EPD
INTERNATIONAL EPD SYSTEM

CONCRETE BATCHING PLANTS

PRODUCT CATEGORY CLASSIFICATION: UN CPC: 44440

C-PCR-026 (TO PCR 2019:14)
VERSION 1.0.0

VALID UNTIL: 2028-06-13

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1 INTRODUCTION

1.1 GENERAL

This document constitutes complementary Product Category Rules (c-PCR) for developing Environmental Product Declarations (EPD) in the framework of the International EPD System: a programme for EPDs[1] according to ISO 14025, ISO 14040, ISO 14044, and product-specific standards, such as EN 15804, EN 15941 and ISO 21930 for construction products.[2] developed in the framework of the International EPD System: a programme for type III environmental declarations[3] according to ISO 14025:2006. EPDs are voluntary documents for a company or an industry association to present transparent, consistent, and verifiable information about the environmental performance of their products (goods or services).

The General Programme Instructions (GPI), publicly available on www.environdec.com, includes the rules for the overall administration and operation of the programme and the basic rules for developing EPDs registered in the programme. A PCR complements the GPI and the normative standards by providing specific rules and guidelines for developing an EPD for one or more specific product categories (see Figure 1), thereby enabling the generation of consistent EPDs within a product category.

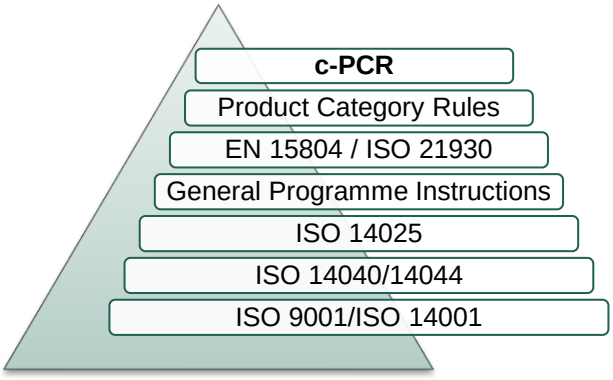

Figure 1 This c-PCR in relation to the hierarchy of standards and other documents.

The present c-PCR uses the following terminology:

- The term “shall” is used to indicate what is obligatory, i.e., a requirement.
- The term “should” is used to indicate a recommendation. Any deviation from a recommendation shall be justified in the EPD development process.
- The terms “may” or “can” are used to indicate an option that is permissible.

For definitions of other terms used in the document, see the GPI, normative standards, and PCR 2019:14 Construction products.

The latest version of the PCR is available on www.environdec.com.

Any references to this PCR shall include the PCR registration number, name, and version number.

Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR document may be sent directly to the PCR Moderator during its development or during the period of validity.

The programme operator maintains the copyright of the document to ensure that it is possible to publish, update when necessary, and available to all organisations to develop and register EPDs. Stakeholders participating in PCR development should be acknowledged in the final document and on the website.

1 Termed type III environmental declarations in ISO 14025.

2 When standards are referred to in this document, the version listed in Section 7 is intended unless otherwise stated.

3 Type III environmental declarations in the International EPD System are referred to as EPD, Environmental Product Declarations.

1.2 ROLE OF THIS DOCUMENT

This document provides complementary product category rules (c-PCR) to PCR 2019:14 Construction products, available on www.environdec.com. This document cannot be used by itself but shall be used together with PCR 2019:14 and EN 15804. The document can be used together with any valid version of PCR 2019:14, regardless of the version of PCR 2019:14 referred to in this document.

See Figure 2 for an illustration on how PCR 2019:14 and this c-PCR relates to each other and the EPDs that may be based on them.

