



epd-norge.no

The Norwegian EPD Foundation

Draft PCR for Technical-chemical products in the building and construction sector

## PRODUCT CATEGORY RULES

EN 15804

NPCR 009 version 2.0

Issue date: xx.yy.2018

Valid to: xx.yy.2023

# PCR- PART B for technical-chemical products in the building and construction industry





## REVISION LOG

This is an overview of the changes made to this PCR. Typology of changes:

- Editorial (ed): Text or layout edited, with no change in content.
- Technical (te): Existing content has been changed.
- Addendum (ad): New content has been added.

Naming convention: Version x.y, where x is a major revision and y is a minor revision.

<b>Date</b> (20xx-xx-xx)	<b>Type</b>	<b>Description of change</b>
<b><i>Version 1.0</i></b>		
Original version, issued 20xx-xx-xx.		



## Table of Contents

REVISION LOG .....	3
Introduction .....	7
1 Scope .....	8
2 Normative references .....	8
3 Terms and Definitions .....	8
3.1 Building fabric .....	8
3.2 Adhesive .....	8
3.3 Liquid applied membrane (based on ETAG 022) .....	9
3.4 Mortar .....	9
3.5 Sealant (based on ISO 16707).....	9
3.7 Screed and fine smoothing/levelling compound.....	9
3.8 Surface treatment .....	9
4 Abbreviations.....	9
5 General aspects .....	10
5.1 Objective of PCR Part A and B .....	10
5.2 Types of EPD in respect to life cycle stages covered .....	10
5.3 Comparability of EPD of construction products .....	10
5.4 Additional information .....	10
5.5 Ownership, responsibility and liability for the EPD .....	10
5.6 Communication format.....	10
6 Product Category Rules for LCA.....	10
6.1 Product Category.....	10
6.1.1 Adhesives.....	10
6.1.2 Sealants .....	11
6.1.3 Screeds and fine smoothing compounds.....	11
6.1.4 Liquid applied membranes .....	12
6.1.5 Mortar .....	12
6.1.6 Surface treatment .....	12
6.1.7 Primers.....	12



6.2 Life cycle stages and their information modules to be declared .....	13
6.2.1 General.....	13
6.2.2 A1-A3 Product stage, information modules.....	13
6.2.3 A4-A5 Construction process stage, information modules .....	13
6.2.4 B1-B5 Use stage, information modules related to the building fabric .....	14
6.2.5 B6-B7 Use stage, information modules related to the operation of the building .....	14
6.2.6 C1-C4 End-of-life stage, information modules .....	14
6.2.7 D Benefits and loads beyond the system boundary, information module .....	15
6.3 Calculation rules for the LCA.....	15
6.3.1 Functional unit.....	15
6.3.2 Declared unit.....	15
6.3.3 Reference service life (RSL).....	15
6.3.4 System boundaries.....	16
6.3.5 Criteria for the inclusion of inputs and outputs (cut-off) .....	16
6.3.6 Selection of data .....	16
6.3.7 Data quality requirements.....	16
6.3.8 Scenarios at the product level.....	16
6.3.9 Units .....	17
6.4 Inventory analysis.....	17
6.4.1 Allocation of input flows and output emissions.....	17
6.5 Impact assessment .....	17
7 Content of the EPD .....	18
7.1 Declaration of general information.....	18
7.2 Declaration of environmental parameters derived from LCA.....	18
7.2.1 General.....	18
7.2.2 Rules for declaring LCA information per module.....	18
7.2.3 Parameters describing environmental impacts .....	18
7.2.4 Parameters describing resource use.....	18
7.2.5 Other environmental information describing waste categories and output flows.....	18
7.2.6 Accounting of biogenic carbon during the life cycle.....	19
7.2.7 Greenhouse gas emissions from land use change.....	19



