epd-norge

NPCR PART A:

Construction products and services

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epd-norge
The Norwegian EPD Foundation

1 Contents

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Revision log

Version No.	Description of changes made
1.0	First version of PCR Part A.
2.0	Revision to align with EN15804:2012+A2:2019 and harmonise with ISO 21930:2017

Introduction

The product category rules (PCR) in this document are intended for companies preparing an environmental product declaration (EPD) for construction products and services, including construction elements and integrated technical systems used in any type of construction works. Construction elements and integrated technical systems, incorporated within construction works, can be considered as construction products.

The purpose of this document is to define clear guidelines when performing a life cycle assessment (LCA), to ensure that the same LCA methods are being used for any product group, and to support the modularity principal, so that each EPD can be used as an information source for construction works.

NOTE: ISSUES UNDER DEVELOPMENT

EPD Norway's PCRs for construction products and services is a two-part system, with a common PCR Part A and a product category specific PCR Part B. During the restructuring process to the two-part system, some content has been updated to be in accordance with the development of existing standards (e.g. to refer to EN 15804:2012+A2:2019 and ISO 21930:2017, instead of older versions). This restructuring and updating is part of the Technical Committee's mandate. The purpose is to ensure harmonisation of the common requirements for all construction products and services.

Several topics have been identified that have not been possible to resolve during the restructuring and updating. Example of such issues are scaling factors for products and guidance on economic allocation, topics where guidance in existing standards in some cases is insufficient. Such topics will be addressed in PCR Part B for the specific product groups and can be included in PCR Part A in later revisions.

See **Web appendix section D** ***for an updated list of issues under development.***

1 Scope

The intended application of this set of product category rules (PCR), PCR Part A, is to give guidelines for the development of environmental product declarations (EPD) for construction products and services, to further specify the underlying requirements of the supporting life cycle assessment (LCA), and to provide guidance for developing PCR Part B when needed. The core rules are valid for all construction products that are given in standard EN 15804. The different clauses in this document follow EN 15804, whereby any additional specifications are given here through examples and requirements from EN 15804. The reader of this document therefore needs to have access to EN 15804 and the general programme instruction (GPI) from EPD Norway in order to prepare an EPD.

There are four possible choices for creating EPD's, as shown in Table 1. For choices 1 and 2, the LCA result is reported in relation to a declared unit. It is possible to develop these EPD's with this PCR document only, that is to say, without a PCR Part B. This PCR makes it possible to develop an EPD based on a declared unit. An EPD that is based on a functional unit requires an additional PCR, namely PCR Part B. For choice 3, the LCA result is reported in relation to a functional unit (FU). A functional unit makes it possible to compare a product's environmental performance within that product group, so long as the products are based on the same PCR and same FU. This kind of PCR is called PCR Part B, and is developed for a defined product group. A PCR Part B may also be developed to support LCA regulations for a specific product group or service. PCR Part B may be purposefully limited to include specific LCA regulations, and/or a defined functional unit, which will make comparisons possible between EPD's that are based on the same FU, and which are defined under the same PCR Part B. For choice 4 it is possible with either a declared unit or a functional unit. Choice 4 is only possible for products that are exempt from declaring modules C and D.

Table 1: Four choices for creating EPD's

Choice	EPD type	PCR Part A	PCR Part B
1	EPD – cradle to gate with modules A4, C1-C4 and module D	Required	Optional
2	EPD – cradle to gate with modules A4, C1-C4 and module D, with optional modules A5, B1-B7	Required	Required
3	EPD – cradle to grave and module D	Required	Required
4	EPD – cradle to gate (A1-A3) with A4 and optional A5*	Required	Optional

NOTE: Choice 4 is only for products that are explicitly exempt from declaring modules C and D, ref. EN 15804:2012+A2:2019, clause 5.2.

2 Normative references

ISO 14025:2006, *Environmental management – Type III environmental declarations – Principles and procedure.*

ISO 21930:2017, *Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services*

ISO 14044:2006, *Environmental management – Life cycle assessment – Requirements and guidelines.*

ISO 15686-1:2000, *Buildings and constructed assets — Service life planning — Part 1: General principles.*

ISO 15686-8:2008, *Buildings and constructed assets – Service life planning – Part 8: Reference service life.*

EN 15804:2012+A2:2019, *Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.*

EN15942: 2011, *Sustainability of construction works — Environmental product declarations — Communication formats: business-to-business.*

NOTE: The standards may be referred to in short format for readability. E.g. EN 15804:2012+A2:2019 is referred to as EN 15804 in this document.

3 Terms and definitions

A complete list of definitions is given in EN 15804, Section 3.

3.1 Environmental Product Declaration (EPD)

Environmental declaration providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information.
[EN 15804:2012 definition of type III environmental product declaration]

3.2 Life cycle assessment (LCA)

Compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle.
[ISO 14044: 2006]

3.3 Declared unit

The quantity of a construction product for use as a reference unit in an EPD for an environmental declaration based on one or more information modules. Information modules are illustrated in Figure 1.
[EN 15804:2012]

3.4 Functional unit

The quantified performance of a product system for use as reference unit.
[EN 15804:2012]

3.5 Construction product

Item manufactured or processed for incorporation in construction works

Note 1 to entry: Construction products are items supplied by a single responsible body.