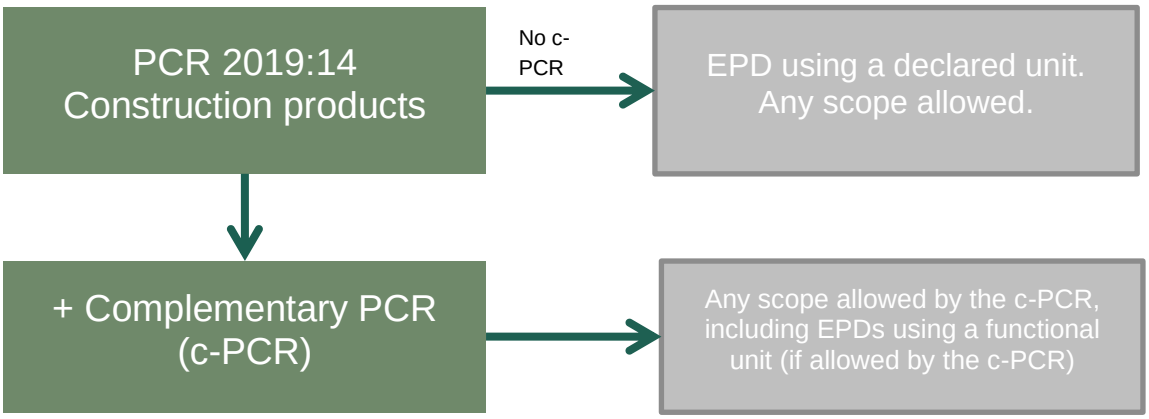

Figure 2 Overview of using PCR 2019:14 directly to develop an EPD or how to use it together with a c-PCR.

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Concrete batching plants
Registration number and version:	c-PCR-026, version 1.0.0
Programme:	EPD INTERNATIONAL EPD SYSTEM
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden Website: www.environdec.com E-mail: support@environdec.com
PCR Moderator:	Myrto Xynogala, Envirometrics Business Consultants and Engineers SA, info@envirometrics.gr
PCR Committee:	Envirometrics Business Consultants and Engineers SA, Spanos Group IKE
Date of publication and last revision:	2025-04-22 (version 1.0.0) A version history is available in Section 8.
Valid until:	2028-06-13
Schedule for renewal:	This document will be revised upon its expiration. In case a c-PCR is developed by a CEN Product TC, the standard will replace this c-PCR with a transition period of 90 days.
Standards conformance:	For compliance to standards and other documents, see PCR 2019:14.
PCR language(s):	This PCR was developed and is available in English. In case of translated versions, the English version takes precedence in case of any discrepancies.

2.2 SCOPE

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This c-PCR is used for the assessment of the environmental performance of Concrete batching plants and the declaration of this performance by an EPD. The product category corresponds to UN CPC class 4444 and subclass 44440 according to UN Central Product Classification (CPC) Version 2.1 (https://unstats.un.org/unsd/classifications/Family/Detail/1074). Further details for the UN Central Product Classification of the product category and hierarchical structure are illustrated in Table 1.

Table 1 Product category and UN CPC classification hierarchy.

CPC classes hierarchy	CPC classification codes	Description
Section	4	Metal products, machinery and equipment
Division	44	Special-purpose machinery
Group	444	Machinery for mining, quarrying and construction, and parts thereof
Class	4444	Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand.
Subclass	44440	Same as above

A concrete batching plant includes a system that combines aggregates, binder and solid additives, with water and liquid additives in order to form concrete.

2.2.2 SPECIFICATION OF THE COMPANY

As stated in PCR 2019:14.

2.2.3 SPECIFICATION OF THE PRODUCT

See PCR 2019:14.

In addition, the EPD shall specify technical characteristics, performance and other relevant information concerning the plant. Information presented in *Table 2* and *Table 3* shall be added when applicable.

Table 2 Plant description.

Information	Examples / Explanation
Commercial name	
Main components	Aggregate Storage Bins (for different materials)
	Weighing Systems (for different materials)
	Skip
	Mixer
	Cement Screw Conveyor
	Control system
	Other
Spare parts	As described in the usage and maintenance manual

Table 3 Technical information.

