



ITB-EPD

Program Requirements

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1. ITB EPD Program - normative basis

ITB EPD Program provides the procedure for Environmental Product Declarations Type III (EPD) development (for all construction products) in accordance to the requirements of PN-EN ISO 14025:2010 and PN-EN 15804 (actual version). EPD is a technical information that provides quantifiable environmental data for construction products with a specified technical function on the building level. Standard PN-EN 15804 defines the core rules for the creation of EPDs for construction products and materials and is the basis for general ITB PCR A development.

ITB EPD program is open to all of the interested parties, in particular Industry representatives, Construction Associations, Construction Agencies and others. The participation in the program is voluntary.

Note 1: ITB (as a member of CEN TC 350 mirror group, PKN KT 307) translated in EN 15804 standard and National Standardization Board (PKN) accepted polish version of PN-EN 15804.

Note 2: Document of ITB EPD program requirements is systematically updated. Other documents like PCR are updated if any new version of EN 15804 or other relevant CEN or ECO document is published. Actual updated version (1.4) is valid from July 2014.

2. Objectives

The objective of ITB EPD Program is to promote the use of national sustainable construction products with identified technical and environmental performance through the provision of verified information contained in the Declaration Type III. EPD is recognizable tools to communicate product's environmental performance in the standardized way and this information may support building environmental information system as an useful data for designers, architects and constructors. ITB EPD information is intended to support product technical assessment information system according to construction product legislation.

The main focus of ITB EPD system is Polish market and Eastern and Central Europe but ITB system includes possibility to create European average representative EPDs or country specific. ITB strongly supports work related to the harmonization of EPDs in Europe by work in CEN and PKN working groups and as well work in ECO. ITB's input is helping with harmonization of EPDs in Europe.

ITB also cooperate with national GBC with the objective to promote use of verified EPDs in Building Assessment Systems.

3. General scope

ITB EPD Program is voluntary and covers all construction products as it is defined in the Annex IV to the European Construction Products Regulation (No 305/2011, so called CPR) and is open to all interested construction product manufacturers. The geographic scope of the EPD Program is

primarily Poland. ITB will also create or register EPDs for other EU-28 countries if requested. Program covers cradle-to-gate information (A modules), cradle-to-gate with options (A+B modules) and cradle-to-grave (A-C module with optional D) (see ITB PCR A-Annex A).

4. ITB – EPD National Program Operator

ITB (Building Research Institute) is a public and non-profit Notified Body (EC Reg. no 1488) to the European Commission and to other Member States of the European Union designated for the tasks concerning the assessment of building products' conformity, according to the requirements of CPR. Implementation of these tasks leads to construction product CE marking. ITB is the independent, third-party verification organization, offering certification of products, services and systems to national international market. ITB activities are conducted in accordance with the general requirements of assurance standards: PN-EN ISO 9001 (Quality Management) , PN-ISO/IEC 27001 (Information Security Management Systems).

ITB EPD systems is intended to support sustainable requirements on the product performance declaration

Technical aspects of ITB EPD system are managed by Sustainability Technical Committee inside Department of Thermal Physics, Sanitary Systems and Environment (see list of experts, Annex B)

ITB is the accredited construction product test laboratory (14 laboratories), PCA number AB 023.

ITB is accredited by the National Center of Accreditation (PCA) to:

- PN EN ISO 17024 (Conformity assessment - General requirements for bodies operating certification of persons).
- PN EN 45011 (General requirements for bodies operating product certification systems)

ITB is also accredited to:

- PN EN ISO 17020 (Conformity assessment - Requirements for the operation of various types of bodies performing inspection)
- PN EN 17021 (Conformity assessment - Requirements for bodies providing audit and certification of management systems)
- PN EN ISO 17025 (General requirements for the competence of testing and calibration laboratories)

ITB offers also certification on PN EN ISO 14001:2004 Environmental management systems and PN EN-18001:2004 Safety at work and hygiene management system. ITB provides certification in the field of building construction of:

- Products,
- Services,
- Factory Production Control,
- Management Systems,
- Personnel Competencies.

