Kiwa-Ecobility Experts

Program operator, including in cooperation with the notified bodies of the Kiwa Group

Annex B1

Environmental Information Programme according to EN 15804 / ISO 21930

This programme includes 26 Pages.

Editor:

Kiwa GmbH

Kiwa-Ecobility Experts, Wattstraße 11-13, 13355 Berlin

Telefon: +49 (0)30 / 46 77 61 52E-Mail: DE.Ecobility.Experts@kiwa.com

Managing Directors: Prof. Dr. Roland Hüttl, Andreas Müller, Dr. Gero Schönwaßer
District Court of Hamburg, HRB 130568, St.Nr.: 46/736/03268

Table of Contents:

List of abbreviations

Abbreviation	English	German
CPR	Construction Products Regulation	Bauproduktenverordnung
CEN TC c-PCR-Dokumente	Product Category Rules" (PCR), which are developed by technical committees (TC) of the European Committee for Standardization (CEN).	„Produktkategorieregeln" (PCR), die von technischen Komitees (TC) des Europäischen Komitees für Normung (CEN) entwickelt werden.
EPD	Environmental Product Declaration in accordance with EN 15804	Umweltproduktdeklaration im Sinne der EN 15804
EAD	European assessment document	Europäisches Bewertungsdokument
ETA	European Technical Approval	Europäische Technische Bewertung
GO	Guarantees of Origin	Herkunftsnachweis
hEN	harmonized european standard	harmonisierte europäische Norm
ILCD	International Reference Life Cycle Data System	Europäisches Lebenszyklus Referenzdatensystem
LCA	Life Cycle Assessment	(Umwelt-)Lebenszyklusanalyse
Kiwa-EE	Kiwa-Ecobility Experts, program operator of the Kiwa Group in accordance with ISO 14025	Kiwa-Ecobility Experts, Programmbetrieb der Kiwa-Gruppe im Sinne der ISO 14025
NB	Notifed Body	Notifizierende Stelle
PCR	Product Category Rules = specific product category rules and in accordance with EN 15804	Produktkategorieregeln = spezifische Produktkategorieregeln und im Sinne der EN 15804
RSL	Reference Service Life	Referenz-Nutzungsdauer
SVA	Advisory Board	unabhängiger Sachverständigenausschuss

1 Scope

The programme applies to building-related products (construction products or kits or the associated raw materials within the meaning of the CPR [4] [5] and building-related services or technical building equipment (in the sense of the provision of water, heat, etc.).

This is the following environmental information according to ISO 14025:

- Environmental Product Declarations (EPDs) for construction products,
- Validation reports for the assessment of environmental sustainability, i.e. the associated documentation and evaluation of the calculation within the meaning of Annex IX of the future Construction Products Regulation [5].

The general programme instructions of Kiwa-EE apply overarchingly.

For the products and services mentioned, a uniform procedure is ensured for the creation, validation / verification and publication via the core product category rules (EN 15804 / ISO 21930). ISO 21930 can also be used as a basis in parallel to EN 15804, provided that the requirements of EN 15804 are met. With regard to the methodology for the selection and use of generic data, EN 15941 is also applied.

The requirements of the ECO PLATFORM are an essential part of this programme, in detail the following documents are used [1], [2], [3] and apply if not explicitly excluded.

Validation report (special case)

The Validation Report the environmental sustainability includes the quantified environmental information according to CPR [5]. The report is also based on a life cycle assessment and essentially consists of a product description, the objective and scope of the life cycle assessment, the life cycle assessment results and the associated evidence. Environmental sustainability is described by defined essential environmental characteristics in connection with the life cycle assessment of a construction product, in detail:

a) Climate change – total
b) Climate change – fossil fuels
c) Climate change – biogenic
d) Climate change – land use and land use change
e) Ozone Depletion
f) Acidification Potential
g) Eutrophication aquatic freshwater
h) Eutrophication aquatic marine
i) Eutrophication terrestrial
j) Photochemical Ozone
k) Abiotic Depletion -minerals and metals
l) Abiotic Depletion -fossil fuels
m) Water use
n) Particulate matter
o) Ionising radiation, human health
p) Ecotoxicity, freshwater
q) Human toxicity, cancer
r) Human toxicity, non-cancer
s) Land-use related impacts

Harmonized product specifications (hENs, ETAs) and other delegated acts / implementing acts of the European Commission are expected for concrete implementation. The introduction of the above environmental indicators will be carried out in stages. The validation report documents and evaluates the calculation of environmental sustainability in terms of the CPR [5] (Annex IX, AVS 3+) by a body notified in this context in the future. This In the future, the report will be explicitly

included in the Declaration of Performance and Conformity (designation according to [5]) of the economic operator, the environmental characteristics are shown here.

The environmental characteristics mentioned a) – s) are identical to the core environmental indicators and the additional indicators for environmental impacts according to EN 15804 (EPD).

The concept is applied to accompany product manufacturers in the transition phase. For this purpose, it is possible to create preliminary reports on the status. This gives the manufacturer the opportunity to identify and eliminate deficits. The documentation can already be used in the sense of the new CPR [5].

The following section 2 deals with the Environmental Product Declarations (EPDs). In Section 3, the special case "validation report" according to CPR [5] treated.

2 General Structure – Basics – EPD

2.1 General

The EPD and project report or the corresponding LCA datasets are always created.

Several EPDs can also be recorded via a project report (or study, life cycle assessment report, etc.). The EPDs and the project report are usually created automatically via the tool when using Kiwa's own R<THINK tool.

