with the applicability of the manufacturer group EPD. The issue date corresponds with the publication date.

An extended individualised EPD based on a verified model EPD runs through a simplified type D verification process (see section 12) as it is based on an EPD which has already been verified. Within the framework of verification, the product composition and/or processes of relevance for points, the overall number of points subsequently calculated, allocation to the corresponding model EPD, the individual details in the EPD and any applicable evidence in accordance with PCR, Part B, are examined.

The IBU verification body supplements the original declaration number to include the company identifier of the individualising company and updates the year and EPD serial number.

9.4 USING SOFTWARE TOOLS TO GENERATE EPDS

EPDs can be generated with or without the aid of specific software tools. Software tools for generating EPDs facilitate both the creation and the verification process of EPDs, thereby offering advantages for manufacturers of large and/or heterogeneous product portfolios and/or associations. Such tools are based on software systems with a specific calculation and evaluation function which cannot be changed by the user. Software tools are generally developed by specialised consulting companies or life cycle analysts.

The owner of a software tool for generating EPDs is the manufacturer or association commissioning development of the tool. The tool operator is the company using the tool to generate EPDs. Tool owners and tool operators can be one and the same but this is not mandatory.

Various degrees of automation mean that a distinction is made for tools for generating EPDs between LCA tools and EPD tools. **LCA tools** are partially automated and require manual data entry of the product system inputs and outputs for generating EPDs. After automated calculation of the EPD environmental indicators by the tool, these and other product-specific information need to be transferred by the tool operator to the EPD form in the IBU online tool. Each EPD thus generated is a type B EPD and part of an individual and simplified verification (verification type B).

EPD tools generate EPDs entirely automatically and independent of the IBU online tool. Typically, product-specific data (e.g. bills of materials) already available in the company via a software system or product configurators are connected with the relevant LCA data. The EPD tool's evaluation system calculates the results of the EPD environmental indicators which are automatically entered along with other necessary information of product relevance in a defined EPD form. Individual verification prior to publication is no longer necessary for EPDs generated with an EPD tool by the tool operator. Only random checks are made of published EPDs at the regular intervals to be indicated in the background report on the tool (verification type C).

A prerequisite for verification of EPD documents generated with the aid of software tools is approval of the tool by a verifier appointed by the SVR. Initial approval of a tool comprises inspection of the tool as well as verification of a pilot EPD which must be entered in the IBU online tool (see section 11).

The schematic structure of software tools for generating EPDs by verification types B and C is depicted in the following graphics.

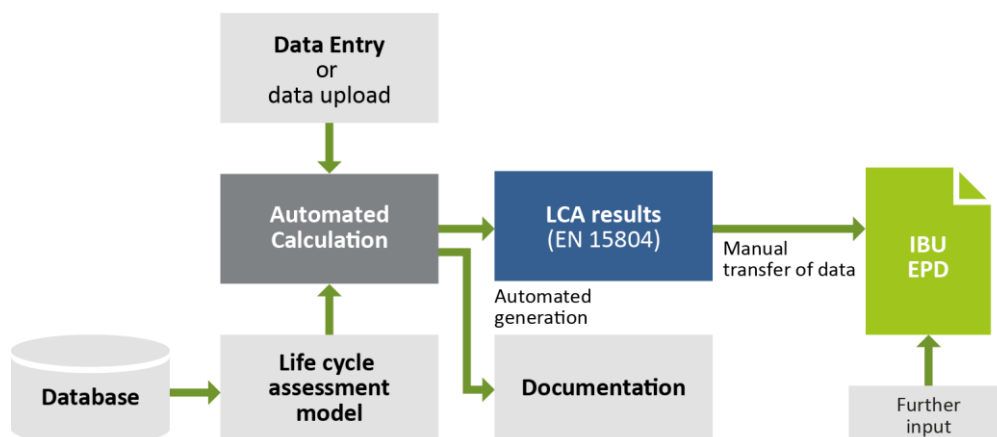


Fig. 3: Elements of an LCA tool (EPD verification type B)

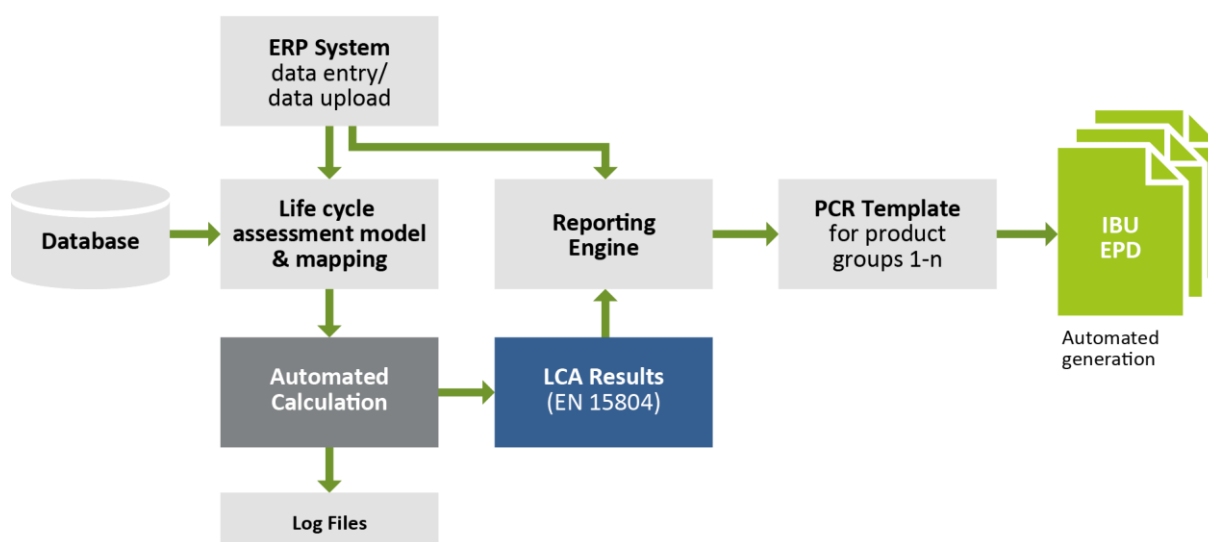


Fig. 4: Elements of an EPD tool (EPD verification type C)

9.5 REQUIREMENTS ON THE BACKGROUND REPORT OF EPDS

As a general rule, a Background Report must be drawn up for each EPD. Several EPDs can avail of a shared Background Report. The life cycle analyst charged with generating the EPD is generally responsible for drawing up the background report. The requirements on the background report to the EPD (see section 8.2) are included in the PCR guidelines, Part A.