Construction product certification by ITB encompasses the following scope:

Obligatory, where an assessment is made of the conformity of the product and factory production control with:

- The requirements of harmonized standards and European technical approvals, authorizing the Manufacturer to issue a declaration of conformity and mark the building products with the CE mark,

- The requirements of Polish standards and Polish technical approvals, authorizing the Manufacturer to issue a declaration of conformity and mark the building products with the building mark.

Voluntary, where an assessment is made on:

- The requirements of harmonized standards and European technical approvals as well as Polish standards and Polish technical approvals,
- Building Research Institute quality criteria authorizing the marking of the product with the Q-ITB quality mark,
- Building Research Institute environmental criteria authorizing the marking of the product with the EKO-ITB environmental mark,
- Building Research Institute acoustic criteria authorizing the marking of the product with the A-ITB acoustic mark or AQ-ITB quality acoustic mark,
- Building Research Institute thermic criteria authorizing the marking of the product with the C-ITB thermic mark or CQ-ITB quality thermic mark.
- Environmental Product Declaration EPD Type III

ITB as EPD Program Operator is responsible for:

- administrative and financial operation of EPD Program
- dissemination of CEN TC 350 standards and implementation of PN EN 15804 to practice
- maintaining the program procedures and instructions in accordance to quality standards
- transparent communication with construction product producers and associations
- review or development of Product Category Rules (PCRs) and associated documents
- development of procedures for EPD and data verification
- management of verification
- management of competence, confidentiality, independence and impartiality ensuring the involvement of all interested parties
- management of complaints and appeals
- publication of EPD results
- re-validation of EPDs after 5 years

3. Program “step by step” procedure

If Producer is interested in ITB EPD for his construction product then have to fill in the Application Form (or contact form on ITB’s page; <http://www.zb.itb.pl/kontakt>) which can be delivered also after direct contact with ITB EPD program secretary via fizyka-srodowisko@itb.pl. This will allow ITB to prepare the formal EPD “time and cost” project proposal (see process on fig.1).