The project report systematically and comprehensively documents the calculation basis to support the validation / verification of environmental information. This report must fully reflect the information based on a life cycle assessment in a fully comprehensible manner. The structure of the report should correspond to the scientific approach of a life cycle assessment.

In addition to the basics mentioned in the general programme instructions, the sector-specific requirements of EN 15804 / ISO 21930 with the life cycle phases and their process modules to be included apply. The other product group-specific requirements are included via PCRs.

2.2 Product Category Rules (PCR)

PCRs are specific rules, requirements or guidelines according to ISO 14025 to create Type III environmental declarations for one or more product categories. The process for creating and maintaining a specific PCR is organized and accompanied by Kiwa-EE. Kiwa-EE ensures that product categories are defined in a transparent manner. If products have a similar function and application, they can be assigned to a product category with the same functional unit. The PCR released by the SVA is published via Kiwa-EE.

If available for the specific product category, the following product-specific category rules should be used:

- CEN TC c-PCR documents,
- PCRs of Kiwa-EE also published PCR drafts.

2.2.1 Use of a PCR by third parties (owners e.g. other program operators)

It is possible to use a third-party PCR for EPDs.

Kiwa-EE supports the standardization of PCRs in a product category by reviewing the adoption of easily accessible PCR documents for the same product category and from a comparable market region. In this context, there are cooperations with other program operators.

2.2.2 Creation and revision of a PCR (Kiwa-EE as PCR owner)

Reference is made to ISO 14025, para. 6.7.

The path from the creation/revision to the publication of a PCR is a six-step process at Kiwa-EE. A specific LCA expert panelwill be involved for this purpose. The PCR is reviewedby the SVA of Kiwa-EE. Both the comments of the parties involved and their decision on consideration are available to all members of the LCA Expert Panel.

The PCR will then be published on the Kiwa-EE website.

The PCR document must contain the following points:

- Definition and description of the product category (e.g. description of the function, technical characteristics and application),
- Objective and scope of the investigation of the product group, including functional unit, system boundary, data description, cut-off criteria, data quality requirements, etc.,
- the list of the regulations applicable to the product category (standards, technical data sheets or similar regulations) and the resulting product characteristics to be declared,
- information on the results of the LCA (e.g. data collection, calculation rules applied, allocations),
- Description of the information to be provided for the "downstream" processes (construction, use and disposal phases as well as benefits and burdens outside the building life cycle),
- defined parameters for the presentation of LCA data (LCA data categories and indicators for the impact categories),
- where applicable, additional materials and substances to be declared in the EPD (e.g. information on product composition, including materials and individual substances that may affect human health and/or the environment at all stages of the product life cycle);
- Guidelines for the content and design of the EPD,

Start of PCR APPLICATION

Validation/verification activities with a PCR in draft status can be carried out. A validation/verification decision based on a new PCR can only be made after full approval by the SVA of Kiwa-EE including the above-mentioned process.

2.2.3 Maintaining, modifying or terminating a Kiwa PCR

The update of PCRs takes place after five years at the latest by Kiwa-EE.

In this context, Kiwa-EE takes into account changes in the requirements of a PCR or other changes related to the functioning of the program.

An earlier revision or update of the PCR is possible if necessary.

It may be required for:

- formal or substantive errors,
- Changes in the underlying regulations or new findings regarding the environmental properties of materials, substances or processes,
- Identifying aspects that need improvement, taking into account feedback from interested parties,
- For provisions to ensure that PCR requirements are applied consistently,

- When determining the need to amend the requirements of the programme, for example on the basis of the development of standards and other normative or regulatory documents, or on the basis of the changing needs of the relevant market.

It requires the above-mentioned process for creating a PCR.

Kiwa-EE, in agreement with interested parties, should agree on the following criteria:

- which could justify a termination of PCR,
- and when updating the PCR, check whether these criteria are met or not and whether the PCR should be terminated.

If a PCR is terminated, all interested parties must be adequately informed. In any case, this includes the affected declaration holders who have used the PCR as part of their verification, the circles interested in the development and maintenance of the PCR and all Kiwa employees who play a role in the marketing, sales and use of the PCR.

2.3 Aim and scope of investigation

2.3.1 Goal

The goal is to be described in the project report with regard to:

- the intended application,
- the reasons for the implementation,
- target group, i.e. to whom the results of the study are to be addressed,
- whether the results are intended for use in comparative statements intended for publication.

2.3.2 Scope of the study

The scope of the studymust be clearly defined and adapted to the intended application. Due to the iterative nature of the life cycle assessment, the scope of the studycan be specified.

2.3.2.1 Declared /functional unit

The life cycle assessment is to be related to the declared or functional unit defined in the specific product category rules. All input and output data must be normalized to the unit as a reference value in the mathematical sense. The term "functional unit" may only be used when considering the entire life cycle of the product. For all other cases, the term "declared unit" applies.

The unit is directly related to the reference flow. The reference flow refers to the quantity of a product that serves as the basis for assessing the environmental impact. It is a specific quantity to which all inputs and outputs in the life cycle of the product refer.

The conversion factor of the unit to 1 kg must be indicated, e.g.:

- mass [kg/t] → bulk density [kg/m^3], if applicable, mass per unit area [kg/m^2],
- Volume [m^3] → Bulk density [kg/m3],
- Area [m^2] → material thickness [m], if necessary bulk density [kg/m^3] / mass per unit area [kg/m^2],
- Length [m] → linear density [kg/m], if necessary,
- Piece [piece] → piece weight [kg/piece], if necessary.

2.3.2.2 Product description / area of application

The product must be fully described with regard to its nature (material, technical) and functionality. To this end, if possible, reference should be made,to transparent or publicly available European product specifications. The typical area of application must be described, e.g. indoor application.