In accordance with the PCR guidelines, Part A, the background report includes, among others:

- General information such as LCA client, life cycle analyst, report date,
- Confirmation that the LCA study was carried out in compliance with the requirements of the PCR guidelines, Part A,
- Objective and scope of the LCA study,
- Life cycle inventory analysis,
- Estimated impact,
- Interpretation of the life cycle inventory analysis and estimated impact, and
- Documentation of further information.

Other content may be necessary for various types of EPDs which are specified in the PCR guidelines. The verification body provides a template for drawing up the background report. However, use thereof is not mandatory.

9.6 CONFIDENTIALITY OF DATA

Specific life cycle inventory analysis data for the LCA and based on an EPD is documented for verification in the background report to the LCA. This data is confidential. It is made accessible to the selected verifiers for verifying the EPD who are contractually bound to treat this data as confidential. In individual cases, this data is also made available to the SVR for inspection and at the request of the verification body. The SVR members are then also obliged to treat the data as confidential.

Only aggregated data on the life cycle inventory analysis and the estimated impact as well as additional technical information is published in the EPD which is listed in the selected parameters of the *EN 15804+A1/A2*, *ISO 21930* and the PCR guidelines.

9.7 VALIDITY OF EPDS

9.7.1 Validity

Following verification, the EPD is valid for 5 years starting on the date it is issued. The following exceptions apply:

- Extended individualised model EPDs: period of validity corresponds with the period of validity of the respective model EPDs of the manufacturer group (see section 9.3.6.2);
- EPD based on the Private Label Agreement: period of validity corresponds with the period of validity of the EPD on which it is based, and
- Revocation of the EPD by Institut für Bauen und Umwelt e.V. in accordance with No. 9 of the TCC of Institut für Bauen und Umwelt e.V.

In the case of an ongoing lack of clarity concerning the test requirements for the evidence required of the manufacturer, the period of validity can be restricted at the recommendation of the SVR.

9.7.2 Updating, recalculation and review

A manufacturer can have the background report, LCA and/or EPD updated at any time.

Updates which merely involve textual adaptations or minor corrections of errors co-ordinated with a verifier are carried out by IBU without requiring any renewed verification of the EPD. Updates exceeding this scope will require renewed verification of the EPD.

A manufacturer must only have an EPD re-evaluated and verified prior to expiry of its period of validity if essential changes arise in the processes which can be controlled by the manufacturer and which have impacts on the environment. Changes can arise from essential changes to the production process, the provision of raw materials, energy supply or other decisive operational factors.

9.7.3 Extending validity

As a general rule, on expiry of the period of validity of an EPD, the background report and LCA as well as the actual EPD must be revised and the EPD to be renewed must be verified.

However, an EPD need not be re-calculated after 5 years if *EN 15804+A1/A2* and *ISO 21930* and the applicable PCR guidelines, Parts A and B, as well as the data on which the EPD is based have not changed significantly.

If a manufacturer wishes to have his EPD re-approved unchanged on expiry of the period of validity, he should inform the IBU verification body accordingly. The verification body allocates the EPD intended for renewal to a verifier.

Once the following items have been complied with, the EPD can be renewed without requiring recalculation:

- Since the EPD to be extended has been generated, there have not been any significant changes to *EN 15804+A1/A2*, *ISO 21930* and the PCR guidelines, Parts A and B, to be applied.

- The background data sets listed in the background report on the EPD to be extended are not more than 10 years old.
- Since the EPD to be extended has been generated, there have not been any changes to the data on which it is based which would lead to significant changes in the EPD results. These changes can concern both the background data and the manufacturing processes and technology.

Otherwise, it will be necessary to recalculate the EPD.

For the period of updating the EPD, Institut für Bauen und Umwelt e.V. can grant a once-off extension of the EPD of up to one year without revising and at the request of the manufacturer. As a service and at the request of the owner of the Declaration, Institut für Bauen und Umwelt e.V. offers an estimate of the effort and expense involved in updating at EPD on the basis of the PCR guidelines applicable at the time, whereby the costs are billed on a time and material basis and must be agreed separately with Institut für Bauen und Umwelt e.V.

9.8 MAINTAINING A PUBLICLY ACCESSIBLE LIST OF APPLICABLE EPDS

Institut für Bauen und Umwelt e.V. maintains a publicly accessible list of applicable EPDs generated within the framework of the programme. An exception is formed by the EPDs generated using fully-automated software tools (EPD tools) as they do not have to be entered in the IBU database system. The list is available on the IBU website and in the IBU database system. Within the framework of the IBU EPD programme, the EPDs are published with the agreement of the manufacturers on the IBU website (www.ibu-epd.com) and via the IBU database system (<https://epd-online.com>).

Institut für Bauen und Umwelt e.V. retains the right to publish EPDs for information purposes for consumers and other interested parties. IBU does not require any separate consent from the client to do so. In addition, Institut für Bauen und Umwelt e.V. is entitled to share the content of an EPD upon request by third parties or to make it publicly accessible on the IBU website and in the (<https://epd-online.com>) database.