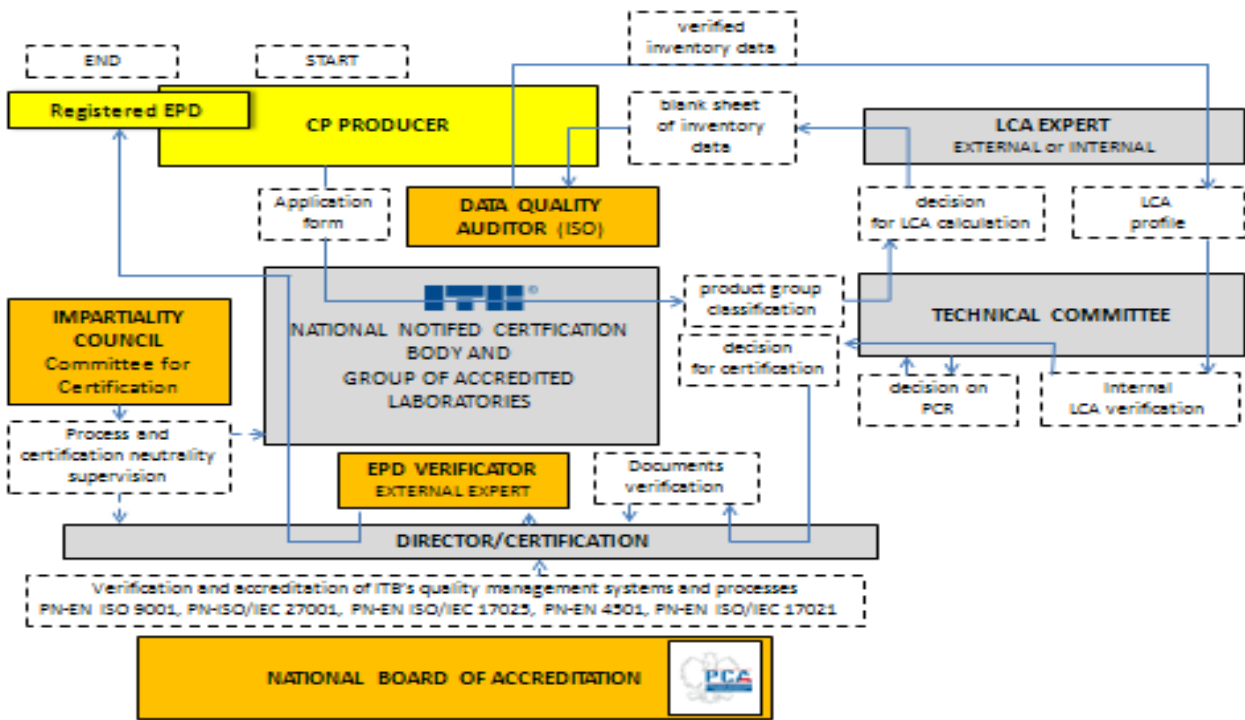


Fig.1. ITB-EPD formal process scheme

On acceptance of the proposal of the quoted cost producer can be asked to sign Agreement and then submit a more detailed LCI Data (special questionnaire/see download section) that will allow ITB to LCA by expert and allow for further verification process (ISO audit). LCA/EPD process is covered by confidentiality terms in the agreement and the information producer provide in relation to the project is treated as confidential. During the collecting inventory data process ITB will carry out the quality data audit to the manufacturing site.

After successful process of LCI verification, independent LCA expert creates environmental profile according to PN EN 15804 requirements and PCRs. LCA form is verified by the internal Technical Committee and send to the ITB's director. The report will be issued with EPD certificate signed by ITB director after registered external expert verification. At that point producer will then be permitted to use ITB-EPD declaration in his commercial technical or promotional material. The certificate may be listed (on the request) on ITB web page.

Note: LCA study can be undertaken by the manufacturer or by a party acting on behalf of the manufacturer (including independent LCA expert of ITB). ITB can provide LCA independently from verification service and reserves the right to charge reasonable fees for doing it (especially it covers generic data collection for A1 module. If LCA expert and internal verifier belongs to ITB organization so it should operate independently. Independence is to be ensured by ISO 17021.

5 Verification and involvement of interested parties

ITB's approach conforms to the requirements of 3rd party verification under the terms of the standard ISO 14025 and it is undertaken at a fixed fee. Independence of the EPD verifier is guaranteed by EPD verifier who has not been involved in LCI and LCA process. LCI data quality is verified by certified ISO auditor. EPD process is a part of company quality management and under

supervision of:

- Technical Board
- Impartiality Council - made of external representatives like public authorities and industry

and:

- Polish Accreditation Board - accredits the ITB procedures and this assures the independence and impartiality of the internal verifiers
- Technical Committee
- External EPD and LCA verifiers

The formal structure of ITB includes the Technical Board and Impartiality Council. Together these bodies ensure the involvement of interested parties in the development and maintenance of the certification and services programs

EPD program is open to all construction products within the scope of program and all industry EPD customers are treated in the same way. ITB services and activities are conducted in accordance with the general requirements of assurance standards: PN-EN ISO 9001, PN-ISO/IEC 27001, PN-EN ISO/IEC 17025, PN-EN 45011, PN-EN ISO/IEC 17021. Program procedure also includes a procedure for solving the conflict of interest.

ITB's approach conforms to the requirements of 3rd party verification (internal and external) under the terms of the standard ISO 14025 due to the following points:

- independence of the EPD verifier is guaranteed by EPD verifier who has not been involved in LCI and LCA process.
- LCI data quality is verified by certified ISO auditor
- program procedure includes a procedure for solving the conflict of interest.
- EPD process is a part of company quality management and under supervision of Technical Board and Impartiality Council
- Impartiality Council is made of external representatives like public authorities and industry
- the external verification is undertaken at a fixed fee
- EPD program is open to all construction products within the scope of program.
- all industry EPD customers are treated in the same way
- ITB services and activities are conducted in accordance with the general requirements of assurance standards: PN-EN ISO 9001, PN-ISO/IEC 27001, PN-EN ISO/IEC 17025, PN-EN 45011, PN-EN ISO/IEC 17021.
- Polish Accreditation Board accredits the ITB procedures and this assures the independence and impartiality of the internal verifiers.