2.3.2.3 Creation of EPD variants

EPDs can be (manufacturer) specific.

In addition, product group-specific EPDs can be created. For product groups, "average EPDs", "representative EPDs", "worst-case EPDs" or "scalable EPDs" can be mapped (see also EN 15941).

In the EPD and in the project report, all declared products and the specific variant must be indicated. The manufacturers and production facilities of the products covered by the EPD must be clearly identified.

2.3.2.4 Scaling

A product group or parts of a product group are scalable if there is an underlying technology or design in which it can be assumed that the environmental impacts are similar. If there is a mathematical relationship between the environmental impacts and the declared/functional units, the conversion of the environmental indicators to individual products from a product group can be converted within a scalable product group.

Products of a product group that consist of scalable and non-scalable components can be viewed in a differentiated way. The scalable parts of the product group can be converted using a scaling factor, while other component parts are to be applied in the same way for each product in the product group. The aim is for users to be able to calculate product-specific impact assessments with the help of this scaling approach.

The scaling approach is as follows:

→ Determining the Scalable Unit

The design (e.g., geometry) or technology (e.g., production process) of the product/product component determines the way in which the scalable "unit" is determined for the scaling function.

→ Choosing the most appropriate scaling feature

The most appropriate function is determined on the basis of the scalable unit depending on the environmental impact. Options include:

- The product component has linear scaling.
- The product component has exponential scaling.
- The product component has logarithmic scaling.

To determine the most appropriate function, the R2 score is used as a tool. The closer the value of R2 gets to 1.0, the better it is. A value ≥ 0.9 for the match is targeted.

Note: EPDs with scale include the Impact Assessment (LCIA) and LCI indicators for both the non-scalable and scalable components. This presentation cannot be transferred to an ILCD+EPD format.

2.3.2.5 System boundaries

The system boundary determines which process modules must be included in the life cycle assessment. The environmental information programmes show the individual process modules.

The selection of the system boundary must be consistent with the objective of the life cycle assessment.

It is allowed to omit certain life stages, processes, inputs or outputs, as long as this does not significantly affect the overall conclusions of the study. Any decision to omit such elements must be clearly documented, and the reasons as well as the effects must be explained.

General

The system boundaries follow the modular design according to EN 15804. The life cycle phases A1 to A3 (manufacturing phase) + modules C and D must be specified (type: "cradle-to-gate + modules C and D"), with the following exception.

Products and materials that:

- are physically connected to other products during installation, so that they cannot be physically separated from them at the end of their life, and
- are no longer identifiable at the end of their service life due to a physical or chemical transformation process, and
- that do not contain biogenic carbon.

If modules C1 to C4 and module D are not specified, this decision must be reasoned. Optionally, further modules and life cycle phases can be specified ("cradle-to-gate + modules C and D with options"). In the case of a cradle-to-gate EPD, the entire life cycle of the product must be taken into account (A1-A3, A4-A5, B1-B7, C1-C4 and D).

The indicators declared in the information modules of the life cycle of a product A1 to A5, B1 to B7, C1 to C4 and module D may not be added to a sum or sub-sum of the phases of the life cycle A, B, C or D in any combination of the individual information modules. Exception: The information modules A1 to A3 can be summed up.

Manufacturing phase

The consideration of the manufacturing phase is mandatory and includes:

A1 Raw material extraction and processing of secondary input materials (e.g. recycling processes),
A2 Transport to the manufacturer,
A3 Production.

For secondary or substitute fuels as input, the system boundary between the investigated and the upstream system is defined. The system boundary of the predecessor system is achieved by complete waste treatment [in accordance with the European Waste Framework Directive] (see EN 15804, section 6.3.5 and Annex B). Flows leaving the system in the manufacturing phase shall be treated as by-products. These include:

- Production waste that is reused or recycled. The materials can be reused during the manufacturing phase (closed loop) or leave the system as by-products (open loop).
- Heat and electricity from the energy recovery of production waste. The energy can be used during the production phase (closed cloop) or it can leave the system as a by-product (open loop).

If loadsand benefits are assigned to by-products, they must not be specified in Module D, but in the corresponding module in which they occur. The manufacturing phase can be specified as a declared module A1-A3.

Construction phase

The construction phase is optional and includes:

A4 Transport to the construction site,
A5 Installation in the building.

Usage phase

The usage phase is optional and includes:

B1 Use or application of the built-in product,
B2 Maintenance
B3 Repair
B4 Replacement
B5 Renewal
B6 Operational energy use (e.g. for the operation of a heating system and other building technology systems),
B7 Operational use of water.

For constructionproducts that come into contact with indoor air during the use phase after their installation in the building, the environmental information on health-related use scenarios in the building must contain:

- Emissions into indoor air in accordance with the general standards for the measurement of the release of controlled substances from construction products using harmonised test methods established by the competent technical committees for European product standardisation, where available.

For construction products that come into contact with soil and water during the use phase after their installation in the building, the environmental information must provide information on use scenarios related to soil and water pollution:

- Release into soil and water in accordance with the general standards for the measurement of the release of controlled substances from construction products with harmonised test methods in accordance with the specifications of the respective technical committees for European product standardisation, where available.

Reference service life (RSL)

To determine the reference service life of the products, tests in the laboratories of the Kiwa Group can be used. A large number of experimental setups etc. are available for this purpose.

Information about a product's RSL requires the specification of appropriate scenarios for the manufacturing phase, the deployment phase, and the use phase. The RSL depends on the characteristics of the product and the reference terms of use. The RSL must be declared together with the Reference Terms of Use with the note that the RSL applies exclusively to the Reference Terms of Use.