7.2.8 Carbonation.....	19
7.3 Scenarios and additional technical information.....	19
7.3.1 General.....	19
7.3.2 Construction process stage .....	19
7.3.3 Use stage .....	20
7.3.4 End of life.....	20
7.4 Additional information .....	21
7.4.1 Additional information on release of dangerous substances to indoor air, soil and water: Indoor air .....	21
7.4.2 Additional information on release of dangerous substances to indoor air, soil and water: Soil, ambient air and water .....	21
7.4.2 Additional Norwegian requirements .....	21
7.5 Aggregation of information modules.....	22
8 LCA project report .....	22
9 Verification and validity of an EPD.....	22
10 Bibliography .....	23



epd-norge.no

The Norwegian EPD Foundation

## Introduction

These product category rules (PCR) are intended for companies preparing an environmental product declaration (EPD) for technical-chemical products in the building and construction industry (see chapter 6.1 for a definition of the product group). The PCR for technical-chemical products in the building and construction industry consists of two parts. This document contains PCR part B for technical-chemical products in the building and construction industry, which is the part of the PCR that is specific for technical chemical products in the building and construction industry. Part A contains the requirements that are common for all construction products. When preparing an EPD for technical-chemical products in the building and construction industry, all requirements outlined in part A and part B must be followed. In PCR part B, the requirements for PCR part A are referred to in each section where they occur. The purpose of this document is to define clear guidelines for performing the underlying life cycle assessment (LCA) to ensure comparability between EPDs.

This PCR was developed from August 2017 to January 2018, by a Norwegian PCR work group (WG), with representatives from the technical-chemical product industry, and with aid from Ostfold Research (Østfoldforskning), SINTEF Building and Infrastructure and the EPD program operator The Norwegian EPD Foundation.

Members of the PCR working group (WG) for technical-chemical products in the building and construction industry:

Håkon Hauan, The Norwegian EPD Foundation (EPD-Norge) Committee Leader  
Trine D. Pettersen, The Federation of Norwegian Construction Industries (BNL)  
Line Holaker, Saint-Gobain, Byggevarer AS  
Alan Ulstad, Hey'di AS  
Kjersti Tidemandsen, SIKA Norge AS  
Dao Ringøy, Mapei AS

Consultants:  
Erik Svanes, Ostfold Research (Østfoldforskning)  
Christofer Skaar, SINTEF Building and Infrastructure  
Arne Nesje, SINTEF Building and Infrastructure

The Norwegian EPD Foundation, under licence from Standard Online AS 01/2012, reproduces definitions from ISO 14044: 2006 and EN 15804: 2012. © All rights are reserved. Standard Online makes no guarantees or warranties as to the correctness of the reproduction. See [www.standard.no](http://www.standard.no).



## 1 Scope

This document complements the core rules for the product category of construction products as defined in EN 15804:2012+A1:2013 and NPCR part A, and is intended to be used in conjunction with those standards.

In addition, the intended application of this product category rule (PCR) is to give guidelines for the development of environmental product declarations (EPD) for *technical-chemical products in the building and construction industry*, and to further specify the underlying requirements of the life cycle assessment (LCA). The core rules valid for all construction products are given in standard EN 15804 and NPCR Part A, and are expected to be known by those preparing the EPD.

## 2 Normative references

As in PCR part A.

## 3 Terms and Definitions

As in PCR part A.

In addition, the following product-specific terms and definitions are given:

### 3.1 Building fabric

Construction products that are fixed to the building in a permanent manner, so that the dismantling of the product changes the performance of the building, and the dismantling or replacement of the product constitutes reconstruction. The product can be used for both exterior and interior applications.

### 3.2 Adhesive

An adhesive is a mixture in a liquid or semi-liquid state that adheres or bonds items together. Adhesives may come from either natural or synthetic sources. To follow are some examples of different types of adhesives:

Cementitious adhesive (based on EN 12004).

A mixture of hydraulic binding agents, aggregates, and organic additives, mixed with water or liquid admix just before use.

Dispersion adhesive (based on EN 12004).

A ready to use mixture of organic binding agent(s) in the form of an aqueous polymer dispersion, organic additives, and mineral fillers.

Reaction resin adhesive (based on EN 12004).