Information	Examples / Explanation
Functional performance (productivity)	Productivity on time base (e.g. production output in m^3/hour)
Type of batching plant	Fixed or mobile
Plant weight (total, including all components)	tonnes
Concrete Discharge Height	m
Aggregate storage (number of bins and storage capacity)	(e.g. 4 bins, 10 m^3 each)
Batch volume (capacity)	m^3
Power (total installed)	W
Energy consumption	Electricity kWh/m^3 of produced concrete at full (100%) capacity.
	Fuels including fuel type and consumption in MJ/m^3 of produced concrete at full (100%) capacity.
Spare parts consumption	As described in the usage and maintenance manual
Chemical products and other consumables consumption	As described in the usage and maintenance manual
Designed technical lifespan	e.g. 10 years Note: When this information is not available, a fixed value of 15 years shall be used.
Typical operating hours	e.g. 2,400 hours per year Note: When this information is not available, a fixed value of 2,000 hours per year (eight hours per day, five days per week, 50 weeks per year) shall be used for all relevant module scenarios.

2.2.4 TYPE OF EPD AND INFORMATION MODULES INCLUDED

Following the requirements in PCR 2019:14, an EPD based on this c-PCR has a cradle-to-grave scope plus module D (A+B+C+D).

Section 4.2 provides more information on each life-cycle stage concerning the product category in scope.

2.2.5 GEOGRAPHICAL SCOPE

This c-PCR may be used globally.

2.2.6 EPD VALIDITY

See PCR 2019:14.

3 PCR REVIEW AND BACKGROUND INFORMATION

This c-PCR was developed in accordance with the PCR development process described in the GPI of the International EPD System, including open consultation and review.

3.1 OPEN CONSULTATION

3.1.1 VERSION 1.0

This c-PCR was initially prepared as a PCR and was available for open consultation from 2022-10-19 until 2022-12-18, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

An open consultation online meeting took place on Wednesday 14th, December 2022.

Stakeholders were invited via e-mail or other means to take part in the open consultation and were encouraged to forward the invitation to other relevant stakeholders. None of the stakeholders that provided comments during the open consultation agreed to be listed as contributors in the PCR or at www.environdec.com.

3.2 PCR REVIEW

3.2.1 VERSION 1.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members is available at www.environdec.com. The review panel may be contacted via info@environdec.com. Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review.
Chair of the PCR review:	Rob Rouwette
Review dates:	2023-01-02 until 2023-02-27

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this c-PCR, existing PCRs/c-PCRs and other internationally standardised methods that could potentially act as c-PCRs were considered to avoid unnecessary overlaps in scope and to ensure harmonisation with established methods of relevance for the product category. The existence of such documents was checked among the following EPD programmes and international standardisation bodies:

- International EPD® System. www.environdec.com .
- IBU - Institut Bauen und Umwelt e.V., https://epd-online.com/
- Epd-norge, https://www.epd-norge.no
- PEP ecopassport, http://www.pep-ecopassport.org/
- ASTM International, https://www.astm.org/products-services/certification/environmental-product-declarations/epd-pcr.html
- UL Environment, https://industries.ul.com/environment/transparency/product-category-rules-pcrs
- JEMAI CFP Program, https://www.cfp-japan.jp/english/
- JEMAI EcoLeaf, http://www.ecoleaf-jemai.jp/eng/pcr.html

- NSF International Center for Sustainability Standards EPD, https://www.nsf.org/standards-development/product-category-rules

No existing PCRs or other relevant internationally standardized methods with overlapping scope were identified.

3.4 REASONING FOR DEVELOPMENT OF C-PCR

This c-PCR was developed to provide requirements and guidelines additional to those in PCR 2019:14 and EN 15804, for developing EPDs for the product category. The c-PCR thereby enables different practitioners to generate consistent results when assessing the environmental impact of products of the same product category, and thereby it supports comparability of products within a product category.