Disposal phase

The disposal phase is mandatory and includes:

C1 Dismantling, demolition,
C2 Transport for waste treatment,
C3 Waste treatment for reuse, recovery and/or recycling,
C4 Landfilling.

Depending on the disposal scenario, this phase can begin with the dismantling or demolition of the building. The dismantled products are initially considered waste. If the following criteria are met, they can be defined as secondary substances:

- Recovered substances, products or components that are commonly reused for specific purposes
- an economic value can be assigned to the recovered material
- the recovered material meets the technical requirements for the intended reuse and complies with the applicable legislation and standards
- in the case of reuse, harmful effects on the environment and human health must be excluded (limit values for pollutants from the applicable legislation)

The system boundary to module D is to be established when the complete waste treatment has been completed.

Benefits and loadsbeyond the system boundaries of the product in Module D

The reuse, recovery and/or recycling potentials, expressed as net flows and credits (benefits), must be reported in accordance with EN 15804 (= Module D). Information Module D is intended to create transparency about environmental benefits or pollution for disposal scenarios of substances and products.

2.3.2.6 Electricity/biogas rules (energy)

The energy mix is included according to the geographical and time-related system boundaries.

Kiwa-EE accepts the market-based approach (contract instruments and residual mix) and the location-based approach (using the national consumption mix (= national production + imports - exports). For the production processes on which the manufacturer has direct influence (modules A1 to A3), the "market-based approach" is to be prioritized. If the location-based approach is used, this must be justified.

Contractual instruments may include Energy Attribute Certificates, Renewable Energy Certificates (RECs), Guarantees of Origin (GOs), or Renewable Energy Certificates. For an entity producing more than one product, pooled energy resources using contractual instruments may not be virtually allocated to specific products, unless there is a separate energy supply and contract. Proof of "green" energy is provided either by means of the guarantees of origin for the last year of production or by means of a contractual obligation to purchase "green" energy during the period of validity of the balancing. In the case of certified energy from Europe, the origin of the "green" energy is proven by an entry in the Guarantee of Origin Register (in Germany: UBA); for certified energy from non-European sources, an equivalent guarantee of origin must be provided.

If "green" energy is generated in the manufacturing plant and is used for the production of the product to be balanced, only the amount of energy generated from "green" energy that is used directly for the production processes taking place on site can be used. For this purpose, the following are:

- amount of energy generated from "green" energy in the last year of production,
- the amount of energy generated from "green" energy that was fed into the local energy grid at the manufacturing plant in the last year of production, to be included.

For all modules that go beyond the factory gate (e.g. energy consumption in the use phase), the regional consumption mix is used. The geographical market area must be considered here.

If guarantees of origin are used, the validity must be checked. Kiwa-EE has a procedure in which the declaration holder regularly provides proof of the assigned guarantees of origin, if made as an acceptance. The GOs must be valid for at least the coming year and the manufacturer must commit

to purchasing GOs for the entire period of validity of the EPDs. In addition, the manufacturer of Kiwa-EE must provide annual proof of GOs for the previous period of 12 months. If the energy mix provided by the energy suppliers is not known at the time the EPD is valid, the energy mix of the previous calendar year can also be used.

The GWP of the balanced energy mix for the production processes in modules A1-A3, over which the manufacturer has direct influence, is expressed in kg CO2e/kWh for electricity and kg CO2e/MJ for gas.

To avoid double counting, the residual mix is calculated conservatively by subtracting renewables from the consumption mix.

CO_2 certificates are not considered.

If no national residual mix is known for biogas, 100% natural gas should be assumed for the modelling (conservative approach).

Further calculation rules and reportable information can be found in the ECO Platform [1],

2.3.2.7 Criteria for excluding inputs and outputs

The cut-off criteria must not be used to hide data. All inputs and outputs for which data is available are considered in the calculation. Data gaps are filled with conservative assumptions about average data or generic data. Any such assumption must be documented.

All flows that contribute to more than 1% of the total mass and primary energy of the unit process must be included in the LCA. Overall, the selected cut-off processes must not contribute more than 5% to the impact categories considered. Material and energy flows that can lead to significant environmental impacts must not be cut off. The applied performance criteria must be documented in the project report.

2.3.2.8 Scenario development

Scenarios define the realistic or representative parameters of a specific function or process. These are specific scenarios that are usually presented via product category rules, and if necessary, specifications can be justified and documented via the project report.

A scenario must be based on the relevant technical information. Scenarios can be defined for the transport, use and end of life of the products, for example. The indicators are calculated with the help of the scenarios. Scenarios must not contain processes or procedures that are not in current use or that have not been proven to be practicable.

The RSL is required when the expected or planned service life of a product is included in a life cycle assessment. This period of time is used to evaluate the environmental impact throughout the life of the product. If product category rules specify an RSL under reference terms of use, they are preferentially applied.

The RSL must refer to the specified technical and functional quality of the product. All maintenance, servicing or repairs that are necessary to achieve the declared quality during the RSL must be included.

2.4 Life Cycle Assessment

The procedures for data collection and calculation essentially follow ISO 14044.

2.4.1 Data collection and calculation methods

For each process module within the system boundaries, qualitative and quantitative data regarding the factors, inputs and outputs must be recorded and included in the LCA. This data, which is

collected by measuring, calculating or estimating, is used to quantitatively determine the inputs and outputs of a process module to be considered.

If data comes from published sources, the source must be cited. For data that could be relevant to the conclusions of the study, details of the data collection process, the period of data collection and other data quality indicators must be indicated. It must be identified if this data does not meet the data quality requirements.