5.1. Impartiality Council

To ensure the integrity of certification and other activities ITB prove and verifies itself that acts impartially. Independent program supervision members act as the Impartiality Council to help ITB verify and ensure its impartiality. The functions of this committee are:

- to help maintain and help ensure the impartiality of certification services from undue influence by financial considerations or commercial activities, or other factors or parties
- to help counteract any tendency on the part of ITB to allow commercial or other considerations

to prevent the consistent objective provision of certification activities

- to provide a review of the impartiality by the audit including certification and decision making processes of ITB

Impartiality Council (Committee for Certification) is made of representative mix of stakeholders:

- 4 Associations of Professionals Chambers Representatives
 - Polska Izba Przemysłowo-Handlowa Budownictwa*
 - Związek Rewizyjny Spółdzielni Mieszkaniowych RP*
 - Polski Związek Inżynierów i Techników Budownictwa*
 - Izba Projektowania Budowlanego*
- 4 Representatives of Public Authorities
 - Komenda Główna Państwowej Straży Pożarnej
 - Urząd Ochrony Konkurencji i Konsumentów
 - Główny Urząd Nadzoru Budowlanego
 - Adekwatne Ministerstwo ds. Budownictwa i Infrastruktury
- 4 Representatives of Construction Product Associations
 - Stowarzyszenie Producentów Betonów)
 - Stowarzyszenie Na Rzecz Systemów Ociepleń
 - Ogólnopolskie Stowarzyszenie Producentów Zabezpieczeń Przeciwpożarowych i Sprzętu Ratowniczego
 - Polska Izba Konstrukcji Stalowych
- 4 Industry/Producers Representatives
 - P.U.H. FRAPOL Sp. z o.o.*
 - TFFT Sp. z o.o.*
 - Mercor S.A.*
 - ATLAS Sp. z o.o.*
- 4 Representatives of ITB

Being impartial is essential for ITB acting as EC notified certification body to deliver certification and other services that provides confidence. In order to establish and maintain confidence in ITB's services, it is crucial that decisions are based on objective evidence, and that decisions are not influenced by other interests or by other parties. The status of the Impartiality Council is under Ministry of Infrastructure supervision and fulfils the requirements for construction product Technical Assessment Bodies.

5.2. Technical Board

Technical Board composed of the panel of experts, notified by ITB's director, have oversight of processes (including ITB EPD) to ensure that ITB:

- takes into consideration the needs and rights of stakeholders and clients
- uses actual technical "know-how" scientifically proved approving standards, schemes and publications as appropriate
- act independently
- operating processes and services correctly in accordance to procedures and standards
- improves policies, processes and procedures
- reviews the results of internal audits, management reviews, complaints, appeals, EPD suspensions and withdrawals in order to ensure that procedures are administered in an impartial, timely and non-discriminatory manner;

Technical Board conducts review of the ITB's services and documents. When a new/revised version of any document is ready for review it will be made available to the Technical Board. All technical program documents require acceptance of the Board. Where appropriate, representatives of other stakeholders groups such as developers, technical experts, government, academia or NGO may be invited. Technical Board verifies:

- the compliance with PCR and standards (EN15804)
- the compliance of information given on LCA with the specifications of EN15804
- the committee of experts has access to:
 - Background report
 - EPDs
 - evidence protocols

Technical Board have veto regarding the verification of EPD.

5.3. National Board of Accreditation PCA

Polish Centre for Accreditation is the national accreditation body authorized to accreditation of certification and inspection bodies, testing and calibration laboratories and other entities conducting conformity assessments and verifications on the basis of the Act of Parliament of 30 August 2002 on conformity assessment system (text Off. J. of 2010, No 138, item 935 with changes and of 2011, No 102, item 586). According to the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93, Polish Centre for Accreditation have been appointed as the only national accreditation body in the light of the above Regulation.

ITB activities are conducted in accordance with the general requirements of assurance standards under accreditation and inspection of PCA.