3.5 UNDERLYING STUDIES USED FOR C-PCR DEVELOPMENT

The methodological choices made during the development of this c-PCR (declared/functional unit, system boundary, allocation methods, impact categories, data quality rules, etc.) were primarily based on the following underlying studies:

- Minjung Kwak, Louis Kima, Obaid Sarvana, Harrison M. Kim, Peter Finamore and Herb Hazewinkel, Life cycle assessment of complex heavy duty equipment, (Conference Paper) Proceedings of the ASME 2012 International Symposium on Flexible Automation, 2012
- Babak Ebrahimi, Holger Wallbaum, Pål Drevland Jakobsen, Gaylord Kabongo Booto, Regionalized environmental impacts of construction machinery, The International Journal of Life Cycle Assessment, 2018

4 GOAL AND SCOPE, LIFE CYCLE INVENTORY AND LIFE CYCLE IMPACT ASSESSMENT

This section provides specific rules, requirements and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

4.1 FUNCTIONAL UNIT

The functional unit shall be defined as the operation of the Concrete batching plant needed to produce 1 m^3 (cubic meter) of concrete (Concrete batching plant with certain technical characteristics, see Section 2.2.3).

4.2 SYSTEM BOUNDARIES

EPDs that are developed based on this c-PCR shall cover product stage (A1-A3), construction process stage (A4-A5), use stage (B1-B7), end-of-life stage (C1-C4) as well as benefits and loads beyond the system boundary (D). The scope(s) allowed by this c-PCR, and requirements for excluding information modules, is aligned with PCR 2019:14 and EN 15804.

The following subsections describe the covered information modules and the respective processes. For detailed information on each module, see EN 15804 (Section 6.3.5). Here only specific descriptions related to this c-PCR are provided.

Table 4 Life cycle stages and information modules, relevant for Concrete batching plants.

Life cycle stage	Information module		Comment
A1-A3 Product stage	A1	Raw materials and components supply	Included
	A2	Transportation of raw materials and components to the manufacturing unit of the concrete batching plant	Included
	A3	Manufacturing of concrete batching plant	Included
A4-A5 Construction process stage	A4	Transportation of concrete batching plant to the installation site	Included if relevant
	A5	Installation	Included if relevant
B1-B7 Use stage	B1	Use	Excluded; not applicable for Concrete batching plants
	B2	Maintenance	Included
	B3	Repair	Excluded; not applicable for Concrete batching plants
	B4	Replacement	Excluded; not applicable for Concrete batching plants
	B5	Refurbishment	Excluded; not applicable for Concrete batching plants
	B6	Operational energy use	Included
	B7	Operational water use	Excluded; not applicable for Concrete batching plants
C1-C4 End-of-life stage	C1	Deconstruction	Included
	C2	Transport	Included
	C3	Waste processing	Included
	C4	Waste disposal	Included
D Benefits and loads beyond the system boundary	D	Reuse, recovery, recycling, potential	Included

4.2.1 PRODUCT STAGE: MODULES A1-A3

See PCR 2019:14 and Section 6.3.5.2 of EN 15804.

- A1 Raw materials and components supply: Extraction and production of raw material for parts and components needed to produce the concrete batching plant, including:
  - extraction and processing of raw materials,
  - recycling processes of secondary materials from other product life cycles,
  - production of input components,
  - relevant services, such as transport of raw materials and components along the upstream supply chain to a distribution point (e.g. a stockroom or warehouse),
  - generation of electricity and production of fuels, steam and other energy carriers used in upstream processes

- A2 Transport: Transportation of raw material and components to manufacturing site (outsourced and in-house) from direct suppliers, i.e. from previous production or extraction process. Earlier transport journeys[4] should be included in module A1.

Transport distances can be based on actual data or, if justified, on estimated data..