Data quality issues should also be taken into account when collecting data:

- Evaluation period for each module considered (e.g. annual average, etc.)
- Adequacy of background data (temporal, geographical, technological)
- Other assumptions about background data, such as data gaps
- Omissions of life cycle stages and processes
- Assumptions on the energy and electricity mix including reference year. It should also be transparent which process is used for energy as an avoided product when energy recovery is reported as benefits outside the system boundary.
- Assumptions about other relevant background data if they are relevant for the system boundary.

Since the data can come from a variety of sources, both site-specific and publicly available, measures should be taken during data collection to ensure a consistent and conclusive understanding of the product system being modeled. In general, specific data collected during certain production processes or average data derived from them take precedence in the calculation of environmental impacts.

The selection of generic data and background data should be documented. There are no restrictions on the choice of database, as long as the data meets the data quality requirements. The name of the background dataset, its source (database, literature source, etc.) must be indicated.

In addition, the requirements for data quality are defined as follows:

- Manufacturer-specific data may be a maximum of 5 years old, general data no more than 10 years old.
- The process-specific data must be based on the average of a year of operation.
- The datasets must be complete and consistent, and deviations must be justified.
- Period of 100 years, possibly longer in the case of a landfill scenario
- The technical background corresponds to the physical reality,
- Validity of the generic datasets, system boundary, and cut-off criteria for the validity of the generic datasets demonstrated.

Data quality assessment information must include the following elements:

- time-related coverage,
- geographical coverage,
- technological coverage.

For the relevant LCA data, the type of system used to assess data quality and the data quality results must be documented.

'The term 'relevant data' means data with a larger contribution, which together account for up to at least 80 % of the absolute impact of each core indicator included in the LCA, considered over

the entire life cycle, with the exception of Module D, or over those modules of the life cycle that are covered by the LCA. The data quality of Module D also needs to be evaluated.

2.4.2 Presentation of unit processes

The modelling of the life cycle assessment is to be illustrated by the presentation of the process. This is done by means of a graphical representation of the special system flow diagram, which shows all process modules to be modeled, including their interdependence.

The following points must be taken into account:

- Assignment of company data to the datasets used,
- Assignment of process data to the life cycle phases.

2.4.3 Allocations

In general, the allocation rules apply.

Allocation of co-products

Allocations take place as soon as co-products occur in the system under investigation. Co-products are products that are in addition to the desired outputs and can be reused in other processes. The distribution of environmental impacts between product and co-product is called allocation. In principle, allocations should be avoided as far as possible (e.g. by system expansion, division of processes into sub-processes). In general, the principle is that the allocation should be based on the main purpose of the process. If an allocation is to be made, the following points must be considered:

- The allocation is based on the physical properties (e.g. mass, volume) if the difference in the farm income generated by the products is small,
- In all other cases, the allocation is based on economic value,
- Material flows that have certain inherent properties (e.g. energy content) and an elementary composition must always be assigned according to the physical flows, regardless of the allocation principle chosen for the process.

Allocation procedures for reuse, recycling and recovery

For the reuse, recycling and recovery of products, the system boundary is set where the outputs have reached the state of complete waste treatment.

At least the following allocations must be indicated:

- Allocation for the use of recycled material or secondary raw materials,
- Allocation of energies, auxiliary materials and operating resources to the individual products of a plant,
- Credits from recycling and/or thermal
- Recycling of packaging materials and production waste,
- Credits from recycling and/or energy recovery of the deconstructed product.

Reference should be made to the modules in which the allocations are made.

2.4.4 Information about the biogenic carbon content

Biogenic carbon content quantifies the amount of biogenic carbon in a building product that leaves the factory gate and must be reported separately for the product and any associated packaging.

If the total mass of the biogenic carbon containing materials is less than 5 % of the total mass of the product and the associated packaging, the biogenic carbon content may be omitted.

2.5 Impact assessment

Impact assessment includes the potential environmental impacts which describe the use of resources, waste, and other outcomes, as well as the potential environmental impacts. The information is provided for the following impact indicators shown below.

The characterisation factors of the European Commission's Joint Research Centre (JRC) are used for all impact categories. The characterization factors are available at the Internet link: https://eplca.jrc.ec.europa.eu/LCDN/EN15804.html (last accessed on 31.05.2024). The characterization factors and the elimination of long-term emissions are applied for >100 years.

Indicators on the life cycle assessment

The impact indicators are shown both for the product and in the relevant process modules, this also refers to the packaging. The calculation method used for the respective indicators is specified and, if necessary, the derivation of individual values of the LCA is explained.

No statements are made about impact category endpoints, exceeding of threshold values , safety margins or risks. In principle, other indicators and environmental information can also be provided. In environmental information, both in the text and in the tables, a clear distinction must be made between the indicators and parameters required in the programmes set out in Annex B and the additional indicators.

The result tables are presented as follows:

- core environmental indicators,
- additional environmental impact indicators;
- resource use indicators,
- indicators for describing waste categories and additional output streams,
- information on the description of the biogenic carbon content at the factory gate.

The nuclear environmental indicators (Table 1) are given below. Table C.1 of EN 15804 lists the indicators together with their units and the characterisation factors to be used.