[SOURCE: ISO 6707-1:2014, 6.1.2, modified – with 'construction product' being indicated, instead of 'product' as the primary preferred term used to designate this concept. Note 1 to entry added.]

3.6 Construction service

Activity that supports the construction process or subsequent maintenance.
[EN 15804:2012]

3.7 Construction element

Part of a construction.
[ISO 6707-1:2014, 5.5.6]

4 Abbreviations

EPD	Environmental product declaration
DU	Declared unit
FU	Functional unit
PCR	Product category rules
LCA	Life cycle assessment
LCI	Life cycle inventory
LCIA	Life cycle impact assessment
RSL	Reference service life
ESL	Estimated service life

5 General aspects

5.1 Objective of PCR Part A for any construction product and service

This PCR Part A document describes EPD Norway's methodology for creating an EPD for any construction product or service. The basic advantage of one single PCR Part A document, covering all construction products and services, is to guarantee that the same basic methodology is used for all product categories. This supports the modularity principle of ISO 21930 and EN 15804, i.e. that it should be possible to sum up the results with other subsystems.

This PCR has been prepared in-line with the requirements in EN 15804. Any text or specifications already given in EN 15804 will therefore not be repeated here. For that reason, and for ease of use, this document follows the same headings as given in EN 15804, and if required, introduces appropriate sub-headings.

An EPD created according to EN 15804 provides quantified environmental information for all types of construction products and services, in a harmonised and scientific way. Specific Norwegian requirements on additional information related to e.g. health aspects during the use stage of a building and choices regarding electricity mix are specified in the GPI, section 9.7 in Appendix A.

The purpose of an EPD in the construction sector is to provide the basis for assessing buildings and other construction works, through identifying building solutions which cause less stress to the environment.

Declarations based on this standard are not in themselves comparative assertions. EPDs of construction products may not be comparable if they do not comply with EN 15804, if they are not seen in a building context, or if they are not based on a common

functional unit, as defined in a PCR Part B.

5.1.1 Hierarchical PCR structure

The hierarchal PCR structure applied in EPD Norway allows for the development of specifications in a PCR Part B that provide additional product or service specific requirements to the requirements given in this document (PCR Part A). PCR Part B is optional if the EPD being developed is based on a declared unit (EPD choice 1 or 2). For most construction products, it is recognised that rules given in PCR Part A are sufficient when developing an EPD based on a declared unit. PCR Part A for construction products and services can therefore be used as basis for an EPD, even if a PCR Part B has not yet been developed. However, this implies that the EPD is restricted to always use a declared unit, and not a functional unit.

Moreover, a declared unit does not include a full life cycle, and is not intended for comparison. An EPD that aims for comparison must be based on a full life cycle, and therefore use a functional unit (EPD choice 3 or 4). In this case, it is in EPD Norway's requirement to develop PCR Part B's, as described in the GPI. The main reasons for carrying out a PCR Part B is given below, but not limited to these aspects:

- The calculation rules have to be clarified for a specific construction product or service.
- To support inventory data, for instance where common generic data has to be accepted as specific (used by all).
- Make it possible to add additional environmental aspects or indicators to the EPD reporting format, which are common to that specific product group.
- Make it possible to publish an EPD for comparative purposes that, amongst other things, includes the definition of a functional unit and harmonised scenario settings.

This approach for PCR Part A and B, implemented in EPD Norway, will streamline the work needed for developing an EPD.

5.1.2 Specifications for developing PCR Part B

The hierarchal PCR approach makes it possible to simplify the development, as well as the reading of, PCR's. As a rule, text from a PCR Part A shall not be repeated in a PCR Part B. This approach does not only simplify the writing or reading of a PCR, but it also reduces redundant information in different PCR's, and simplifies the maintenance of the system itself. This approach therefore supports that modularity between different PCR's are continuously maintained.

By referring to EN 15804 or PCR Part A instead of repeating the most current valid text, changes in a PCR Part A will have a direct effect in already existing PCR Part B's. Consequently, all EPD's shall refer to the current version of the PCR Part A used, and-when required-the PCR Part B relevant to the product or service being declared. Any future revision of the PCR Part A, will therefore also have a direct effect on all underlying (already running) PCR's, and may overrule specifications made in a PCR Part B. Nevertheless, to avoid misunderstanding, it is recommended that such PCR Part B's must be improved within a given time frame, to handle the revision of the current document. No open consultation, as specified in the GPI, will be required.

When writing the text in a PCR Part B, the same clause structure as defined in PCR Part A shall be maintained. As a rule, directly after each heading, each clause shall be specified as follows:

- "**As in PCR Part A**"; meaning that the clause remains the same without any additional specifications or comments.
- "**As in PCR Part A**, and..." is followed by an additional requirement; meaning that this requirement is a common requirement within this specific product group.
- **Additional text** " " that specifies the rules given in PCR Part A; meaning that either the aim is to clarify or explain what is already regulated in PCR Part A.