5.4. External EPD verifiers

An independent expert verifies LCA and EPD content. The independent verifier generates a report documenting the verification process (see ITB's ECO based template for verification at <http://www.zb.itb.pl/epd>), while adhering to the obligations for data confidentiality. This report of the verifier is available to any party upon request. The verification procedure confirms whether the information given in ITB EPD accurately reflects the information in the documents on which the declaration is based. The verification procedure confirms whether this information is valid and scientifically sound. Independent verification of data from LCA, LCI, information modules and of additional environmental information shall confirm:

- conformance with PN EN 15804, selected General PCR A and specific B level
- conformance with ECO rules
- conformance with ISO 14025
- conformance with ITB EPD program instruction
- plausibility, quality, accuracy and completeness of and LCI results
- quality and accuracy of additional environmental information

ITB works with other program operators (via ECO-PLATFORM, <http://www.eco-platform.org/>) to coordinate efforts on verification process. Since October 2013 ITB uses verification template developed by ECO (see download section).

ITB accepts a list of EPD verifiers for a period of 3 years.

To become a verifier professional CV must be sent to ITB. Verifier shall prove :

- minimum PhD scientific position in technical sciences (professor title is preferred)
- University position on subjects related to environmental management in industry or LCA/LCC
- experience in LCA calculations via presented projects and pre-reviewed publications proved by HI (Hirsh citation index)
- normalization activity in the area of sustainability – excellent knowledge of environmental declarations ISO 14020-25 and EN 15804
- knowledge of national rules and regulations for construction and environment
- have at least five years of experience in cooperation with industry on the
- environmental issues
- excellent knowledge of manufacturing processes
- knowledge of ITB certification programs and quality management systems
- recommendation from industry is well seen

ITB goes through applications from individuals (not companies) wishing to become verifier and the approval is based on information given in personal CV by ITB director decision (via recommendation of Technical Committee). Applicants must meet all the requirements above. Verifier must be accepted by ITB's director.

External verifiers cannot belong to the same organization that prepares the LCA report or the owner of EPD. Verifier cannot be involved in the implementation or preparation of the EPD.

A list of the registered EPD verifiers (2013-2016) is presented on web (see download sections, and updated every 6 months). Technical Committee contacts with available verifier to conduct verification. There is no procedure for a verifier selection to the specific EPD. A part of the process is the agreement for verification every time with clauses on confidentiality. Verifier is paid by a fixed price. The cost of the verification covers Producer and the sum is transferred by ITB.

The template for comments and verification is ITB EPD verification form (see download section <http://www.zb.itb.pl/epd>).

Note: is there no requirements considering number of verifications that verifier should have carried out before becoming verifier for ITB. EPD ITB systems chooses most experienced verifiers (commonly recognized scientists on sustainable construction) able to provide verification from the very first time. There is no special requirement on the number of available verifiers as well ITB doesn't provide wide recruitment process with experience exams.

The requirements for verifiers concerning documents and time frame are:

- time frame for EPD verification is 2 weeks
- the verifier prepare list of comments on document of verification (see download section <http://www.zb.itb.pl/epd>)

All comments and deviations from the verification process are managed by Technical Committee till the verification form is a clear and free from the crucial issues.

5.5. Technical Committee

Technical Committee is composed by 5 ITB's LCA experts (including 2 professors minimum) prepare, manage and control EPD process documents (see Annex B). All technical ITB EPD process documents require actions of TC and acceptance of TB. Where appropriate, representatives of Technical Board may be invited. Technical Committee prepare:

- PCRs in accordance to general PCR A
- updates to PCRs A and B levels for acceptance
- manage ISO audit on LCI
- Controls LCA quality
- Controls generic quality data
- Controls Verification quality
- Reports any formal or impartiality problems to Technical Board

The actual Technical Committee participation list can be requested from ITB.

6 Procedure for Definition of Product Categories

There are two levels of PCRs accepted by ITB program –general PCR A based directly on PN EN 15804 and specific product PCR B. Specific ITB PCRs for products defines the exact content of ITB EPD.

ITB also accepts PCRs developed by CEN Product TCs or any other initiative verified or validated by ITB's Technical Board (on request). For reasons of consistency in the application of PN EN15804 ITB has chosen to create in 2010 single PCR A document covering all construction products. This document had several updates (4) and is included to this document. Basing on EPD PCR A all specific PCRs are developed.