10 PROCESS FOR DEVELOPING AND REVISING THE PCR GUIDELINES

10.1 DEVELOPING THE PCR GUIDELINES

The IBU EPD programme contains the following PCR guidelines on the basis of which EPDs must be generated:

- PCR guidelines, Part A, uniformly applicable for all product groups: “Calculation rules for the Life Cycle Assessment and requirements on the Background Report”,
- product group-specific PCR guidelines, Part B: “Requirements on the EPD”.

The PCR guidelines, Part A, are drawn up and updated by the SVR. The IBU verification body examines the documents revised by the SVR. The inclusion of interested parties is ensured in accordance with section 3.2.

The specific PCR guidelines, Part B, for the product groups are drawn up by so-called product group committees. These working groups for drawing up the specific PCR guidelines, Part B, can establish themselves for individual product groups. The PCR guidelines drawn up are submitted to the SVR for review and, following its approval and subsequent review by the IBU verification body, are approved and published.

A product group committee comprises at least the product manufacturer. If necessary, external experts and other interested parties can also be incorporated. The IBU verification body supports the working groups and is their contact partner for all organisational matters.

The template supplied by the IBU verification body must be adopted for drawing up new specific PCR guidelines, Part B, for certain product groups. This template specifies all of the generally applicable requirements concerning all product groups and based on the *EN 15804+A1/A2* as well as the fundamental contents of the EPD. The individual requirements and sample texts specific to a product group must be newly drawn up and identified in the corresponding places in the new document.

The protocol of the SVR meeting in which a draft of new specific PCR guidelines, Part B, was discussed for a certain product group contains the recommendations of the SVR concerning the approval of these guidelines as well as any changes resolved.

The changes to the draft documents recommended by the SVR are reviewed by the IBU verification body and inserted into the respective PCR guidelines documents.

The incorporation of interested parties is ensured in accordance with section 3.2.

Ownership of the PCR guidelines approved by the SVR is transferred to IBU.

10.2 DEFINITION OF PRODUCT GROUPS FOR PCR TEXTS, PART B

A product group (or product category) summarises construction products, building-related products or services with similar characteristics and functions for which uniform requirements can be made on the contents of the EPD.

The product groups for which PCR guidelines, Part B, are formulated are defined on the basis of a proposal by a manufacturer whose practicality has been reviewed by the IBU verification body, or on the basis of a proposal by the IBU verification body in co-ordination with SVR. This definition specifies the area of applicability of the PCR guidelines, Part B.

10.3 VALIDITY OF THE PCR GUIDELINES

All PCR guidelines (Parts A and B) usually remain valid for 5 years. In individual cases, e.g. in the case of innovative products, the SVR can specify a shorter period of validity. Subsequent revision is necessary. Documents which are not revised in time are deactivated and can no longer be applied for generating EPDs.

10.4 REVISION OF THE PCR GUIDELINES

The proper and timely revision of the PCR guidelines, Part A, is carried out by the SVR and reviewed by the verification body. As for initial generation, revision of the PCR guidelines, Part B, is handled by product group

committees which comprise at least one product manufacturer. Other manufacturers can be involved in revision. The IBU verification body supports the revision process with a checklist on how to proceed. The revised PCR documents are submitted to the SVR for appraisal and then to the IBU verification body for final acceptance.

The protocol of the SVR meeting in which revision of a PCR guidelines text was discussed contains the recommendation of the SVR concerning approval of the PCR guidelines and the revised PCR guidelines.

The PCR guidelines reviewed by the SVR and the IBU verification body are published via the IBU online tool. Furthermore, the public is informed of the updates on the IBU website.

10.5 ACCESSIBILITY OF THE PCR GUIDELINES

Institut für Bauen und Umwelt e.V. maintains a publicly accessible list of valid and expired PCR guidelines, Part B, drawn up via the EPD programme. The list and documents are stored in the IBU online tool and/or database system (<https://epd-online.com>) and are freely accessible. When generating a new EPD using the IBU online tool, the current PCR guidelines, Part A, are made available. Expired PCR guidelines, Part A, are also stored in the database system. The storage period for obsolete guideline texts is at least 10 years after expiry of their validity.

11 PROCESS FOR APPROVING SOFTWARE TOOLS FOR GENERATING EPDS

11.1 GENERAL REQUIREMENTS ON SOFTWARE TOOLS AND APPROVAL THEREOF

A software tool for generating EPDs comprises a specified calculation and evaluation method which cannot be altered by the user. The owner of a software tool for generating EPDs is responsible for implementing the requirements on these tools.

The operation of a software tool within the framework of the EPD programme outlined in this document requires approval thereof in accordance with the currently applicable EPD tool approval criteria. In order to initiate the approval process, the tool owner must commission Institut für Bauen und Umwelt e.V. with approval via the IBU online tool (<https://epd-online.com>). In this case, the IBU verification body commissions a verifier for Institut für Bauen und Umwelt e.V. with approval and allocates the tool a unique number.

For initial approval, an initial EPD must be generated by the tool for each product group for which the tool is designed. These pilot EPDs must declare the greatest possible scope of the tool (e.g. if the tool comprises Modules A1-C4 + D including scenarios, the pilot EPDs must depict all of these cases). They are verified during the course of tool approval as part of the approval in accordance with the process outlined in section 12.2 (type A verification).