One or more components, which when mixed contain synthetic resin, mineral fillers and organic additives. Hardening occurs by chemical reaction.





### 3.3 Liquid applied membrane (based on ETAG 022)

One or more liquid applied layers of materials that act as a barrier between the water and the building structure, preventing the passage of water.

### 3.4 Mortar

A mortar is a workable paste, used to bind construction blocks together, used to fill the gaps between them, used to repair holes and gaps, and/or to create a levelled surface from a very uneven masonry or concrete wall. Modern mortars are typically mixtures of sand, a binder such as cement, gypsum or lime, additives and water. To follow are some examples of different types of mortar:

Masonry mortar (based on EN 998-2).

A workable paste used to bind building blocks such as stones, bricks and concrete masonry units together, fill and seal the irregular gaps between them, and/or add decorative colours or patterns to masonry walls.

Rendering or plastering mortar (based on EN 998-2).

A workable paste or slurry used to add a smooth, constructive or decorative layer on a wall of clay, cement, stone, mud brick or insulation. It is often textured, coloured, or painted after application. It is generally used on exterior walls but can also be used on interior walls.

Repair mortar – a workable paste used for structural repair.

Casting mortar – a workable or thick cement based paste for casting and supporting smaller constructions.

### 3.5 Sealant (based on ISO 6707)

A substance used to prevent the passage of fluids, gas, noise, smoke etc through surfaces, joints or openings in materials. Sealant is a type of mechanical seal.

Sealant can also have a decorative and/or mechanical function to absorb movements in materials.

### 3.7 Screed and fine smoothing/levelling compound

Smoothing paste or screed is used to fill in holes and other surface irregularities in different wall- and floor surfaces in order to provide a smooth surface when set. Screeds and floor levelling compounds are used to make floor surfaces in whole areas on different substrates. The surface can be a substrate for a floor covering or a ready-to-use-surface.

### 3.8 Surface treatment

Liquid applied treatment to protect and/or provide a decorative surface of a building or construction. Paints are **not** included in this PCR.

## 4 Abbreviations

As in PCR part A with the following addition: VOC Volatile organic compound





## 5 General aspects

### 5.1 Objective of PCR Part A and B

As in PCR part A.

### 5.2 Types of EPD in respect to life cycle stages covered

As in PCR part A.

### 5.3 Comparability of EPD of construction products

As in PCR part A.

### 5.4 Additional information

As in PCR part A.

### 5.5 Ownership, responsibility and liability for the EPD

As in PCR part A.

### 5.6 Communication format

As in PCR part A

## 6 Product Category Rules for LCA

As in PCR part A.

### 6.1 Product Category

As in PCR part A including the following further clarification.

The product groups covered in this PCR includes glues, adhesives, screeds, plasters, renders, fine smoothing compounds, sealants, primers, mortars and liquid applied membranes. The following sub-chapters describe the various groups of products covered by this PCR. There is, however, a certain degree of overlap between the product groups. There is, for example, no clear distinction between sealants and glues, or between smoothing compounds and surface treatment products. Ultimately, it is the responsibility and right of the EPD owner to define the product group in which the product belongs.

#### 6.1.1 Adhesives

Adhesives are described in the following standards.



- EN 12675: Classification of thermosetting wood adhesives for non-structural applications.
- EN 204: Classification of thermoplastic wood adhesives for non-structural applications.
- EN 13415: Adhesives for floors.
- EN 15275: Structural adhesives - Characterization of anaerobic adhesives for co-axial metallic assembly in building and civil engineering structures.
- EN 14496: Gypsum based adhesives for thermal/acoustic insulation composite panels and plasterboards - Definitions, requirements and test methods.
- EN 12436: Adhesives for load-bearing timber structures - Casein adhesives - Classification and performance requirements.
- EN 12004: Adhesives for ceramic tiles. Reaction resin adhesive. Cementitious Adhesives. Dispersion Adhesives.
- EN 311: Particleboards. Surface soundness of particleboards, test method. (reference to Hot-melt adhesive).