Table 1: Core environmental indicators

Parameter	Abbreviation	Unit
Depletion of abiotic resources – minerals and metals	ADP-mm	kg Sb-Eq.
Depletion of abiotic resources – fossil resources	ADP-f	MJ
Acidification potential	AP	mol H+ Eq.
Global warming potential - total	Total GWP	kg CO2 -eq.
Global warming potential -fossil	GWP-f	kg CO2 -eq.
Global warming potential -biogenic	GWP-b	kg CO2 -eq.
Global warming potential due to land use and land use change	GWP-luluc	kg CO2 -eq.
Eutrophication potential - terrestrial	EP-t	mol N-Eq.
Eutrophication potential - freshwater	EP-f	kg PO4 eq.
Eutrophication potential -marine	EP-m	kg N-Eq.
Depletion potential of the stratospheric ozone layer	ODP	kg FCKW 11-Äq.
Photochemical ozone formation potential	POCP	kg NMVOC Eq
Water depletion potential	WDP	m3

Table 2 shows the additional environmental impact indicators to be reported. Table C.2 of EN 15804 lists these indicators together with their units and the characterisation models to be used.

Table 2: additional indicators of environmental impact

Parameter	Abbreviation	Unit
Human toxicity potential, cancer effects	HTP-c	CTUh
Human toxicity potential, non-cancer effects	HTP-nc	CTUh
Ecotoxicity potential - freshwater	ETP-fw	CTUe
Potential Soil Quality Index	SQP	-
Particulate matter emission	PM	Incidence of the disease
Ionising radiation, human health	IRP	kBq U235 eq.

Table 3 indicates the specific resource consumption per study unit. It is calculated for each impact category according to the corresponding indicator.

Table 3: Parameters for describing resource consumption

Parameter	Abbre-viation	Unit
Use of renewable primary energy without re-newable primary energy resources used as raw materials	PERE	MJ, lower calorific value [Hi]
Use of renewable primary energy resources as raw materials	PERM	MJ, lower calorific value [Hi]
Total consumption of renewable primary energy sources	PERT	MJ, lower calorific value [Hi]
Use of non-renewable primary energy without non-renewable primary energy resources used as raw materials	PENRE	MJ, lower calorific value [Hi]
Use of non-renewable primary energy re-sources as raw materials	PENRM	MJ, lower calorific value [Hi]
Total consumption of non-renewable primary energy resources	PENRT	MJ, lower calorific value [Hi]
Use of secondary material	SM	kg
Use of renewable secondary fuels	RSF	MJ, lower calorific value [Hi]
Use of non-renewable secondary fuels	NRSF	MJ, lower calorific value [Hi]
Use of net fresh water	WDP	m^3

Table 4 shows the indicators for describing the use of resources (see EN 15804, Table 7).

Table 4: Parameters for describing waste categories

Parameter	Abbre-viation	Unit
Hazardous Waste Disposed	HWD	kg
Non-Hazardous Waste (municipal waste) Disposed	NHWD	kg
Radioactive Waste Disposed	RWD	kg

Table 5 provides the indicators describing output flows (see EN 15804, Table 8).

Table 5: Parameters for Describing Output Streams

Parameter	Abbre-viation	Unit
Components for re-use	CRU	kg
Materials for recycling	MFF	kg
Materials for energy recovery	MER	kg
Exported energy	EE	MJ, lower calorific value [Hi]

Table 6 provides the biogenic carbon content information that must be included in the EPD as follows (see EN 15804, Table 9).

Table 6: Information on the description of the biogenic carbon content at the factory gate

Parameter	Abbreviation	Unit
Biogenic carbon content in the product	-	kg C
Biogenic carbon content in accompanying packaging	-	kg C

No statements are made about impact category endpoints, exceeding of threshold values safety margins or risks. The indicators declared in the information modules of the life cycle of a product A1 to A5, B1 to B7, C1 to C4 and module D may not be added to a sum or partial sum of the life cycle phases A, B, C or D in any combination of the individual information modules. It is recommended that modules A1, A2 and A3 be added cumulatively.

Tables 1 to 5 can also be summarised in an appropriate manner. In principle, other indicators and environmental information can also be provided. Both in the text and in the tables, there must be a clear separation between the indicators and parameters prescribed by EN 15804 and the additional indicators.

2.6 Interpretation

An interpretation and discussion of the impact assessment is planned for the project report of the Environmental Declaration and the Validation Report on Environmental Sustainability Performance [2].

The following points must be taken into account:

- Results
- relationship between the results of the life cycle inventory analysis and the results of the impact assessment,
- Assumptions and limitations regarding the interpretation of the results in the EPD, both methodologically and data-related,
- Data quality assessment.

If necessary, the procedure for assessing the impacts of the selected methods and data on the results of the LCA can be documented as part of the validation / verification process.

2.7 Documents

The EPD (see section 2.7.1) and the accompanying project report (see section 2.7.2) should contain at least the information/structures mentioned in EN 15804.

2.7.1 EPD

In specific PCRs, additional requirements for the content format may be specified in order for the EPD to be used in certain applications.

As a general rule, the EPD must:

- be in accordance with ISO 14025,
- be verifiable, accurate, relevant and not misleading,
- does not contain reviews, judgments or direct comparisons with other products.

The EPDs should comply with the communication format according to EN 15942, Sustainability of construction works - Environmental Product Declarations - Communication Formats: Business to Business.

The following general information must be included:

- Report date and version number,
- Organisation and name of the LCA practitioner,

- Confirmation that the EPD has been carried out in accordance with the requirements of the general programme instructions of EN 15804 and the associated product group-specific requirements.