The following rules also apply:

- 1 The information provided for examining the suitability of a software tool for approval (tool description and documentation, presentation of the quality assurance processes) must be indicated in the background report on the tool (supporting documentation). It can also be included as attachments to the background report. The background report must be stored in the IBU online tool. Furthermore, the same requirements apply to the supporting documentation on the tool as to an EPD background report (see section 9.5). The same rules also apply concerning confidentiality.
- 2 The contents and results of the review for approval are recorded in the corresponding documents on the review. These documents include the test report indicating the results of the approval review in compliance with the programme rules as well as the test protocols on the requirements on the tool and the requirements on the pilot EPD. The test protocols document the contents and results of the individual test steps undertaken by the verifier. IBU makes templates available to the verifier for all test documents required.
- 3 The operator of the software tools is responsible for the specified quality assurance processes and must define rules in the event of incorrect EPDs being withdrawn.
- 4 Each change to a software tool after approval gives rise to a new version of the tool. All versions must be saved and archived for 10 years by the owner of the tool and remain available for tests (e.g. concerning traceability) at all times.
- 5 After the review, the tool may not be changed in terms of the menu or fundamental data or the calculation algorithms (LCA model), e.g. by implementing a corresponding block.
- 6 Each EPD generated using a software tool contains the following information on the tool used: name, type, owner and approval number of the tool as well as information on the owner and publisher of the EPD.
- 7 Logbooks must be implemented for EPD tools which indicate
 - a. changes made to the tool; in particular, the integration of new data, modification of formulae and algorithms, modification of background data, extensions to additional PCR, changes to the format and contents of the EPD document generated,
 - b. which EPD was generated with the tool; in the case of (fully-automatic) EPD tools, the EPD number, the date it was generated, the author's user name and all data entered by the user must also be saved.

- 8 A concept for quality assurance must be drawn up for each software tool which should contain the following:
 - a. Process: Detailed process descriptions indicating the process steps, responsibilities, (rules) documents as well as input/output per process step, internal quality assurance; this also includes details on tool training as well as maintenance and updating the tool.
 - b. Data: Description of the process to safeguard the data quality. Where data is transferred manually, this should include an internal inspection (four-eyes principle). Exceptions are formed by EPD tools where the input data is indicated in the EPD (e.g. configurators). In the case of automatic data transfer (e.g. from process management or commercial programme packages): Credibility of the source and security of the data transfer against unwanted or unintentional influences.
- 9 Changes to PCR, Parts A and B, must be implemented in the software tools within a transition period of 6 months. Exceptions must be justified and approved by the SVR.
- 10 Changes to the calculation and evaluation methods require renewed approval of the software tool. Without changes, renewed approvals are required on expiry of the deadlines outlined below:
 - For LCA tools (type B EPD verification): after 5 years at the latest,
 - For EPD tools (type C EPD verification): after 2 years at the latest.
- 11 The background data on a software tool must not be more than 10 years old during operation of the tool. Evidence of this must be provided for each renewed approval. The background data should be updated where necessary. If the existing background data is merely updated, a comment in the background report (date of update, data base version used, file name and location of backup copy of the "old" tool version) shall suffice, as well as forwarding the changes to the verifier and IBU. Extensions to the data basis are classified as a change in the calculation and evaluation method, and require renewal of the approval. On initial approval, the verifier must check whether the requirements concerning the age of background data are complied with (see section 8.3).
- 12 Planned tool updates, e.g. for updating the background data, must be indicated in the documentation supporting the tool.
- 13 Each EPD generated using a software tool must display the EPD layout specified by the IBU verification body in PCR, Part B.
- 14 It may make sense for EPD tools to enter other EPDs along with the pilot EPD in the IBU online tool and publish them via the IBU database. The IBU verification body clarifies this topic with the client at the beginning of the tool generation phase.
- 15 The EPDs generated with the help of EPD tools are subject to random checks. If at least 5 EPDs per year are generated with an EPD tool, random testing is generally performed once a year. A shorter review cycle is possible in exceptional cases. If the minimum number is not achieved, random testing is carried out at the latest two years after approval or renewed approval. The random sample comprises three EPDs for each product group implemented in the tool. Other EPDs can be reviewed if required. The verifier selects the EPDs. The type C verification process (see Table 1) is applied for random testing. The supporting tool documentation must include details on the likely cycle and scope of random testing planned.
- 16 Within the framework of random testing for EPD tools, the tool logbooks must also be inspected and examined for plausibility as well as obvious inconsistencies, gaps and similar.
- 17 The owner of an EPD tool must inform the IBU verification body once a year of the number of EPDs generated using the tool. The likely cycle of random testing as well as an estimate of the anticipated number of EPDs per implemented product group and the ensuing random sample volume must be indicated in the background report.

- 18 An optional link of the tool system to the IBU.data database and the corresponding software-related requirements are clarified by the IBU verification body with each manufacturer prior to approval of the tool.

11.2 INITIAL APPROVAL OF (SEMI-AUTOMATIC) LCA TOOLS

The review for approval of an LCA tool is conducted by a verifier and comprises at least the following elements specified in the background report on the tool and on the pilot EPD:

- description of the tool (for users and verifiers),
- supporting tool documentation,
- tool function and plausibility of results (on the basis of a sufficiently large volume of data), and
- contents of the pilot EPD.

As a basis for the approval of a software tool, the most recent version of the “Report on the approval of an LCA tool or an EPD tool” document as well as the requisite test protocols on the tool and the pilot EPD shall apply and using which the verifier examines the tool and the pilot EPD. The completed test documents must be handed over to the IBU verification body along with the background reports on the tool and on the pilot EPD.

If a software tool covers more than one product group (or PCR, Part B), the approval must comprise all product groups and a pilot EPD must be generated and verified for each product group.

The verification body examines the statements by the verifier in the tool approval report as well as the information on the corresponding test protocols for completeness, suitability and compliance with the programme rules. If this is the case, the tool is regarded as having been approved. For the pilot EPD, the procedure for verifying an EPD outlined in 12.2 applies in terms of both content and time as of this point from the time the verification documents are examined by the verification body. The timeframe for tool approval is always agreed on an individual tool basis between the verifier and the tool owner.

11.3 INITIAL APPROVAL OF (FULLY-AUTOMATIC) EPD TOOLS

As a general rule, initial approval of an EPD tool is performed analogous to initial approval of an LCA tool in line with the description in section 11.2. Furthermore, the supplementary process steps outlined below are also required.