### 6.1.2 Sealants

Sealants are described in the following standards:

- ISO 6927: Buildings and civil engineering works -- Sealants – Vocabulary. (reference to Plastic sealant and Elastic sealants).
- EN ISO 11600: Building construction - Jointing products - Classification and requirements for sealants (ISO 11600:2002).
- EN 13880-1: Hot applied joint sealants - Part 2: Test method for the determination of cone penetration at 25 °C.
- EN 13888: Grout for tiles - Requirements, evaluation of conformity, classification and designation.
- EN 14188-1: Joint fillers and sealants. Part 1: Specifications for hot applied sealants.
- EN 14188-1: Joint fillers and sealants. Part 2: Specifications for cold applied sealants.
- EN 15651: Sealants for non-structural use in joints in buildings and pedestrian walkways. Part 1: Sealants for facade elements.
- EN 15651: Sealants for non-structural use in joints in buildings and pedestrian walkways. Part 2: Sealants for glazing.
- EN 15651: Sealants for non-structural use in joints in buildings and pedestrian walkways. Part 3: Sealants for sanitary joints.
- EN 15651: Sealants for non-structural use in joints in buildings and pedestrian walkways. Part 4: Sealants for pedestrian walkways.

### 6.1.3 Screeds and fine smoothing compounds

Screeds and fine smoothing compounds are described in the following standards:

- EN 13813: Screed material and floor screeds - Screed material - Properties and requirements.
- BS-EN 1937: Test method for hydraulic setting floor smoothing and/or levelling compounds. Standard



mixing procedures.

- EN 13454-1: Binders, composite binders and factory-made mixtures for floor screeds based on calcium sulphate - Part 1: Definitions and requirements.
- EN 13279-1: Gypsum binders and gypsum plasters - Part 1: Definitions and requirements.
- EN 15824: Specifications for external renders and internal plasters based on organic binders.

#### 6.1.4 Liquid applied membranes

Membranes are described in the following standards:

- EN 14891: Liquid applied water impermeable products for use beneath ceramic tiling bonded with adhesives. Requirements, test methods, assessment and verification of constancy of performance, classification and marking.
- ETAG 022: guideline for European technical approval of Watertight covering kits for wet room floors and or walls. Part 1: Liquid Applied Coverings with or without wearing surface.
- EN 15814: Polymer modified bituminous thick coatings for waterproofing - Definitions and requirements.

#### 6.1.5 Mortar

Mortars are described in the following standards:

- EN 998-1: Specification for mortar for masonry - Part 1: Rendering and plastering mortar
- EN 998-2: Specifications for mortar for masonry use - Masonry mortar.
- EN 1504-series: Products and systems for protection and repair of concrete structures.
- EN 413-1: Masonry cement. Part 1: Composition, specifications and conformity criteria.
- EN 934-1: Admixtures for concrete, mortar and grout. Common requirements.
- EN 934-3:+ A1: Admixtures for concrete, mortar and grout. Part 3: Admixtures for masonry mortar - Definitions, requirements, conformity and marking and labelling.

#### 6.1.6 Surface treatment

Surface treatments are described in the following standard:

EN 1504-2 Products and systems for protection and repair of concrete structures. Definitions, requirements, quality control and evaluation of conformity - Part 2: Surface protection systems for concrete.

#### 6.1.7 Primers

Primers are products used to make a surface ready for the application of another product, e.g. a smoothing compound or a sealant. In this document, primers belong to the same subgroup as the product they are used in conjunction with. E.g. primers for sealants belong to the same subgroup as sealants.

## 6.2 Life cycle stages and their information modules to be declared

### 6.2.1 General

As in PCR part A.

### 6.2.2 A1-A3 Product stage, information modules

As in PCR part A including the following further clarification.

Modules A1, A2 and A3 may be declared as one aggregated module (A1-A3).

Module A1 includes:

- Extraction and processing of raw materials (e.g. pumping oil from reservoirs, processing, distillation, petrochemical products manufacture);
- Reuse of products or materials from a previous product system;
- Processing of secondary materials used as input for manufacturing the product, but not including those processes that are part of the waste processing in the previous product system;
- Generation of electricity, steam and heat from primary energy resources, also including their extraction, refining and transport;
- Energy recovery and other recovery processes from secondary fuels, but not including those processes that are part of waste processing in the previous product system.