When new requirements are introduced in a PCR Part B, it is recommended, if applicable, to describe what is already regulated, and give motivations as to why the additional rules are introduced. If the PCR Part B text is restricted to a clarification or exemplification of what is already regulated, it is recommended to repeat part of the overarching PCR Part A text, so that the reader will get a fuller context. In this case, without reading the other documents in parallel.

The approach outlined above, to write a PCR Part B in EPD Norway, will limit the risk for conflicting regulations, will simplify PCR maintenance, and speed up the time for making new product category rules valid. It also supports the modularity principal, since most regulations that affect the modularity principle are already regulated in the overarching documents (NS 15804, GPI and PCR Part A). The writing rules given here concerning PCR Part A and B are valid for EPD Norway, and also follow the approach for PCR's under EN 15804 that are developed by other product technical committees (TC) within the European Committee for Standardization (CEN).

PCR development, shall besides definition of the product group, and if relevant a common declared unit, be focused on:

1) Further LCA specification.
2) Product group scenario settings.
3) Definition of a functional unit.
4) Additional environmental indicators or information, in order to handle all significant aspects of a product group, as required by ISO 14025.

If the PCR does not include any of the specifications listed above, no PCR Part B needs to be developed.

5.2 Types of EPD in respect to life cycle stages covered

As in EN15804, and: PCR Part A covers the following types of EPD (see Figure 1):

- EPD 1: Cradle to gate with end of life and supplementary information (A1-A3, A4, C1-C4 and D)
- EPD 2: As above, with options to include modules from the construction process stage and the use stage
- EPD 3: Cradle to grave and module D
- EPD 4: Cradle to gate with A4 and optional A5

NOTE: Cradle to gate is defined as modules A1-A3.

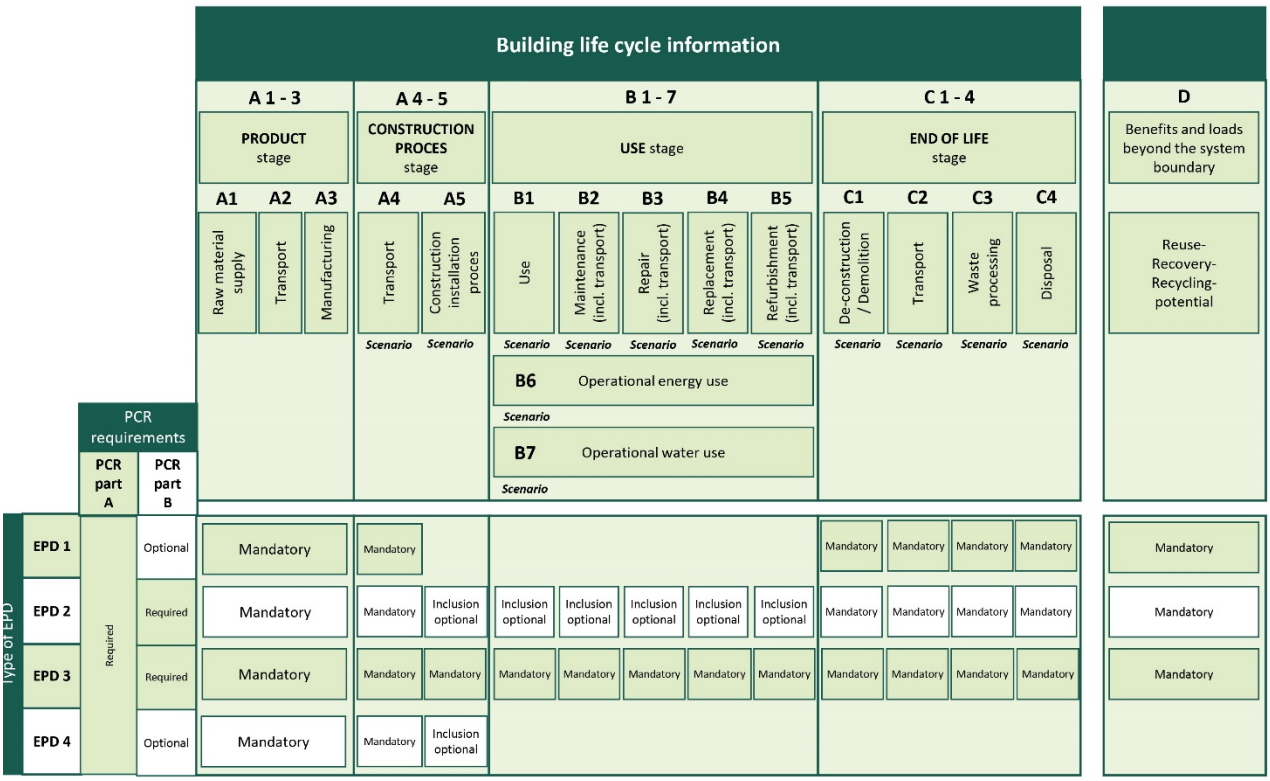

Figure 1: The building life cycle modules and stages as basis for the different types of EPD.