At the beginning of the approval process, the following content on the EPD tool must be submitted to the SVR:

- Tool operator,
- Objective and area of applicability (companies, products or product groups covered, selected PCR, Part B, LCA modules etc.),
- Tool user,
- Potential number of EPDs from the tool per year,
- Planned function (schematic incl. changeable/non-changeable parameters),
- Quality assurance concept,
- Details on the possibilities of examining and manipulating the tool,
- Details on planned random testing of the EPDs from EPD tools, and
- Details on planned revisions of the tool.

The SVR inspects these documents and provides the manufacturer or tool designer with feedback where necessary.

In addition to the content for LCA tools referred to above, the test for approving an EPD tool also comprises testing the documented quality assurance processes for generating EPDs using the tool as well as intended implementation thereof. This must be documented accordingly by the verifier in the test protocol for approving the EPD tool.

Furthermore, the verifier must record in the protocol for approving the EPD tool the cycle and number of EPDs generated from the tool. Random testing is generally conducted once a year. By commissioning approval of the tool, the client automatically agrees to implementing the requisite random testing by the verifier.

11.4 CHANGE AND RENEWED APPROVAL OF SOFTWARE TOOLS

At least the following aspects are examined in the case of change and renewed approval of a tool on expiry of its period of validity:

- Compliance of the tool with the expired approved version and review of any updates made,
- Compliance of the software tool with the requirements of the current version of the *General Instructions for the IBU EPD programme*,
- Documentation and implementation of quality assurance processes in accordance with the background report,
- Conformity of the LCA results with the respective valid version of *EN 15804* and PCR, Part A, and
- Compliance of EPD documents generated with the respective valid version of PCR, Part B.

In the event of minor changes (e.g. correction of individual missing data, parameters or calculation steps), the approval process can be shortened in co-ordination with the verification body and the verifier.

In order to initiate the change or renewed approval process, the tool owner must commission the IBU verification body to do so (<https://epd-online.com>). In this case, the verification body commissions a verifier who - if it entails a renewed approval - must be a different person than for initial approval. It allocates the tool a new number. By commissioning renewed approval, the client automatically agrees to implementation of the requisite random testing for EPD tools by the verifier of EPDs generated using the tool.

12 PROCESS FOR VERIFYING EPDS

12.1 BASICS FOR VERIFYING EPDS AND VERIFICATION TYPES

The contact point for organisational matters concerning verification is the IBU verification body.

Verifications within the framework of the IBU EPD programme are only carried out for EPDs which have been generated in accordance with the applicable IBU programme rules (these *General Instructions for the IBU EPD programme*, PCR, Parts A and B). An EPD is verified according to the principles of the *ISO 14025* and by a verifier confirmed by the Expert Council (SVR) as an independent third party.

The IBU EPD programme distinguishes between four types of EPD verification, i.e. A, B, C and D (see Table 1). Verification type A describes the standard process to be applied for all EPDs which cannot be allocated to any of the other three types. Verification type B is applied for all EPDs generated with (semi-automated) LCA tools and verification type C is applied for all EPDs generated with (fully-automated) EPD tools. Extended individualised model EPDs are verified in accordance with type D.

Table 1: EPD verification system

Verification type	A	B [EPD from LCA tool]	C [EPD from EPD tool]	D [extended individualised model EPD]
EPD verification process	Standard individual test	Shorter individual test	Random testing	Shorter individual test
Verification requirements		Tool approval	Tool approval	Verification of applicable model EPD
Verification period	Prior to publication of the EPD	Prior to publication of the EPD	After publication of the EPD	Prior to publication of the EPD
Test scope LCA model	Full	Input and output data	performed during tool approval	Input and output data, product class allocation
Background report review	Yes	Yes	Yes	Yes
Validity of the verified EPD	5 years	5 years	5 years	As for validity of applicable model EPD

To enable a client to publish a verification type A, B or D EPD within the framework of the IBU EPD programme, conclusion of a verification agreement is necessary with Institut für Bauen und Umwelt e.V. (see section 4.3 and the General Terms and Conditions of Business of Institut für Bauen und Umwelt e.V.). This is done using the IBU online tool (<https://epd-online.com>) by entering the manufacturer information, EPD data and passing it on for verification.

Type C verification EPDs do not need to be entered via the IBU online tool but can be transferred to the tool after being generated. Within the framework of the EPD tool approval process, the pilot EPD generated must always be entered in the IBU online tool. The verification task for type C verification EPDs is issued with the approval task for the respective software tool.

On issuing the verification task, the client accepts these *General Instructions for the IBU EPD programme* and the General Terms and Conditions as well as the fees regulation and statutes of IBU, each in their respective latest version. During the course of issuing the verification task, the manufacturer can specify whether his data is to be published in the IBU database (IBU.data), on the ÖKOBAUDAT data platform of the Federal Ministry of the Interior, for Construction and Home Affairs (BMI) and in the database of the International Data Network for Sustainable Building (InData).

On receipt of the verification task via the IBU online tool, verification commences by an independent third party in accordance with *ISO 14025* and in compliance with the rules of the *EN 15804+A1/A2* and *ISO 21930*. The verification of an EPD includes examining it for completeness, plausibility, consistency and transparency of the calculations and information in the background report and the EPD in terms of the specifications in the PCR guidelines which are derived from the *ISO 14025* and *EN 15804+A1/A2* and/or *ISO 21930* standards.

Verification is carried out with a risk-based approach. An examination of the correctness of data supplied by the product manufacturer which exceeds the plausibility test, the reliability of the LCA software used, the correct implementation of the evaluation methods in the LCA software used and an examination of correct implementation of manufacturer data in the LCA software which exceeds the plausibility test are explicitly not components of the verification.

When the verification principles change, clients will be granted a grace period of six (6) months in which EPDs already in the process of preparation can be verified according to the verification principles before the change. Once this grace period is over, EPDs will no longer be accepted for verification according to these outdated principles.