Module A2 includes the transportation of the products ingredients to the production facility.

Module A3 includes the manufacture of the product, ancillary materials, pre-products, internal transport and packaging. The module also contains all waste processes up to the end-of waste state or disposal of final residues during the product stage.

### 6.2.3 A4-A5 Construction process stage, information modules

As in PCR part A including the following further clarification.

Module A4 includes the transportation of packed product from the production site to the place where it is to be used.

Transport in life cycle module A4 shall include the following:

- Direct emissions during transport (exhaust, tyres, etc.)
- Upstream emissions from fuel extraction, processing and distribution
- Life cycle emissions of vehicles (raw materials, manufacturing, maintenance and disposal)
- Life cycle emissions of infrastructure (raw materials, manufacturing, maintenance and disposal)

Module A5 is the installation phase. It includes all materials and activities connected to the installation of technical-chemical products in the building or construction. All relevant processes, use of application tools,

cleaning of tools, product wastage and any energy or other input used in the application shall be included. Handling of waste generated from the construction phase is also included. One typical example of environmental impact from the construction phase of technical-chemical products in the building and construction industry is volatile organic compound (VOC) emissions. The construction stage lasts until the building is taken into use.

#### 6.2.4 B1-B5 Use stage, information modules related to the building fabric

As in PCR part A including the following further clarification.

In life cycle module B1, the use phase involves emissions to air and water during the life time of the product. Reduction of emissions in air is also included in B1. This can arise from the carbonation of products containing cement. This life cycle stage starts when the construction is taken into use, e.g. when tenants move into an office building and start to use it.

Module B2, maintenance includes processes necessary to maintain the function of the product without a modification of the construction, e.g. washing a surface.

Module B3, repair, is defined as the application of more product to fulfil the original function of the product.

Module B4, replacement refers to exchanging a product installed in a building or construction, in order to fulfil the wanted function.

Module B5, refurbishment

Maintenance, repair and replacement of a whole section of the building as part of a concerted programme for the building would be considered as refurbishment.

Life cycle modules B2-B5 shall not be included in EPDs for technical-chemical products in the building and construction industry because maintenance, repair, replacement and refurbishment are more dependent on other factors, beyond the scope of the technical-chemical product itself. Such factors include the properties of the building part in which the technical-chemical products form a part of, and how the technical-chemical product is applied to the building. Other important factors are aesthetical and economic factors relating to the whole building, e.g. the wish to refurbish a building for a new tenant.

#### 6.2.5 B6-B7 Use stage, information modules related to the operation of the building

Life cycle modules B6 and B7, operational energy and water use, are not relevant for the products covered by this PCR.

#### 6.2.6 C1-C4 End-of-life stage, information modules

As in PCR part A, including the following further clarification. This stage involves removal and treatment of products after the service life of the product is over or the building of which the product forms a part, is demolished.

The deconstruction life cycle module, C1, involves the removal of product from the building of which the product forms a part.

The transport life cycle module, C2, involves the transport of the removed product to waste treatment.

Module C3, waste processing, includes processes taking place during recycling, incineration or other waste treatment that transforms the removed product.

Module C4, disposal, includes impacts incurred while product removed from a building is in a landfill site or returned to nature.

#### 6.2.7 D Benefits and loads beyond the system boundary, information module

As in PCR part A. In addition, the system boundary is defined as the point in which used product enters a recycling or recovery process. That means the negative and positive impacts of all activities occurring after this stage have been reached outside of the system boundary.

### 6.3 Calculation rules for the LCA

#### 6.3.1 Functional unit

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

1 kg applied product with a specified function, including the use stage (B1) and the waste stage (C1-C4).
---

#### 6.3.2 Declared unit

The declared unit is used for EPDs when the EPD does not cover the full life cycle of the product or when the exact function of the product in the building or construction is not stated or not clear. When the full life cycle is not covered, the system boundary is defined as either 'Cradle to Gate' or 'Cradle to Gate with options'. The declared unit is thus defined as:

Cradle to Gate: 1 kg of manufactured product (A1-A3).