Modules A1-A3, A4, C1-C4 and D are mandatory for all construction products, unless permitted in a PCR part B and following the requirements in EN 15804.

Modules A1-A5 are mandatory for construction services. This is a specification in addition to EN 15804, since this matter is not covered in that standard. In this case, life cycle module A5 describes the impact that appears for those parts of the service that are completed in relation to any construction work installed at the construction site. Life cycle module A4 includes the transportation needs arising from the product suppliers and construction workers that perform the service that is declared in life cycle module A5. In other words, life cycle modules A1 to A3 include the upstream impacts that are not emitted at the construction site (A5) or emitted during transport work accounted for in life cycle module A4. An EPD for a construction service is then typically used as a data input in life cycle modules B2 to B5, i.e. used as an input for scenarios for any of the information modules on the construction works level.

5.3 Comparability of EPD of construction products

As in EN 15804.

5.4 Additional environmental information

As in EN 15804 and additional requirements given in PCR Part A Section 7.4, and:

5.4.1 General aspects

As in EN 15804.

5.4.2 Additional impact indicators

As in EN 15804 section 5.4.2, and:

In order to facilitate simplified carbon footprint calculations from cradle-to-gate, the climate change indicator with instantanious oxidation of biogenic carbon (GWP-IOBC) shall also be reported in the EPD.

Additional complementary LCIA indicators beyond those defined in EN 15804 may be reported.Such LCIA indicators that are in addition to those defined in EN 15804 may be reported in parallell as additional environmental information (see section 7.4), provided they are clearly labelled to avoid misinterpretation. This allows reporting of additional impact indictators e.g. based on EN 15804:2012+A1:2013 or ISO 21930:2017.

NOTE: The GWP-IOBC indicator has zero contribution to GWP from biogenic carbon temporary stored in products and packaging (as in Table 9 in EN 15804:2012+A2:2019), while biogenic methane has an adjusted characterisation factor and land use change has an impact from reduced carbon sinks. This indicator is often default in LCA-software and has in the EN 15804 standardisation process been known as «0/0». In published standards, it is described as type 2 in EN 16760. The abbbreviation IOBC is applied to harmonise with terminology from IPCC accounting of harvested wood products (HWP).

5.5 Ownership, responsibility and liability for the EPD

As in EN 15804, and:

A *manufacturer* can be the owner of the production facilities or the company that puts the product to the market (including an agent or a sales company). Module A3 shall be the physical manufacturing process, regardless of ownership of the EPD.

5.6 Communication format

EPD template + a standardised digital communication format for an EPD, according to EN 15804, has been established according to ILCD+EPD.

NOTE 1: Up-to-date information on the digital communication format can be found on www.epd-norway.no and digi.epd-norge.no.

NOTE 2: An ISO standard on data templates for the use of EPDs for construction products in BIM is under development, ISO 22057.

6 Product category rules for LCA

Besides the calculation rules for LCA outlined here in PCR Part A, some construction products and services may also have a PCR Part B developed. The PCR Part B's shall include additional requirements and may include additional guidance. A list of PCR Part B's are listed in the web appendix to this PCR Part A, and gives information as to if the PCR Part B includes:

1) Further LCA specification.
2) Product group scenario settings.
3) Definition of a functional unit.
4) Additional environmental indicators or information.

6.1 Product category

This PCR is valid for any construction product or service. The product group includes construction elements and integrated technical systems used in any type of construction works, whereby construction elements and integrated technical systems, incorporated within construction works, can be considered as construction products.

6.2 Life cycle stages and information modules to be declared

6.2.1 General

Which life cycle stages or modules to be included in an EPD are dependent on the type of EPD given in Table 1. EPD's based on EN 15804 shall include the life cycle stages or modules as given in Figure 1.

Besides the mandatory life cycle modules A1 – A3, it is up to each manufacturer to decide the scope of the EPD and the amount of life cycle information modules to be declared.

6.2.2 A1-A3. Product stage, life cycle information modules

The product stage shall include, as given in standard EN 15804:2012, Clause 6.2.2:

- A1, raw material extraction and processing, processing of secondary material input (e.g. recycling processes),
- A2, transport to the manufacturer,
- A3, manufacturing, including provision of all materials, products and energy, as well as waste processing up to the end-of waste state or disposal of final residues during the product stage.

Module A1, A2 and A3 may be declared as one aggregated module, A1 - A3.

6.2.3 A4-A5. Construction process stage, life cycle information modules

The construction process stage includes, as given in standard EN 15804:2012, Clause 6.2.3:

- A4, transport to the building site,
- A5, installation into the building.

6.2.4 B1-B5. Use stage, life cycle information modules related to the building fabric

The use stage, relating to the building fabric includes, as given in standard EN 15804:2012, Clause 6.2.4:

- B1, use,
- B2, maintenance,
- B3, repair,
- B4, replacement,
- B5, refurbishment.