12.2 GENERAL PROCEDURE FOR VERIFICATIONS

For verification of an EPD, the verification body generally receives from the client (or from persons/facilities commissioned by the client) at least the following documents:

- EPD,
- Background report or brief documentation (shorter background report for verification type B EPDs),
- Possibly the documentation for specific aspects of the LCA, e.g. concerning the procurement of green electricity, and
- Copies of evidence in accordance with the applicable PCR guidelines, Part B.

The documents are supplied by uploading them to the IBU online tool.

After submitting the EPD documents via the IBU online tool, the IBU verification body allocates a declaration number, chooses a suitable verifier and informs the client via the online tool and by e-mail. The client then has one week to express any objections to the appointment of the verifier. In this case, another verifier is commissioned by the IBU verification body.

The first step taken by the contracted verifier is to review the documentation received (or downloaded) to determine that it is complete. If the documents are incomplete, the verifier sends information to the client's project manager with a request to supplement the documents within a reasonable period of time. If the documents remain incomplete even after several requests and cannot therefore be examined, the verifier will inform the IBU verification body in writing and verification will be discontinued. The client is informed by the IBU verification body.

The independent verification of an EPD comprises examination of the LCA and life cycle inventory analysis data, the information modules and the additional environmental information. It must at least confirm:

- compliance by the EPD with the *ISO 14025*, *EN 15804+A1/A2* and *ISO 21930* standards,
- conformity of the data quality and calculation rules of the LCA with the PCR guidelines, Parts A and B, on which they are based,
- that the evaluation of the data quality covers validity, accuracy, completeness, representativity, consistency, reproducibility and the sources of possible uncertainties,
- the plausibility of the calculation model for the LCA-based data,
- the sufficiently good quality of data surveyed,
- the appropriateness of additional environment-related information, and
- the sufficiently good quality of supporting information.

Depending on the type of EPD, these can be supplemented by specific test aspects such as classification or deriving the maximum values in the case of model EPDs. All of the items to be examined within the framework of verification are compiled like a checklist in protocol templates for verification which are made available to the verifiers by the IBU verification body. The results of the test are summarised in a test report for which the verification body also makes the corresponding templates available.

Initial feedback on examination of the documents must be given by the verifier to the client within four weeks of presentation of the full documents. This is done directly without involving the IBU verification body. If necessary, the verifier supplies the manufacturer with more feedback in order to clarify any queries and to enable the requisite adjustments and corrections in the EPD to ensure its verifiability.

The client is obliged to provide the verifier with timely feedback within four weeks. Otherwise, the verification can be stopped by the verifier.

In the event of verification being stopped, the client bears all verification costs incurred until that date. These are billed to the client by Institut für Bauen und Umwelt e.V.

If the verifier is unable to confirm the test aspects referred to above, he will inform the IBU verification body and explain the reasons for this. The IBU verification body examines the verifier's claims, possibly including the SVR in the process. If Institut für Bauen und Umwelt e.V. confirms the non-verifiability of the EPD, it shall be regarded as non-compliant with the regulations of the IBU EPD programme and cannot be published within the framework of the IBU EPD programme. Institut für Bauen und Umwelt e.V. will inform the client of this.

On confirmation of the criteria referred to by the verifier in the verification report, the IBU verification body examines it as well as the corresponding test protocols for completeness, suitability and compliance with the programme rules, and arranges implementation of the final review within maximum 14 days if these aspects are positively assessed (see section 5.3). In the event of a negative assessment result, the verifier has the opportunity to revise the test documents submitted. Furthermore, the client also has the opportunity to integrate the corrections from the final review in his EPD.

On presentation of the full verification documents (report and protocol(s)) and completion of the verified EPD, Institut für Bauen und Umwelt e.V. issues the appropriate IBU logo and the validity of the EPD as well as confirming compliance of the EPD with the rules of the IBU EPD programme. The verified EPD is then published by Institut für Bauen und Umwelt e.V. in the IBU database system.

The positive verification statement is noted in each EPD under the general information in the tabular format specified by *EN 15804* and *ISO 21930* and signed by the verifier. The statement notes that the European *EN 15804* standard and the international *ISO 21930* standard serve as the core PCR, independent verification was carried out in accordance with *ISO 14025* and the verifier is an external person. Furthermore, the owner of the declaration receives a verification statement in accordance with the requirements of the *EN 17029*.

If after issuing the positive verification statement, new facts or information arise which can have an essential impact on the verification statement, the verification body informs with client accordingly as swiftly as possible and examines whether the verification statement and therefore the EPD needs to be revoked in compliance with section 9.7.2 and the TOC. The client is also informed of this.

12.3 PARTICULAR FEATURES OF TYPE B, C AND D VERIFICATIONS

The verification process for type B, C and D verifications generally corresponds with the process outlined in section 12.2. The respective particular features are listed below.

12.3.1 Special requirements on type B EPD verifications

A prerequisite for type B EPD verification is valid approval of the respective LCA tool for this type of verification. The manufacturer confirms for each EPD generated that the system version most recently approved has been applied unchanged.

Each EPD goes through type B verification (shorter testing) prior to publication. This comprises at least:

- the EPD document and
- the input values, data sets used and LCA tool version number for calculating the LCA results (contained in the abbreviated documentation).

In individual cases, more data may need to be provided by the verifier to the manufacturer.

12.3.2 Special requirements on type C EPD verification

A prerequisite for type C EPD verification is valid approval of the respective EPD tool for this type of verification. EPDs from approved EPD tools for type C verification are subject to regular random testing.

Random testing is carried out in accordance with the intervals (usually annually) and scope documented in the approval report and comprises:

- at least three EPD documents created using the tool (at least one EPD per product group in the case of different product groups covered by the tool),
- the respective log files,
- documentation of any changes in EPD development and quality assurance processes,
- documentation of any changes in the EPD document, e.g. due to changes to the PCR, Parts A and B,
- plausibility of the EPD results in accordance with the criteria of the test protocol on the requirements on LCA and EPD tools, in particular in the section on “Tool function and results”, and
- the list of EPDs generated using the EPD tool since the last (re-)verification.