Cradle to Gate with options: 1 kg of applied product (A1-A3 including one or more of the life cycle stages A4, A5, B1, C1, C2, C3, C4 and D).

However, if the Cradle to Gate with options only includes stages A1-A4, the declared unit shall be 1 kg transported product.

One important distinction between functional unit and declared unit is that the former takes into account product wastage, e.g. if 5 % product is wasted in the installation stage, 1,05 kg of product will have to be manufactured for each kg installed. In such cases the functional unit includes manufacture (and production of raw materials and transports and all other processes A1-A3) of 1,05 kg product, whereas the declared unit only covers manufacture of 1,0 kg product.

#### 6.3.3 Reference service life (RSL)

As in PCR part A, including the following clarification.

The reference service life of these products is usually not dependent on the properties of the products themselves, but rather by the service life of the building or building part to which they are attached. The reference service life may also be dependent upon aesthetical or economic factors not relating to the product. The product's reference service life may for example end when or if the building is demolished to erect a new building. The product's reference service life may also end due to refurbishment for aesthetical rather than technical reasons.

For these reasons, the RSL of the products included in this PCR are not defined, and EPD owners are not allowed to state their products RSL in the EPD.

#### 6.3.4 System boundaries

As in PCR part A, including the following clarification.

The system boundary must contain as a minimum the production stage, A1-A3. A system that only covers A1-A3 is called Cradle to Gate. There are two other possible system boundaries: Cradle to Grave (A1-A5, B1, C1 to C4, with D as a voluntary stage) or Cradle to Gate with options. Cradle to Gate with options includes A1-A3 and one or more of the life cycle stages from B1-C4, with D as a voluntary stage.

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

As in PCR part A, with the following clarification.

General cut-off criteria are also given in EN 15804, clause 6.3.5.

The following processes shall not be included:

1. The production of machinery for manufacture of products, due to the assumption that the machinery has relatively low impacts relative to other impacts.
2. The production of buildings for the manufacture of the products, due to the assumption that the buildings have relatively low impacts relative to other impacts.
3. Packaging of ingredients. However, packaging of the product must be included.
4. Laboratory.
5. Office.
6. Business travel.
7. Travel to the workplace.
8. Inspections by authorities or commissioning bodies.

A list of hazardous and toxic materials and substances shall be included in the inventory. The general cut-off rules do not apply to such substances. However, substances included in amounts below the limits for chemical products health and environmental hazard classification do not have to be declared.

Exceptions apply for substances on the REACH candidate list and the Norwegian priority list. A cut-off of 0.1 % w/w applies. This cut-off only applies to intentionally added compounds, not impurities or compounds formed because of chemical reactions in the product. All REACH candidate list substances occurring in amounts exceeding 0.1 % of the product, in the state that it is in when it is sold, must be declared. The same limit applies to all substances on the Norwegian priority list.

#### 6.3.6 Selection of data

As in PCR part A.

#### 6.3.7 Data quality requirements

As in PCR part A.

#### 6.3.8 Scenarios at the product level

As in PCR part A, with the following additions:

Draft NPCR 009 Part B for Technical – Chemical products for the building- and construction industry version 2.0



#### *A4 – A5 Transport and installation*

A4: Transport from the production gate to the construction site shall be calculated based on information from the manufacturer. The following default values can be used for developing scenarios at the product level.

- For domestic production, the default travel distance is 300 km.
- For import, the distance is measured from the manufacturing site to a specific storage location, plus a transport distance from the storage location to the building site (300 km if not specified). If no specific storage location is given, then the capital city can be used as an approximate location.

A5: Technical-chemical product wastage at the building or construction site is estimated based on information from the manufacturer. If no estimate is available, then the default value is set to 5 per cent by weight. Any deviations from the scenario described above shall be justified and explained.