- A3 Manufacturing: Manufacturing and assembly of components for the production of the concrete batching plant, including:
  - generation of electricity and production of fuels, steam and other energy carriers used during the manufacturing stage,
  - direct emissions to air, water or soils due to fuels combustion during the manufacturing stage, and
  - end-of-life treatment of manufacturing waste, even if carried out by third parties, including transportation,

The following shall not be included in the manufacturing stage:

- manufacturing of production equipment, buildings and other capital goods,
- building (or dismantling) of a production site, infrastructure, production and maintenance of manufacturing equipment, and personnel activities
- business travel of personnel,
- travel to and from work by personnel, and
- research and development activities.

4.2.2 CONSTRUCTION PROCESS STAGE: MODULES A4-A5

See PCR 2019:14 and Section 6.3.5.3 of EN 15804.

- A4 Transportation to the construction site: Transportation of the product (Concrete batching plant) from the manufacturing site to the customer's site

Notes for A4: If the plant is manufactured directly at the customer's site then this stage is set to be zero (as all relevant transportation activities are included in A2). Transport distances can be based on actual data or on scenarios defined by the company.

- A5 Installation: Installation of the concrete batching plant including:
  - the production and transport of auxiliary materials and energy used during the installation of the plant,
  - generation of electricity and production of fuels, steam and other energy carriers used during the installation stage,
  - direct emissions to air, water or soils due to fuels combustion during the installation stage, and
  - end-of-life treatment of installation waste, even if carried out by third parties, including transportation.

Note for A5: If the plant is manufactured directly at the customer's site then this stage is set to be zero (as all relevant installation activities are included in A3).

4.2.3 USE STAGE: MODULES B1-B7

See PCR 2019:14 and Section 6.3.5.4 of EN 15804.

- B2 Maintenance: Maintenance and replacement of parts including:
  - The production and transport of the parts and auxiliary materials and energy used for the Concrete batching plant's maintenance activities

[4] Example: transport of raw materials, finished and semi-finished parts to in-house and outsourced manufacturing locations of main components.

- Treatment of waste generated from the parts and their packaging
- The end-of-life processes of any waste from transportation and the maintenance process, including any parts and auxiliary materials removed.

The expected maintenance should be based on the maintenance manual and the impact should be calculated based on the "Spare parts consumption" as presented in 2.2.3.

Note for B2: Specifications concerning maintenance activities shall be provided as presented in Section 2.2.3 (Spare parts consumption).

- B6 Operational energy use: Expected energy consumption from the operation of the Concrete batching plant. The calculation of the energy consumption shall be carried out, based on the same choice performance characteristics presented in Section 2.2.3.
  - Generation of electricity and production of fuels, steam and other energy carriers used during the manufacturing stage,
  - Direct emissions to air, water or soils due to fuels combustion during the manufacturing stage (in case the plant uses fuel combustion engines for its operation)

The following shall not be included in the use stage:

- Components (cement, aggregates, water and other) used during the operations of the plant for the production of concrete.

Note for B6: The GWP-GHG intensity (kg CO_2 eq./kWh) of the electricity used in module B6 shall be declared in the EPD.

4.2.4 END-OF-LIFE (EOL) STAGE: MODULES C1-C4

See PCR 2019:14 and Section 6.3.5.5 of EN 15804.

- C1 Deconstruction: including:
  - dismantling or demolition of the concrete batching plant,
  - initial on-site sorting of the materials,
  - auxiliary materials and energy used during the deconstruction of the concrete batching plant.
- C2 Transport: transportation of the deconstructed product from the building site to the waste treatment site.
- C3 Waste processing: e.g. collection of waste fractions from the deconstruction and waste processing (up to the end-of-waste state) of material flows intended for reuse, recycling and energy recovery according to a generic scenario defined by the company.
- C4 Waste disposal: including physical pre-treatment and management of the disposal site, according to a generic scenario defined by the company.

Each company shall define its own End-of-Life scenario, considering the specifics of the geographical region where the concrete batching plant is installed (or intended to be installed). The End-of-Life scenario shall be clearly documented and justified in the EPD describing the final method of disposal, i.e. reuse, recycling, incineration and/or landfill.

4.2.5 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY: MODULE D

See PCR 2019:14 and Section 6.3.5.6 and Section 6.4.3.3 of EN 15804.