The clause 6.6 requirement of PN EN ISO 14025 is fulfilled by the normative requirements of PN EN 15804. General ITB PCR A covers products as it is defined in Annex IV of the EC Products Regulation No 305/2011 (CPR).

In specific case studies ITB can use and accept specific PCRs developed by CEN Product TCs, other specific PCR available for group of products or can develop specific PCR for group of products (especially when product is exported to other country). Decision is taken by Technical Board.

General or specific PCR A is established in accordance to the normative requirements of PN EN 15804 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products (last version). The PCR A contains:

- the period of validity
- the group of products covered by
- the intended application
- product category definition and description
- goal and scope of LCA based information for product category
- life-cycle stages and information modules to be declared
- procedure for LCIA and LCA, including the calculation rules and allocation
- the indicators to be declared

- the way in which the results are reported
- content and format of EPD
- other specific to product group information

Technical Committee is responsible for periodical PCRs review and Technical Board is responsible for acceptance. ITB ensures involvement of interested parties in the review process. The competences of PCRs review panel of experts includes:

- knowledge of relevant group of products
- knowledge on the product and product-related environmental impacts and aspects
- excellent knowledge on LCA methodologies and PN EN standard 15804, product related standards and relevant regulatory framework
- knowledge of ITB program for EPD

The PCR review shall ensure that:

- PCR has been developed in accordance with actual PN EN 15804 and in accordance with the procedure in PN EN ISO 14025:2010, clause 6.7.1
- PCR fulfills all Program Requirements
- LCA data covers of all significant environmental impacts aspects of the product group
- any other aspects

PCR includes an additional open consultation with interested parties (National Association of Producers). PCR document is valid for a period of 5 years from the date of publication. Periodic review of the PCR may include changes in relevant information, including referenced standards and scientifically proved knowledge.

The list of actual indicators defined by general PCR A is in the web download section.

7. Procedures for Program management

7.1. Document and data management

All data and documentation supplied, generated and used as part of the program procedure and are managed in accordance with PN EN 45011.

For all documents management is responsible Technical Committee under the supervision of Technical Board.

ITB has several documents that are supportive for EPD preparation (<http://zb.itb.pl/epd-download>).

For instance:

- ITB EPD program procedure
- ITB EPD general PCR A document
- ITB EPD general PCRs B specific to group of the products
- ITB EPD verification form
- ITB EPD LCI questionnaire

ITB PCR A document is the Annex A to this document.

The documentation requested from the manufactures defines ITB EPD LCI questionnaire document .and technical documentation. The documentation requested during LCI audits, are

invoices, bills and results of measurements.

The documentation form LCA auditor is LCA report. All LCA process shall be in accordance to PCR A document.

EPD document is created basing on LCA report by Technical Committee.

EPD document is verified by external auditor using ITB EPD verification form. EPD and the background report should be consistent with relevant PCR A and B documents. The verification of LCA and LCI data, the information modules and supplementary environmental information have to be in conformity with PCR documents, EN 15804, General Principle of the ITB Program. Quality of data including: accuracy, completeness, representativeness, reproducibility, sources of possible uncertainties

All ITB EPD process documents are obligatory in English and can be downloaded from ITB EPD web service <http://www.zb.itb.pl/epd>.

7.2. Data Confidentiality

Specific life cycle inventory (LCI) information is treated as confidential on the basis of rules set in the Agreement. It may be made available in LCA report to the third party verifier of EPD who in turn shall keep this data confidential.

LCI data and additional information is published in EPD according to the selected parameters listed in accordance with the requirements of PN EN15804 but some LCI data can be publicly unavailable due to the producer special request.

Where the published EPD results are used the user must reference the ITB program operator.

7.3. EPD validity

EPD is valid for 5 years from the date of issue, after which it can be reviewed and revalidated. Any change in the data that is sufficient to generate a change for any declared indicator shall be considered significant and in such an instance EPD shall be recalculated and verified in accordance to clause 9 of PN EN 15804. The producer is the EPD owner and has liability and responsibility for EPD and therefore shall ensure that ITB is notified when the EPD requires validation

ITB may contact EPD owner to request a signed declaration that no changes have occurred to the product or production process or information on any factors that resulted in a significant process changes. If any such changes have occurred then EPD owner must submit a verification.