6.2.5 B6-B7. Use stage, life cycle information modules related to the operation of the building

The use stage related to the operation of the building includes, as given in standard EN 15804:2012, Clause 6.2.5:

- B6, operational energy use,
- B7, operational water use.

6.2.6 C1-C4. End-of-life stage, life cycle information modules

The end-of-life stage includes, as given in standard EN 15804:2012, Clause 6.2.6:

- C1, de-construction, demolition,
- C2, transport to waste processing,
- C3, waste processing for reuse, recovery and/or recycling,
- C4, disposal.

6.2.7 D. Benefits and loads beyond the system boundary, life cycle information module

Module D includes, as given in standard EN 15804:2012, Clause 6.2.7:

- D, reuse, recovery, recycling and/or recovery potentials.

6.3 Calculation rules for the LCA

6.3.1 Functional unit or declared unit

The functional unit for EPD cradle to grave is defined as:

e.g. <1 kg/tonne/m^2/m^3 of treated surface, with a specified function, properly maintained and repaired during a reference service life of 60 years>.

If a functional unit is addressed in the EPD, a conversion factor shall be reported in the EPD to make it possible to recalculate the environmental performance to a physical unit, preferably by mass (kg). Other conversion factors should be added, when relevant.

NOTE: Results shall not be reported as impact per year, but aggregated over the RSL.

6.3.1.1 Functional unit

As in EN 15804, in addition to: The use of a functional unit requires a PCR Part B.

6.3.1.2 Declared unit

The declared unit for an EPD is cradle to gate and/or EPD cradle to gate with options, and is defined as:

e.g. 1 <kg/tonne/m2/m3> of manufactured product, whereby mass (kg) is the preferable unit.

If the declared unit is not given by mass, where possible, a conversion factor shall be given in the EPD that makes it possible to recalculate the environmental performance to a mass unit (kg). Other conversion factors should be added, when relevant.

6.3.2 Reference service life (RSL)

Reference service life (RSL) is only mandatory for EPD's that either include stage B, or a functional unit. If a RSL cannot be established, it is acceptable to use an estimate, or refer to common estimated service lives (ESL), typically found in technical building handbooks. Such an estimated service life shall be supplemented with text in the EPD that explains the origin of the data or information that it is an estimate. It is also allowed to assume that the construction product will last as long as the building part as defined by NS 3451: 2009 table of building parts (e.g. superstructure etc.) of the construction works, if relevant.

If the use stage and a FU are reported in an EPD, and a reference service life is applied, the settings valid for the RSL shall be documented in the EPD as specified accord to EN 15804, Table 13.

6.3.3 System boundaries

EN 15804 gives a detailed description of what is included in each life cycle information module. These module descriptions are valid in PCR Part A without exceptions.

NOTE: The environmental impact related to electricity use in life cycle module *A3 – Manufacturing* is treated differently in EN 15804 and ISO 21930. In EN 15804 it is included as a raw material input and is accounted for in life cycle module A1. In ISO 21930 it is included as part of the manufcaturing and is accounted for in life cycle module A3. Aggregated results for A1-A3 will be the same, so this is difference is not relevant for the EPD user when A1-A3 is aggregated. *See also 7.4.3.*

6.3.4 End-of-life stage

As in EN 15804, and:

- Treatment of hazardous waste shall always be considered as waste processing.
- If the existence of a market or demand is not clear (e.g. when there are no agreed-upon end-of-waste criteria) the justification shall be shown in the LCA project report.

6.3.5 Criteria for the inclusion of inputs and outputs (cut-off)

As in EN 15804 and with the following clarifications:

- Capital goods
  - Capital goods, such as buildings and machinery, are within the system boundary of the product system.
  - Capital goods can be left out when this has been shown to comply with the cut-off rules in 6.3.6.
  - Inputs of capital goods should be annualised and allocated to the declared or functional unit.
- Personnel activities
  - Personnel activities, such as travel, are within the scope of the system boundary when it is directly related to the provision of the product or service (e.g. transportation of personnel providing building services in A5).
  - Personnel activities can be left out when this has been shown to comply with the cut-off rules in 6.3.6.

- Services from the technosphere, such as internet services, can be left out when it can be justified that these are likely to be below cut-off or when these are not directly related to the provision of the declared or functional unit.

NOTE: It is recommended to provide examples in PCR part B of what kind of manufacturing equipment that typically is higher than the general cut-off rules.

6.3.6 Selection of data

General requirements and guidelines concerning use of generic and specific data, and the quality of those data, are described in EN 15804, Clauses 6.3.7 and 6.3.8.

In addition, the following rules shall be applied:

- For manufacturing of a product, average or site specific annual data shall be applied. Deviations shall be justified and explained in the EPD.
- Actual data age (when data was collected) shall be stated.
- For upstream processes, EPD's are preferable, followed by specific data. Generic data should only be used if the other two categories are not available.
- When PCR's are available for other background data, the procedures in the respective PCR's should be followed.