The Kiwa-EE EPD contains the following information:

1 General information

- Product
- Registration
- Validity
- Program Operator
- Declaration holder
- Validation / Verification (Procedure Description)
- Statement
- Product Category Rules
- Comparability
- Calculation
- Project report

2 Product

- Product
- Application (intended use of the product)
- Reference service life
- Specifications
- Substances of Very High Concern
- Description of the production process

3 Calculation rules

- Declared/Functional Unit
- Conversion factors
- Scope of the declaration and system boundaries
- Representativity
- Cut-off Criteria
- Allocations
- Data collection and reference period
- Estimates and assumptions
- Data Quality

4 Scenarios and additional technical information

- Dismantling, demolition (C1)
- End-of-life Transport (C2)
- Waste Processing (C3)
- Benefits and loads Beyond the System Boundary (D)

5 Results

- Environmental impact indicators
- Indicators describing resource consumption and environmental information based on the life cycle assessment
- Information on biogenic carbon content

6 Interpretation of the results

7 References

8 Contact Information

The EPDs must use a "Kiwa-EE layout". The corresponding layout templates are provided by the program operator. It must be possible to transfer the contents of the EPD documents into the digital ILCD+EPD data format.

2.7.2 Project report

The project report for the environmental declaration must contain the following sections:

1 Life cycle assessment

2 General

- Introduction
- Company Information / Owner of the Statement
- Information Life Cycle Assessment Calculation
- Comparability
- Calculation
- LCA Practitioner
- Abbreviations

3 Product

- Description of the product
- Application (intended use of the product)
- Specifications
- Substances of Very High Concern
- Description of the production process
- Reference service life
- Product Flowchart

4 Definition of Goal and Scope

- Purpose and target groups
- Declared Unit
- Conversion factors
- Representativeness
- Scope of the Declaration and System Boundaries
- Cut-off Criteria
- Allocations
- Data collection and reference period
- Estimates and assumptions
- Data Quality

5 Life Cycle Assessment

- Supply of raw materials (A1)
- Transport to the manufacturer (A2)
- Production Process (A3)
- Dismantling, demolition (C1)
- Transport at the end of the life cycle (C2)
- Waste Processing (C3)
- Final Disposal (C4)
- Benefits and loads beyond the system boundary (D)

6 waste scenarios

- Scenario design
- End of waste point
- Waste processing
- Final disposal
- Loads from the end of waste state to the point of substitution

- Benefits of recycling and/or reuse
- Loads Secondary raw materials lost
- BenefitsEnergy recovery

7 Results

- Environmental impact indicators
- Indicators describing resource use (LCA)
- Information on biogenic carbon content

8 Evaluation of the results

- Contribution analysis of the modules
- Contribution analysis of raw materials (A1)
- Analysis of the contribution of inputs

9 Sensitivity analysis (if necessary)

10 Details of data collection

- Data Quality of Lifecycle Inventory Data
- Supplier approach to LCA data
- Methods used

11 References

2.7.3 Publication of EPDs

The definition of the general program instructions apply.

The publication of the EPD is carried out by Kiwa-EE at the request of the customer.

The EPDs can be published on the Kiwa website: (https://www.kiwa.com/de/de/veroffentlichte-epds/). In addition, the documents can be uploaded to the following databases:

ÖKOBAUDAT → https://www.oekobaudat.de/no_cache/datenbank/suche.html

ECO PORTAL der ECO PLATFORM → https://www.eco-platform.org/epd-data.html

The digital data format for the EPD based on the ILCD+EPD data format is used.

2.7.4 Revision, restriction, suspension, withdrawal, transfer, transfer

After the EPD has been issued, the EPD remains valid for a period of 5 years from the date of issue. After that, it must be reintroduced to the validation/verification process. The updating of the EPD is only necessary to the extent that technological changes or other circumstances that may affect the content and accuracy of the EPD must be taken into account. A complete recalculation of the EPD is not necessary after 5 years, unless the underlying data has changed significantly.

If new information becomes known after the positive validation/verification decision has been issued, which may have a material impact on the validation/verification statement, the validation/verification body of Kiwa-EE will inform the declaration owner in a timely manner. An EPD must be amended or withdrawn for reasons. The costs of amending the EPD are borne by the declaration owner.

The change criterion of ±10% specified in EN 15804 / ISO 21930 for each product-related environmental impact is used for each declared indicator of the EPD. In the event of significant changes, the declaration owner is obliged to inform the Kiwa-EE program operator. This may result in an update of the EPD.

The regulations on the revision, restriction, suspension, withdrawal, transfer and rewriting of an EPD can be found in the General Programme Instructions, Section 7.4.

3 Validation report according to CPR [5]

3.1 General

The new CPR, which came into force on 7 January 2025, regulates the conditions for placing construction products on the market in the EU internal market. It aims to increase product safety, strengthen consumer protection and facilitate standardisation processes. In terms of environmental sustainability, the CPR has a strong focus on environmental and sustainability aspects.

This leads to new obligations for the economic operators concerned.

For this purpose, a validation report must be prepared, which is the basis for the declaration of performance and conformity, among other things. For the preparation of the report , the following essential environmental characteristics are described in connection with the life cycle assessment of a construction product, in detail:

a) Climate change – total
b) Climate change – fossil fuels
c) Climate change – biogenic
d) Climate change – land use and land use change
e) Ozone Depletion
f) Acidification Potential
g) Eutrophication aquatic freshwater
h) Eutrophication aquatic marine
i) Eutrophication terrestrial
j) Photochemical Ozone
k) Abiotic Depletion -minerals and metals
l) Abiotic Depletion -fossil fuels
m) Water use
n) Particulate matter
o) Ionising radiation, human health
p) Ecotoxicity, freshwater
q) Human toxicity, cancer
r) Human toxicity, non-cancer
s) Land-use related impacts

The report is a special case that is also based on a life cycle assessment. It also essentially consists of the product description, the objective and scope of the life cycle assessment, the life cycle assessment results and the associated evidence. In addition , an initial inspection of the product manufacturer or the specific manufacturing plant is required as part of the activity in order to record company-specific data.