4.2.6 OTHER BOUNDARY SETTING

See PCR 2019:14 and Section 6.3.5 of EN 15804.

4.3 SYSTEM DIAGRAM

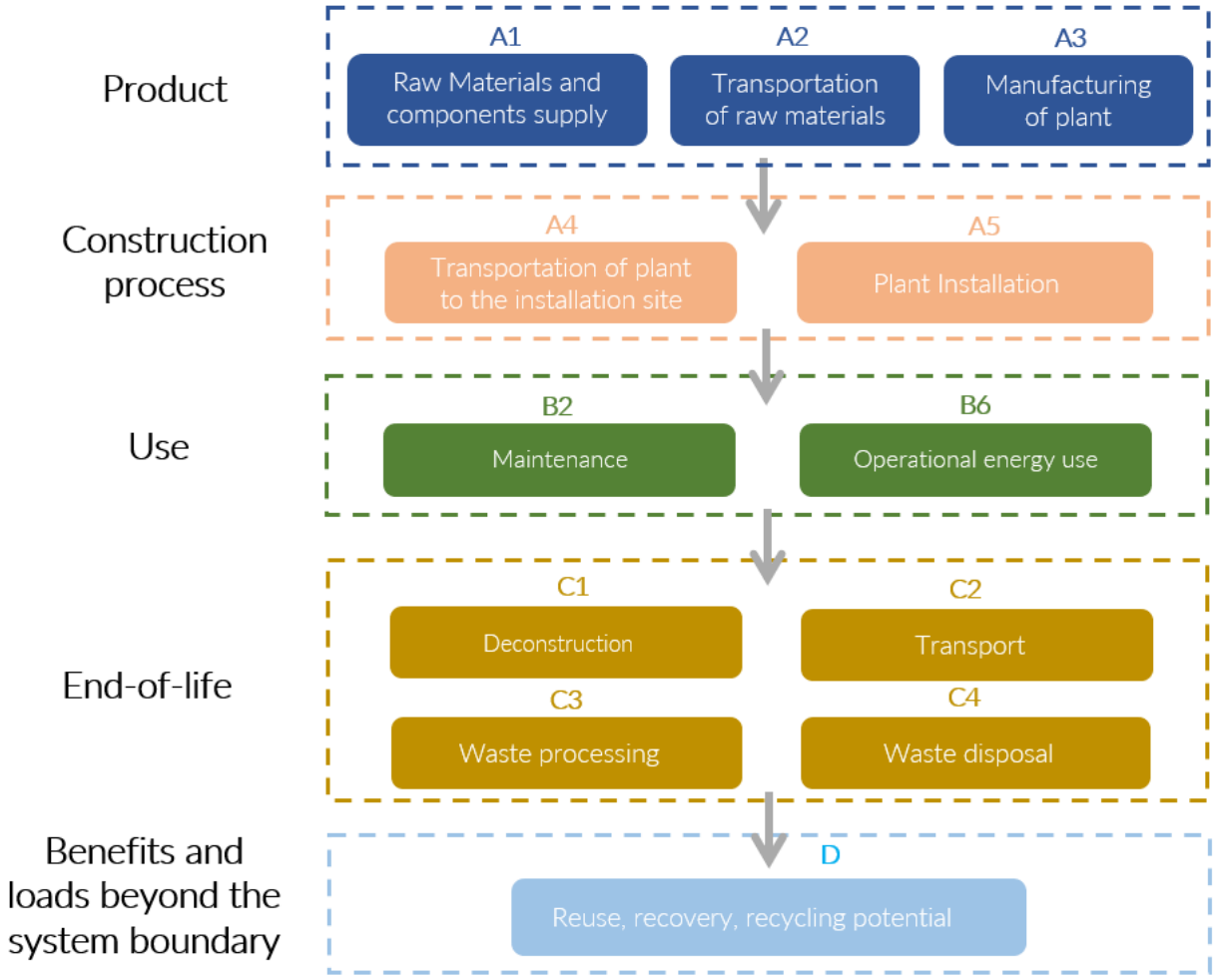

Figure 3 System diagram illustrating the processes that are included in the product system, divided into life-cycle stages and information modules.