7.4. Responsibility

All formal issues are regulated in formal Agreement between ITB and Client.

The manufacturer is ITB EPD owner and has liability and responsibility for information declared in EPD (see PN EN 15804, clause 5.5.). The manufacturer is responsible for all provided data. ITB may act in case of abuse by manufacturer as long as the proved data is provided.

ITB logo cannot be used by manufacturer separately without acceptance.

ITB maintain a publicly accessible list of all valid EPDs which have been prepared in the Program every 3 months (<http://zb.itb.pl/epds>)

7.5. EPDs of other program operators

ITB cooperate with other EPD program operators (via ECO-PLATFORM, <http://www.eco-platform.org/>) to coordinate efforts to assist industry sectors while reducing duplication of effort to get EPD in different countries. ITB shall accept the core EPD based on ECO requirements. Transportation process impact from production country to Poland (if product is on the polish market) must be added. Translation is also required.

Note: Since EPD program operators cooperate with foreign operators, it should be written if the relevant documents are available in English (like EPD documents) for other partners.

7.6. Industry Cooperation

All Construction Product Associations interested in ITB EPD program development are welcomed to sign of the cooperation intent agreement that grants the adequate rights in the program documents development- especially new PCRs. The list of supporting construction product associations (e.g. National Association of Cement Producers, ETICS producers, Insulation Product Producers etc.) that signed the cooperation intent agreement may be delivered on request.

7.7. Complaints and appeals

Complaints and appeals are handled according to ITB's implemented ISO standard procedure (use a contact: dyrekcja@itb.pl or ITB EPD Program secretary fizyka-srodowisko@itb.pl).

7.8 Funding sources

ITB is officially recognized and registered as the Research Institute in accordance to Reg. no. Dz. U. Nr 96, pos. 615 and works as the non-profit and public organization. ITB has no financial interest in, or is not financially dependent upon, any industry company manufacturing construction products being inspected or tested, it is not owned, operated, or controlled by any such company.

7.9 Periodic review of program documents

ITB will review ITB EPD Program (and adequate documents) at least every 5 years or at the time of any relevant change to the related EN or ISO standards or ECO regulations. ITB dossier as PCR A version is updated if any new version of EN 15804 (or other relevant CEN) is published.

It is required for EPD to be re-validated and verified and updated prior to expiry of its validity 5 year period (special fee is provided).

The level of accepted change in the environmental impact of a product with is declared in ITB PCR A document (see Annex A).

If the manufacturer wishes to re-approve its EPDs then ITB will check the manufacturer process if there have been substantial changes in the process of production of the given product that is declared.

Note: PCR A and PCR B document may be replaced by adequate CEN PCR document if available.

7.10 EPD costs

Information about EPDs cost can be requested from ITB (via formal negotiation process after contact with program secretary at fizyka-srodowisko@itb.pl), approximated EPD costs can be available from ITB web service or request.

7.11 Program documents

All program documents for transparency reasons are available in a ITB download section.



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APPENDIX A- ITB EPD PCR A Document (see <http://www.zb.itb.pl/epd> or ITB'dossier)

APPENDIX B members of the ITB's EPD Technical Committee (2014)

APPENDIX B members of the ITB's EPD Technical Committee of experts (2014)

1. Dr inż. Robert Geryło (construction physics, industry process), d.gerylo@itb.pl
2. Dr inż. Halina Prejzner (LCA , emissions), h.prejzner@itb.pl
3. Prof. dr hab. inż. Stanisław Mańkowski (scientific quality, industry process)
4. Prof. dr hab. inż. Krystyna Kostyrko (LCA and IAQ), k.kostyrko@itb.pl
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LCI auditor (ISO): Dipl. Eng. Dominik Bekierski, d.bekierski@itb.pl

LCA auditor and ITB System Contact (EN): Dr inż. Michał Piasecki, m.piasecki@itb.pl

TC Experts acts on the supervision of the ITB's Institute Scientific Council