MODULES	A1-A3		A4 and A5	B1-B7	C1-C4	D
	Production of commodities, raw materials	Product manufacture	Construction processes	Use processes	End-of-life processes	Next product system
Process type	Upstream processes	Processes the manufacturer has influence over	Downstream processes			
Data type	a) Specific EPD-data b) Specific LCI data c) Generic data[1]	Manufacturer's average or site specific data	Generic data			

Figure 2. Application of generic and specific data.

[1]See CEN/TR 15941 "Sustainability of construction works — Environmental product declarations — Methodology for selection and use of generic data".

NOTE1: Specific data shall be used for the core processes in A3.

NOTE2: TC decision 09/2019 states that it is insufficient to only include internal storage in information module A3 manufacturing.

6.3.6.1 Data for electricity

LCIA results shall be calculated using the physical national grid mix. In addition, the LCIA results may be calculated using electricity sources with a guarantee of origin. If guarantees of origin are used, the LCIA results shall be reported separately in addition to the LCIA results using the physical national grid mix.

NOTE: ISO 14067 provides guidance on how to reduce the risk of double counting when using guarantees of origin.

For the physical grid mix, it shall be from the country where energy consuming processes take place. The mix of electricity (calculation procedure) shall be documented in the LCA report. Any deviations from these requirements shall be justified. The electricity mix used shall be the national production mix, including imports, direct emissions, infrastructure and transmission losses. If the available LCI data does not follow this approach for electricity consumed in A3 and A5, then a calculation based on statistics has to be performed.

If the manufacturer purchases guarantees of origin for their electricity, these may be used to calculate additional and separate LCIA results. Guidance for calculating the electricity grid mix using guarantees of origin:

- Specific data for electricity consumed in life cycle module A3: Average values from the last 3 to 5 years should be used, if the mix is not stable.
- Upstream processes where guarantees of origin are not used may use data for electricity that is typically found in commercially available databases, as long as they are for a valid country.
- Downstream processes (B1-B7, C1-C4, D) shall not use guarantees of origin.
- If guarantees of origin are used, the manufacturer shall ensure that these are valid throughout the validity period of the EPD. If the guarantee of origin expires, the EPD validity will also expire.

It is recommended to use data from ENTSO-E to calculate the physical electricity mix for European countries.

6.3.6.2 Losses taken into account by different users and the installed voltage supplied

If this information is lacking in the national average, grid losses may be used.

6.3.7 Data quality requirements

The quality of the data used to calculate an EPD shall be addressed in the LCA project report (see Chapter 8 and ISO 14044: 2006, Clause 4.2.3.6). The specific requirements given in EN 15804:2012, Clause 6.3.7 apply for construction products. In addition, the following requirements shall be applied:

- When calculating cradle to gate data as input data, the PCR for the given product shall be used. For instance, for directly consumed heat and electricity, infrastructure shall be included in accordance with PCR for Electricity, Steam, and Hot and Cold Water Generation and Distribution, PCR CPC 17 [1].
- Hazardous waste shall be specified according to relevant national regulations (specific and/or average background).

6.3.7.1 General

As in EN15804.

6.3.7.2 Data quality requirements

As in 6.3.8.2 with the following additions:

If the EPD is not a product specific EPD, there will be a variation in the LCIA results. This variation shall be handled as given below:

- **specific product or product group EPD**. A product specific EPD for a defined product is the first choice, meaning no variation in the declared product. Where an average composition or representative composition is used, the products included in an average EPD shall not differ in their environmental impact indicator results by more than ±10% for GWP-total A1-A3 (for products) or A1-A5 (for services). If the variation in any other LCIA indicator is higher than ±10 %, this shall be justified in the project report and the actual variation shall be reported in the EPD.
- **manufacturing specific or sector EPD**. For an EPD covering multiple manufacturing sites the reported average EPD result should not differ in their environmental impact indicator results by more than ±10 % related to GWP-total and ODP for A1-A3 (for products) or A1-A5 (for services). Where larger impact differences are found for any LCIA indicator, these shall be justified in the project report and the actual variation shall be reported in the EPD.

Scaling factors, e.g. between product variants, shall not be reported in the EPD, unless permitted in a PCR part B.

NOTE: GWP-total is a core indicators with ILCD classification of "Level I" (termed ILCD Type 1 in EN15804, section 7.2.3.3).

6.3.8 Developing product level scenarios

Scenarios for construction, use, end-of-life and transport shall be described and documented in the LCA report according to EN 15804:2012, Clause 7.3, Tables 5-10. PCR Part B is required if a cradle to grave EPD with a functional unit is aimed for.

6.4 Inventory analysis

Data collection shall follow the guidance provided in ISO 14044:2006, Clause 4.3.2. The same calculation procedures shall be applied consistently throughout the study in life cycle information module A to C.

When transforming the inputs and outputs of combustible materials into inputs and outputs of energy, the net calorific value of fuels shall be applied according to scientifically based and accepted values, specific to the combustible material.

6.4.1 Collecting data

As in EN 15804.

6.4.2 Calculation procedures

As in EN 15804.