Objective evidence is collected in the manufacturing plant, e.g. for the following parameters:

- Logistics
- type of packaging,
- suppliers (e.g. logistics chain),
- bill of materials / component bill of materials, energy mix used for production processes,
- Technological changes in manufacturing processes.

In the sense of the validation report for the documentation and evaluation of the calculation, a worst-case approach must be based on the information module, which uses the environmental

indicators (environmental characteristics) with the highest environmental impacts of all input data to be modeled, e.g. raw material supply, transport, production. The worst-case approach thus covers the worst-case scenario for the product.

The validation report, comparable to the EPD + project report, systematically and comprehensively documents the calculation basis. This report must fully reflect the information based on a life cycle assessment in a fully comprehensible manner. The structure of the report should correspond to the scientific approach of a life cycle assessment.

Product category rules will be used in accordance with the procedure for the preparation of EPDs, and in the future, harmonised specifications (hEN, EEAS) or other delegated acts / implementing acts of the European Commission will take effect if they are introduced.

In accordance with the responsibility for the declaration of performance and conformity, by analogy with the EPD procedure, the economic operator is obliged to notify critical changes that deviate from the declared environmental impacts. In the event of changes to the product that result in a deterioration in environmental sustainability performance, the validation report must be restricted, suspended or withdrawn. Kiwa-EE must or can arrange for a new initial inspection of the manufacturing plant to verify the changed company-specific data.

3.2 Construction

At a minimum, the following general information must be included in the validation report:

- Report date and version number,
- Product naming according to PCR, hEN or EAD / ETA,
- Software identification including tool release,
- designation of the executing body, (notification procedure still in preparation by the European Commission),
- Customer (product manufacturer / manufacturing plant), institution and name of the LCA practitioner,
- Referencing the initial inspection to collect the company-specific data,
- Confirmation that the validation report has been prepared in accordance with the requirements of the General Programme Instructions including the CPR [5], EN 15804 and the associated product group-specific requirements (designation).

The Kiwa-EE validation report contains the following sections:

1 Validation Report Framework

2 General

- Introduction
- Product Manufacturer Information
- Information on Life Cycle Assessment Calculation
- Program Operator
- Validator / Verifier (Procedure Description)
- Comparability
- Calculation
- LCA Practitioner
- Abbreviations

3 Product

- Description of the product (hEN or EAD / ETA)

- Application (intended use of the product)
- Specifications
- Substances of Very High Concern
- Description of the production process
- Reference service life
- Product Flowchart

4 Definition of Goal and Scope

- Purpose and target groups
- Declared Unit
- Conversion factors
- Representativity
- Scope of the Declaration and System Boundaries
- Cut-off Criteria
- Allocations
- Data collection and reference period
- Estimates and assumptions
- Data Quality

5 Life Cycle Assessment

- Supply of raw materials (A1)
- Transport to the manufacturer (A2)
- Production Process (A3)
- Dismantling, demolition (C1)
- Transport at the end of the life cycle (C2)
- Waste Processing (C3))
- Final disposal (C4)
- Benefits and loads beyond the system boundary (D)

6 waste scenarios

- Scenario Design
- End of the waste point
- Waste processing
- Final Disposal
- Loads from the end of waste state to the point of substitution
- Benefits of recycling and/or reuse
- Loads secondary raw materials lost
- Benefits Energy recovery

7 Results

- Indicators of environmental impacts
- Indicators describing resource use (LCA)
- Information on biogenic carbon content

8 Evaluation of the results

- Contribution analysis of the modules
- Contribution analysis of raw materials (A1)
- Analysis of the contribution of inputs

9 Details of data collection

- Data Quality of Lifecycle Inventory Data
- Supplier approach to LCA data
- Methods used

10 References

4 Applicable documents

Specifications

ISO 14025	Environmental labels and declarations - Type III environmental declarations - Principles and procedures (ISO 14025:2006); German and English version: EN ISO 14025:2011
ISO 14040	Environmental Management - Life Cycle Assessment - Principles and Frameworks (ISO 14040:2006 + Amd 1:2020); German version: EN ISO 14040:2006 + A1:2020
ISO 14044	Environmental Management - Life Cycle Assessment - Requirements and Guidelines (ISO 14044:2006 + Amd 1:2017 + Amd 2:2020); German version: EN ISO 14044:2006 + A1:2018 + A2:2020
ISO 14065	General principles and requirements for validation and verification bodies of environmental information (ISO 14065:2020); German version: EN ISO 14065:2021
ISO 14067	Greenhouse gases - Carbon footprint of products - Requirements and guidelines for quantification (ISO 14067:2018); German and English version: EN ISO 14067:2018
EN 15804	Sustainability of Construction works - Environmental Product Declarations - Basic Rules for the Product Category Construction Products; German version: EN 15804:2012+A2:2019 + AC:2021
EN 15941	Sustainability of Construction works- data quality for the assessment of the environmental quality of products and structures - selection and application of data; German version EN 15941:2024
ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services (ISO/IEC 17065:2012); German and English version: EN ISO/IEC 17065:2012

Other applicable documents

[1] ECO PLATFORM - LCA Calculation Rules and Specifications for EPDs (Version 2.0 (December 2024))

[2] ECO PLATFORM - Verification Guidelines for ECO EPD Program Operators(Version 8.0 (December 2024))

[3] ECO PLATFORM - Tool Verification Guidelines (Version 1.1 (June 2024))

[4] REGULATION (EU) No 305/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

[5] REGULATION (EU) 2024/3110 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 November 2024 laying down harmonised rules for the marketing of construction products and repealing Regulation (EU) No 305/2011