4.4 CUT-OFF RULES

See PCR 2019:14 and Section 6.3.6 of EN 15804.

4.5 ALLOCATION RULES

See PCR 2019:14 and Section 6.4.3 of EN 15804.

4.6 DATA QUALITY REQUIREMENTS

See PCR 2019:14 and Section 6.3.8 of EN 15804.

4.7 ENVIRONMENTAL PERFORMANCE INDICATORS

See PCR 2019:14 and Section 6.5 of EN 15804.

4.8 INCLUDING MULTIPLE PRODUCTS IN THE SAME EPD

See PCR 2019:14.

5 CONTENT AND FORMAT OF EPD

See PCR 2019:14 and Section 7 of EN 15804.

5.1 EPD LANGUAGE

See PCR 2019:14.

5.2 UNIT AND QUANTITIES

See PCR 2019:14.

5.3 USE OF IMAGES IN EPD

See PCR 2019:14.

5.4 EPD REPORTING FORMAT

See PCR 2019:14.

5.4.1 CONTENT DECLARATION

As in PCR 2019:14.

Additionally, the content declaration section shall be divided by the type of material as presented in Table 5. Declaration of the information is mandatory. Other types of materials used in the product and not mentioned in the Table 5 shall be also declared (to be added in the table).

Table 5 Material content to be declared in the EPD.

Type of material	kg of material
Copper	
Stainless Steel	
Galvanized Steel	
Steel	
Cast Iron	
Aluminium	
Brass	
Bronze	
PVC	
Rubber	
Polyethylene	
Polyamide	
Other plastics, specified by polymer type	
Please add all other materials used and not mentioned in the current table.	

6 LIST OF ABBREVIATIONS

In addition to abbreviations listed in PCR 2019:14:

GPI	General Programme Instructions
PVC	Polyvinyl chloride
kWh/m^3	Kilowatt hour per cubic metre
MJ/m^3	Megajoule per cubic metre
m^3/hour	Cubic metre per hour
W	Watt

7 REFERENCES

CEN (2021) EN 15804:2012+A2:2019/AC:2021, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EPD International (2025) PCR 2019:14 Construction products, version 2.0.0. www.environdec.com.

ISO (2006a) ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO (2006b) ISO 14040:2006, Environmental management – Life cycle assessment – Principles and framework.

ISO (2006c) ISO 14044: 2006, Environmental management – Life cycle assessment – Requirements and guidelines.

ISO (2017) ISO 21930:2017, Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services.

Minjung Kwak, Louis Kima, Obaid Sarvana, Harrison M. Kim, Peter Finamore and Herb Hazewinkel, Life cycle assessment of complex heavy duty equipment, (Conference Paper) Proceedings of the ASME 2012 International Symposium on Flexible Automation, 2012

Babak Ebrahimi, Holger Wallbaum, Pål Drevland Jakobsen, Gaylord Kabongo Booto, Regionalized environmental impacts of construction machinery, The International Journal of Life Cycle Assessment, 2018

8 VERSION HISTORY OF C-PCR

VERSION 2023-06-13

Original version of the c-PCR.

VERSION 2024-04-30

- Updated with prolonged validity to align the updated validity of PCR 2019:14 as of version 1.3.4.
- Updates in references.

VERSION 1.0.0, 2025-04-22

- Updated with prolonged validity, until five years from the original publication of the PCR.
- Changed from version date to version number.
- Other editorial changes and clarifications, e.g., related to the use of the c-PCR (see Section 1.2).
- Removed references to specific sections of PCR 2019:14, as the sections of PCR 2019:14 changed as of the publication of version 2.0.0 in 2025-04-07 and as this c-PCR is applicable together with any version of PCR 2019:14.

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