In individual cases, more data may need to be provided by the verifier to the manufacturer.

12.3.3 Special requirements on type D EPD verification

One prerequisite for type D EPD verification is verification of the model EPD to be extended individualised. Type D verification is shorter and comprises:

- the composition and/or processes of points relevance of the product as well as the overall points established therein,
- allocation to the corresponding model EPD, and
- the individual details in the EPD and any applicable evidence in accordance with PCR, Part B.

In individual cases, more data may need to be provided by the verifier to the manufacturer.

12.4 VERIFICATION DOCUMENTS

The verifier documents the process of verification in the test protocols whose results are summarised in the verification report. The corresponding templates are made available by the verification body for all documents. Furthermore, the verifier does not have any requirements on reporting.

The verifier’s verification task concludes on submission of the full verification documents to the verification body.

The verification documents are filed in the IBU online tool and stored for at least the period of validity of the EPD. They can be viewed by the owner of the declaration on request.

12.5 INDEPENDENCE OF VERIFICATION

The verifiers are independent third parties in relation to the manufacturer and his EPD and in terms of the LCA person or facility. The respective verifier is allocated the job by the IBU verification body. If the client does not agree with the decision of the IBU verification body with respect to the choice of verifier due to a suspected conflict of interest, the client may file a written objection to the verification body. The complaint should clearly state the alleged suspicion. Once the reasoned complaint is received, the verification body will suspend the verification contract to the verifier. If the review establishes that there is in fact a conflict of interest with the verifier, the verification body can assign the job to a different verifier. Otherwise, there is usually no change in verifier and the verification process is continued. A complaint must be filed within five (5) working days after assignment of the verifier by the verification body. The work associated with verification is exclusively remunerated by the IBU verification body.

12.6 ARBITRATION IN THE EVENT OF DISPUTES BETWEEN THE VERIFICATION BODY OR AN EXTERNAL VERIFIER AND THE CLIENT

If a client objects to the decision of an independent verifier or if he directs his objection to the IBU verification body, the SVR is integrated by Institut für Bauen und Umwelt e.V. to clarify the matter depending on its

complexity. If the final decision on the objection or complaint by Institut für Bauen und Umwelt e.V. is not acceptable for the person raising the objection or complaint or if no agreement is reached, the person raising the objection or complaint shall be entitled to take legal action.

If a manufacturer refutes the announcement by IBU to restrict, declare as invalid or revoke permission to use an EPD bearing the IBU mark, he shall receive the opportunity to present his case before the measures are implemented or afterwards in the case of great urgency. There will be no hearing when the reason for the declaration of invalidity is that the EPD has expired. IBU will then decide on the matter after noting the objection.

ANNEX A – GUIDE TO GENERATING A MODEL EPD USING THE POINTS SYSTEM

This annex outlines the procedure for generating a model EPD (also referred to as a worst-case EPD) and explains what needs to be observed when individualising a sample EPD.

A.1 Procedure

Step 1: Definition of the product group

Model EPDs only apply for products in a group of identical products (product class). Therefore, it is important that the product group is defined exactly. Indications for this can be provided by the product description, composition of ingredients, typical areas of application and technical product features.

The corresponding process and criteria for the definition of a product group must be described in the background report on the model EPD.

Step 2: Establishing the environmental impacts of a representative product

The potential environmental impacts for all indicators and for the relevant modules must be determined for a representative product in the defined product group on the basis of its material composition. This analysis – which need not necessarily be a comprehensive LCA – should at least reveal the processes (in terms of ingredients or preliminary products)¹ which contribute most to the potential environmental impacts of the products in the modules under review. This analysis can be used as a basis for clarifying the following questions:

- What environmental indicators are of particular relevance for the potential environmental impacts of the products?²

This could be specified for the representative product by means of a qualitative analysis of the results, whereby it would make sense to apply the popular method of normalisation in the LCA.³ Other methods such as “distance-to-target”⁴ are also conceivable. The geographic region must also be taken into consideration by these approaches. It must also be considered that both selection of the normalisation process and selection of the relevant indicators represent a quantifying step.

- What data or information needs to be collated on the products in the product group in order to define a worst-case product?

¹ In the case of worst-case EPDs available to date, production of ingredients accounts for 80-90% of the potential environmental impacts of the defined worst-case product.

² In the case of model EPDs available to date, the Primary Energy consumption and Global Warming Potential indicators were identified as the decisive environmental indicators and on the basis of which a points system was developed for the various preliminary products. In other model EPDs, the Photochemical Ozone Creation Potential (POCP, “summer smog”) indicator was also added for the points system if the corresponding emissions are incurred during manufacturing of the preliminary products used or during the products’ installation phase. In accordance with the current knowledge available, the selection of these indicators was based on a qualitative analysis of the results for the representative product.

³ In accordance with ISO 14044 (see section 4.4.3.2)

⁴ The Distance-to-Target Method considers the gap to existing environmental targets in terms of a certain indicator, the probability of achieving these targets, and the estimate concerning social and economic opportunities for achieving the targets and the technical conditions required for this (S. Schmitz and I. Paulini (1999): Evaluation in LCAs, Method of the Federal Environment Agency for standardising impact indicators, arranging (ranking) impact categories and evaluating in accordance with ISO 14042 and 14043, version 99. Commissioned by the Federal Environment Agency. Texts 92/1999. Berlin. Download at: <http://www.umweltbundesamt.de/sites/default/files/medien/publikation/long/3619.pdf>, valid as at: 10.12.2019).

For example, the composition of preliminary products, electricity consumption during manufacturing, certain emissions during manufacturing or during the use phase and the end-of-life process can be of relevance.⁵

On the basis of these results, the scope of the model EPD should also be defined for a certain geographic region. This could be, e.g. Germany or Europe, depending on

- which manufacturers or association members wish to use the model EPD,
- the locations from which members record data and information on their products, and
- the extent to which geographic differences (e.g. power mixes or manufacturing technologies for preliminary products) have an influence on the potential environmental impacts of the representative product.