#### *B1 Use stage*

Information to specify on the emissions to water and air during the use stage shall be provided as given in standard EN 15804:2011, clause 7.3.3.1, table 9 and shall be reported in the LCA report.

*C1-C4 End of life:* The end-of-life life cycle modules C1, C2, C3 and C4 shall be calculated based on information provided by the manufacturer. If data on waste handling of the product is not available, the following default waste treatment scenario shall be assumed:

Material recycling: 10 % (life cycle module C3)

Energy recovery: 0 % (life cycle module C3).

Landfill: 90 % (life cycle module C4).

These percentages represent an estimate of the average handling of these products. More specific data can be used instead of these default values, but documentation must be given to support the data.

For transport of waste to a waste handling facility, a standard transport distance of 50 km may be assumed. Any deviations from the scenario described above shall be justified and explained.

#### 6.3.9 Units

As in PCR part A.

#### 6.4 Inventory analysis

As in PCR part A.

##### 6.4.1 Allocation of input flows and output emissions

As in PCR part A with the following clarification.

Technical-chemical products may be produced in the same facility and/or transported in the same vehicle as other products. When allocation cannot be avoided, e.g. through subdivision of processes, output emissions and resource use shall be allocated according to the mass of the product.

#### 6.5 Impact assessment

As in PCR part A.



## 7 Content of the EPD

### 7.1 Declaration of general information

As in PCR part A.

### 7.2 Declaration of environmental parameters derived from LCA

#### 7.2.1 General

As in PCR part A.

#### 7.2.2 Rules for declaring LCA information per module

As in PCR part A.

#### 7.2.3 Parameters describing environmental impacts

As in PCR part A.

#### 7.2.4 Parameters describing resource use

As in PCR part A.

##### *7.2.4.1 Water use*

As in PCR part A.

##### *7.2.4.2 Electricity used in A3 Manufacturing*

As in PCR part A.

#### 7.2.5 Other environmental information describing waste categories and output flows

As in PCR part A.

---

<sup>2</sup> See CEN/TR 15941:2009 "Sustainability of construction works – Environmental product declarations – Methodology for selection and use of generic data".

7.2.6 Accounting of biogenic carbon during the life cycle  
As in PCR part A.

7.2.7 Greenhouse gas emissions from land use change  
As in PCR part A.

7.2.8 Carbonation  
As in PCR part A with the following additions:

If no specifications are given in PCR part A, carbonation shall be declared according to ISO 21930, EN 16757:2017 or NPCR 020 Concrete Products.

### 7.3 Scenarios and additional technical information

7.3.1 General  
As in PCR part A.

#### 7.3.2 Construction process stage

##### *7.3.2.1 A4, Transport from the production site to the construction site*

As in PCR part A with the following additions:

Transport from the production gate to the construction site is typically carried out using trucks. The distance, type of vehicle, fuel consumption and degree to which the transport capacity is utilised may have a large impact on transport emissions, thus these factors must be stated. Capacity utilisation is calculated as a percentage (%) of the total load capacity of the vehicle. The percentage given shall be the average of the capacity utilisation including the return trip. Table 1 shows which information shall be provided in the EPD when module A4 is included.

*Table 1. Information on the transport to the construction site (A4) required in the EPD.*

Type	Capacity utilisation (incl return) %	Type of vehicle, incl emissions class	Distance km	Fuel/energy consumption pr tkm	Fuel/energy consumption pr km
Truck					
Railway					
Other transport mode					

### 7.3.2.2 A5, Installation

As in PCR part A.

This life cycle module involves the installation of the product in the building and construction. The data specified in table 2 must be used to calculate impacts of the installation stage.

*Table 2. Information on the installation required in the EPD.*

Parameter	Unit	Value
Ancillary materials for installation (specified by material);	kg or other units as appropriate	
Water use	m <sup>3</sup>	
Other resource use	kg	
Electricity consumption	kWh	
Other energy carriers, e.g. natural gas, LPG.	MJ	
VOC in the air	kg	
Wastage of materials on the building site before waste processing, generated by the product's installation (specified by type)	kg	

### 7.3.3 Use stage

As in PCR part A with the following clarification.