6.4.3 Allocation of input flows and output emissions

6.4.3.1 General

As in EN 15804.

6.4.3.2 Co-product allocation

The purpose of this section is to align the requirements in EN 15804 and ISO 21930 with the following clarifications:

- Joint co-production processes are defined in accordance with ISO 21930, 7.2.5.2: "If each of the co-products can be produced without the other(s) or the ratio of co-products typically varies in normal production, then it is not a joint co-production process. By-products cannot be avoided and processes producing by-products are therefore joint co-production processes."
- A high difference in revenue is a strong indication that the underlying physical relationships between products and co-products are not relevant, because they do not reflect the main purpose of the process. In these cases, including for joint co-production processes, the inventory of the process shall be allocated between the products and co-products in a way that reflects the economic value of the co-products when they leave the unit process.
- Inherent properties, e.g. the product's energy content and material content, shall always follow the physical flows.

The economic value of the co-products may be assessed by considering the proportion of revenue generated by each co-product. The revenue is the price multiplied by the output. For both price and output, representative values should be identified (e.g. rolling annual averages).

6.4.4 Information on biogenic carbon content

As in EN 15804.

6.5 Impact assessment

The impact categories listed in EN 15804 shall be used, including the additional indicators listed in Clause 7.2.3. Supplementary indicators may be added, however this requires the development of a PCR Part B unless they are reported as additional environmental information.

6.5.1 General

6.5.2 Core environmental impact indicators

As in 6.5.2 and specifications given here in section 5.4.2 and with the following clarifications:

1. ISO 15804:2012+A2:2019 specifies that the unit for the indicator for Eutrophication aquatic freshwater shall be *kg PO_4 eq.,* although the reference given ("EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe") uses the unit *kg P eq.* This is likely a typo in EN 15804+A2 which is expected to be corrected in a future revision. Until this has been

corrected in EN 15804+A2, results for Eutrophication aquatic freshwater shall be given in both kg PO_4 eq. and kg P eq. in the EPD.

2. ISO 21930, global indicators: the reference to the formation of ground level of ozone is not clear. It shall be characterised based on POFP from LOTOS-EUROS as applied in ReCiPe 2008, until this has been clarified in ISO 21930.

6.5.3 Additional environmental impact indicators

As in EN 15804.

7 Content of the EPD

7.1 Declaration of general information

The content of the EPD shall follow the instructions given in EN 15804 Clauses 7.1 and 7.2.

The EPD template from EPD Norway provides requirements and guidelines for the content and format of the EPD. Pages 1, 2 and the last page of the EPD template are mandatory.

NOTE: For transparency, it is recommended to report separately on indicators related to issues under development. Examples where this may be applicable are biogenic carbon, greenhouse gas emissions from direct land use change, carbonation, etc.

7.2 Declaration of environmental parameters derived from LCA

7.2.1 General

Documentation of technical information for the construction process shall follow the requirements given in EN 15804 Clause 7.3.2.

7.2.2 Rules for declaring LCA information per module

The rules shall follow EN 15804 Clause 7.2.2.

7.2.3 Indicators describing environmental impacts based on Life Cycle Impact Assessment (LCIA)

Parameters describing environmental impacts shall follow the requirements given in EN 15804 Clause 7.2.3.

As in section 7.2.3.3 with the addition of the general disclaimer given in section 5.4.2: “These indicator results are based on characterisation methods that still need development and the use of the indicator result is therefore limited.”

7.2.4 Indicators describing resource use and environmental information based on Life Cycle Inventory (LCI)

As in EN 15804.

NOTE1: Energy use is calculated as net calorific value (NCV), also known as lower heating value (LHV) or lower calorific value (LCV).

NOTE2: Water use is calculated as net use of fresh water, also known as water consumption. See CEN/TC 16970 Section 7.2.4.2 or ISO 14046 for further guidance.

7.2.5 Information on biogenic carbon content

As in EN 15804.

7.3 Scenarios and additional technical information

7.3.1 General

Documentation of technical information for the construction process shall follow the requirements given in EN 15804 Clause 7.3.2.

7.3.2 A4-A5 Construction process stage

7.3.2.1 A4. Transport from production site to the construction site

The construction or service site transportation stage shall be specified accord to EN 15804, Table 10 for construction products and for services, if relevant.

If no official statistic is available, including statistics from the manufacturer, then estimated transport scenarios and distances may be used and documented in the EPD. It must then be stated that the scenario is based on an estimated figure, and the scenario should document what it is geographically representative of. It is also possible to include numeral transportation scenarios. i.e. different alternatives for A4 in the same EPD and results table.

7.3.2.2 A5. Installation

The installation life cycle module shall be specified according to EN 15804, Table 11.

The installation phase includes all materials and activities connected to installation. If the EPD deviates from the predefined scenarios in PCR Part B, then this shall be clearly stated and justified. Installation also includes the core process of a service. The scope of what is allocated in life cycle module A5 shall be reported in the EPD.