The process and the results of this review must be explained transparently and described in the background report to the EPD.

Step 3: Developing a points system

On the basis of data collated in a second step, a points system can be developed for comparing and qualifying the effects of the processes established as drivers on the selected potential environmental impacts (the respective indicator results) of the products in a group. To this aim, chemical construction products are taken as an example for calculating the LCA results for all components of the formulation (other relevant processes, emissions etc.) of the representative product and for the environmental indicators.

The LCA results then need to be scaled and points established. To this aim, the verification body makes an explanatory example available where necessary which can also be used as a template. In this example, two different scaling methods and the possibility of weighting the selected indicators are presented. Decisions in favour of a certain scaling method and weighting of the selected indicators can be made in individual cases.

Derivation of the points system must be documented using an MS Excel file. The explanatory template can be used for this.

In principle, the scaling method comprises weighting the individual processes defined as drivers. In the example of chemical construction products, this entails manufacturing of the components in the formulation. Either the min.-max. or 0-max. process can be used as a scaling approach (see details in example).

Step 4: Establishing the worst-case product

The collation of data outlined in Step 2 should be for the highest possible number of products in the product group or – in the case of associations – for as many members as possible. The representativity of data on the basis of which the worst-case product is defined should be indicated.

Then the points system outlined in Step 3 is applied for all products within the product group for which the corresponding data has been collated, whereby the points for individual preliminary products (or processes or emissions) are multiplied by the corresponding quantities in accordance with the composition (or characteristics) of individual products and the points are added up. The product for the product group with the highest total number of points is defined as the worst-case product. By way of illustration, the verification body makes the example referred to above available.

The summary of individual products in a product group and the corresponding total points could be used as required for a further breakdown into sub-groups which was not yet obvious in the definition of the product group outlined in Step 1. This could be the case, for example, if some products reveal much higher overall points than others (e.g. owing to the use of specific preliminary products in certain quantities) and then the model EPD

⁵ In the case of model EPDs available to date, the composition of products (“formulation”) was the essential driver for potential environmental impacts. Accordingly, exact formulation information on all products of a product group was collated from the association members for generating the model EPDs.

would mean an extreme overestimate of the potential environmental impact for the products with a lower number of overall points.

Establishing the worst-case product and/or further breakdown of the products in a product group into sub-groups must be documented in a transparent manner.

Step 5: Generating the model EPD

A model EPD is generated in accordance with the steps outlined in the product category rules PCR, Parts A and B, for the worst-case product defined in Step 4. The model EPD goes through the type A verification process, whereby the rules defined in the annex are also a component of the verification.

If for certain processes (e.g. energy consumption during manufacturing) average values are available for all products of a product group for which model EPDs are calculated, they can be used for generating all model EPDs for the sub-groups of this product group insofar as it has a minor influence and/or it is possible to prove that the variance of results is low across all manufacturers. Likewise, assumptions can be made for the scenarios of Modules A4 to D which typically apply for all products in the product group.

Step 6: Drawing up guidelines

Apart from the model EPD for the worst-case product, guidelines including the points system developed in Step 3 should also be made available. These guidelines serve towards examining whether a product in the relevant product group is appropriately depicted by the model EPD. This is the case when points can be allocated in accordance with the guidelines for all inputs, processes or emissions and the total points established for a product in the product group in accordance with the points system are not higher than the total points for the worst-case product defined for the worst-case EPD. A margin of 5% applies, i.e. the total points can be up to 5% higher than the total points of the worst-case product.

If manufacturer-specific inputs, processes or emissions cannot be depicted and points awarded via the guidelines, an attempt can be made to achieve appropriate matches via proxies (data sets on comparable materials or processes). If this is not possible, the manufacturer must contact the LCA auditor of the model EPD to arrange points in accordance with the guidelines.

If sub-groups are defined and the corresponding model EPDs are available for a product group, the guidelines also include the corresponding maximum points for the worst-case products in the sub-groups.

The guidelines should serve manufacturers as instructions on how to specify the total points for their specific product before selecting a suitable model EPD.

A.2 Notes on individualising a model EPD

Manufacturers and/or association members involved in generating the model EPD and supplying primary and/or formulation data for their specific products can use the association's model EPDs without requiring additional verification. The manufacturer must supply the verification body with evidence that he has been involved in defining the relevant product group for his product or that he adheres to any alternative regulations by the declaring manufacturer group (e.g. association).

If during analysis using the guidelines the manufacturer establishes that his product is not representatively covered by the model EPD because the total points exceed the permissible maximum value by more than 5%, for example, he cannot use the worst-case EPD for his product. In such cases, a specific EPD must be generated by the manufacturer.

The manufacturer also has the possibility to generate and publish a separate, individualised EPD for his product which is "branded" in his own name (so-called extended individualisation) and based on a model EPD. The manufacturer is obliged to register generating such an EPD with the IBU verification body. An individualised model EPD then runs through a simplified verification process in which the verifier only examines the composition and/or product process of relevance for points, the total points established, classification with a corresponding model EPD, and possibly the applicable evidence in accordance with PCR, Part B.⁶ Furthermore, section 2 of the EPD is subject to examination. In section 2, the manufacturer has the possibility to indicate specific characteristics of his product and organisation in accordance with PCR, Part B. All other parts of the EPD are completed analogous to the model EPD.

It should be noted in the EPD that the results of the extended individualised EPD refer to a worst-case product in terms of selected indicators [e.g. GWP, PE, POCP) and the weighting factors (e.g. equally weighted) with which these indicators were considered.

⁶ If an EPD is based on a model EPD, the product-specific evidence must be provided for the declared product (SVR resolution number 20130704-r).