This stage includes all processes occurring during the life time of the products, from the time the product is installed until it is decommissioned.

B1, use, includes all impacts that occur due to the normal, intended use of the product. In addition to the impacts, the total emissions of volatile organic compounds, expressed in terms of 'amount of VOC' shall be included.

### 7.3.4 End of life

As in PCR part A with the following clarification.

This stage includes all processes in the end-of-life period of the products life. If the default values (see chapter 6.3.8) are not used, then the data specified in table 3 must be used to calculate impacts.

Table 3. Information on the end of life cycle modules C1-C4 as required in the EPD.

Process		Value
Collection process specified by type	kg collected separately	
	kg collected with mixed construction waste	
Recovery system specified by type	kg for re-use	
	kg for recycling	
	kg for energy recovery	
Disposal specified by type	kg product or material for final deposition	
Assumptions for scenario development, (e.g. transportation)	Units as appropriate	

## 7.4 Additional information

As in PCR part A.

This clause includes all significant environmental and health impacts not included in the impact categories of this PCR. See section 7.2.3 and ISO 14025, section 7.2.3. This includes all environmental and human health impacts that may be calculated in a LCA but are not included in the current LCIA categories such as direct toxic effects. This also includes any environmental and health impacts not calculated in the LCA.

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

#### Indoor air

As in PCR part A, including the following additions:

Some technical-chemical products in the building and construction industry are expected to release volatile organic compounds during installation and use. Some of the compounds released might affect the indoor air quality of the building where it is used. The release of volatile organic compounds (VOCs) in the installation and use phase must be quantified in life cycle modules A5 and B1 respectively. The effect of such emissions on indoor air must, if significant, be quantified and stated in the EPD.

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

#### Soil, ambient air and water

If the product releases substances which give significant detrimental effects on soil, ambient air and/or water, then these effects must be quantified and given in the EPD.

### 7.4.2 Additional Norwegian requirements

This clause describes Norwegian recommendations given by the programme operator The Norwegian EPD Foundation (EPD Norway).

#### 7.4.3.1 Greenhouse gas emissions from electricity use in A3 Manufacturing

As in PCR part A.

#### *7.4.3.2 Dangerous substances and content declaration*

As in PCR part A, including the following additions:

Specification of materials and substances that can adversely affect human health and environment shall be reported.

A detailed list of the product's substances (chemicals included in the final technical-chemical product), including CAS number and classification according to Regulation (EC) No. 1272/2008) shall be included in the product content declaration. The content of substances shall be declared in terms of weight percentages. Only substances that are mentioned in the raw materials' safety declaration sheets (SDS) shall be included. The EPD owner has no obligation to investigate the content of ingredients used in raw material production, with the exception of products on the REACH candidate list and the Norwegian Priority List.

In cases where information about contents could affect patent or company secrets, a qualitative list of chemicals and their expected functions is sufficient, including the hazard statements. This does not apply to substances on the REACH Candidate List or Norwegian Priority List.

#### *7.4.3.3 Emission classification of building materials*

As in PCR part A.

#### *7.4.3.1 Carbon footprint*

As in PCR part A.

### 7.5 Aggregation of information modules

As in PCR part A.

## 8 LCA project report

As in PCR part A.

## 9 Verification and validity of an EPD

As in PCR part A.

Approved xx.yy.2018, valid until xx.yy.2023.

Norwegian EPD Foundation, Technical committee



## 10 Bibliography

As in PCR part A, including the following additions

EN 15804:2011 Sustainability of construction works – Environmental Product Declarations – core rules for the product category of construction products.

ISO 2006 Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 14044:2006 Environmental management - life cycle assessment - requirements and guidelines

ISO 21930:2007 Sustainability in building construction -- Environmental declaration of building products.

ELCD (European Reference Life Cycle Data System) <http://lct.jrc.ec.europa.eu/assessment/data>

DRAFT