7.3.3 B1-B7 Use stage

The use stage shall be specified accord to EN 15804, Table 12 and Table 14.

7.3.4 C1-C4 End-of-life

The end-of-life stage shall be specified according to EN 15804, Table 15.

7.4 Additional information

This clause has a wider scope compared to EN 15804, and includes additional information not derived from LCA.

7.4.1 Additional information on release of dangerous substances to indoor air, soil and water: Indoor air

As in EN 15804, in addition to the following requirement:

When technical information is available on emissions to indoor air, this should be included here. Examples of technical information include labels, declarations or test results (e.g. Nordic Swan, M1, Emicode EC1, Technical Approval, etc.).

7.4.2 Additional information on release of dangerous substances to indoor air, soil and water: Soil and water

As in EN 15804.

7.4.3 Additional information required by EPD Norway

This clause describes requirements given by EPD Norway.

7.4.3.1 Greenhouse gas emissions from electricity use in A3 Manufacturing

The global warming potential (GWP-total) of the electricity used by the manufacturer shall be shown in the EPD, as emissions of kg CO_2 equivalents per kWh, or as kg CO_2 equivalents per MJ. It should be stated if the electricity is reported in A1 (in accordance with EN 15804) or A3 (in accordance with ISO 21930).

If electricity in A3 Manufacturing is based on guarantees of origin or similar instruments, then the results with the physical national grid mix shall be calculated and reported in the EPD in parallel for reasons of transparency. This additional reporting is limited to GWP.

7.4.3.2 Hazardous substances and content declaration

Products for the European market shall declare:

- **Substances of Very High Concern (SVHC)**: If the final product contains more than 0.1 % (weight by weight, w/w) of substances defined as Substances of Very High Concern (SVHC), these shall be listed in the EPD along with the authorisation to use the substance(s). The REACH Authorisation List contains a registry of SVHC. Substances on the REACH Authorisation List may be found at: https://echa.europa.eu/authorisation-list
- **Substances on the REACH Candidate List**: If the final product contains more than 0.1 % (weight by weight, w/w) of substances on the REACH Candidate List, these shall be listed in the EPD. Substances on the REACH Candidate List may

be found at https://echa.europa.eu/candidate-list-table

Products for the Norwegian market shall, in addition to above, declare:

- **Substances on the Norwegian List of Priority Substances**: If the final product contains more than 0.1 % (weight by weight, w/w) of substances on the Norwegian List of Priority Substances, these shall be listed in the EPD. Substances on the Norwegian List of Priority Substances may be found at https://www.miljodirektoratet.no/chemicallist/61

Products for other markets should report in accordance with relevant legislation.

NOTE: It is recommended to also report in accordance with common market requirements, e.g. BREEAM-NOR or ECOproduct in Norway.

7.4.3.3 Carbon footprint

Additional information regarding the carbon footprint can be included. Examples of additional information is carbon footprint declarations (e.g. according to ISO 14067, according to EN15804:2012+A1:2013), separate reporting on indicators related to issues under development that are relevant for the carbon footprint, etc.

7.4.3.4 Additional LCIA indicators

Complementary LCIA indicators beyond those defined in EN 15804 may be reported as additional environmental information, provided they are clearly labelled to avoid misinterpretation. The following statement shall be printed for thse additional impact indicators: *"These LCIA indicator results are additional environmental information that may not be in compliance with EN 15804:2012+A2:2019 and should therefore be used with care."*

7.5 Aggregation of information modules

Environmental indicators declared in the individual life cycle information modules shall not be added up into any combination of a total or sub-total for the life cycle stages A, B, C or D. There is one exception, whereby life cycle information modules A1, A2 and A3 may be aggregated into A1 – A3.

8 Project report

The project report is the systematic and comprehensive summary of the project documentation supporting the verification of an EPD. The LCA-related part of the project report shall record the LCA-based information, and the additional information as declared in the EPD, meeting the requirements of EN 15804 and PCR Part A. It shall be made available to the verifier with the requirements on confidentiality stated in ISO 14025. The LCA project report is not required as part of the public communication.

The LCA project report shall follow the instructions given in ISO 14044 Clause 5.2 and EN 15804 Clause 8.

9 Verification and validity of an EPD

The process of verification of an EPD shall be in accordance with EN ISO 14025 Clause 8 and ISO 21930 Clause 9. After verification, an EPD is valid for a period of 5 years. An EPD does not have to be recalculated and revised after 5 years if the underlying data has not changed significantly.

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Norwegian EPD Foundation, Technical committee

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Leader of the Technical committee

10 Bibliography

1. PCR 2007: Product category rules for preparing an environmental declaration for Electricity, Steam, Hot and cold water, generation and distribution, PCR CPC 17, Version 4.1.
2. NS 3420:2010: Collection of all standards within the NS 3420 series - Specification texts for building, construction and installations
3. EN 15978:2011: Sustainability of construction works – Assessment of environmental performance of buildings – calculation method.
4. NS-EN 15251:2007: Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics. Standards Norway.
5. EN 16760:2015 Bio-based products – life cycle assessment

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