

## AIR DUCTS, SUBSTANTIAL MATERIALS

PRODUCTS CATEGORY: CLASSIFICATION UN CPC 36950, 42190, 42999

C-PCR-0XY (TO PCR 2019:14)

VERSION: 2020-XX-YY



## INTRODUCTION TO OPEN CONSULTATION

This draft c-PCR document is available for open consultation until 2021-04-01. Feel free to forward the draft to any other stakeholder you might think is relevant, including colleagues and other organisations.

This is the first version of this document to be developed. We are therefore interested in comments from stakeholders on:

- General
  - o Alignment with PCRs available in other programmes for type III environmental declarations, industry-specific LCA guides or similar.
- Scope of PCR
  - o Product category definition and description
  - o Classification of product category using CPC codes
- Goal and scope, life cycle inventory and life cycle impact assessment
  - o Functional unit/declared unit
  - o System boundary
  - o Allocation rules
  - o Data quality requirements
  - o Recommended databases for generic data
  - o Impact categories and impact assessment methodology
- Additional information

Comments may be sent directly to the PCR Moderator (contact details available in Section 1). There is a template for comments on [www.environdec.com](http://www.environdec.com) that may be used.

For questions about the PCR, please contact the PCR Moderator. For general questions about the International EPD® System, EPD or PCR development, please contact the Secretariat via [pcr@environdec.com](mailto:pcr@environdec.com).

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# 1 INTRODUCTION

## 1.1 GENERAL

This document constitutes complementary Product Category Rules (c-PCR) developed in the framework of the International EPD System: a programme for type III environmental declarations<sup>1</sup> according to ISO 14025:2006. Environmental Product Declarations (EPD) are voluntary documents for a company or organisation to present transparent information about the life cycle environmental impact for their goods or services.

The rules for the overall administration and operation of the programme are the General Programme Instructions, publicly available at [www.environdec.com](http://www.environdec.com). A PCR complements the General Programme Instructions and the standards by providing specific rules, requirements and guidelines for developing an EPD for one or more specific product categories (see Figure 1). A PCR should enable different practitioners using the PCR to generate consistent results when assessing products of the same product category.

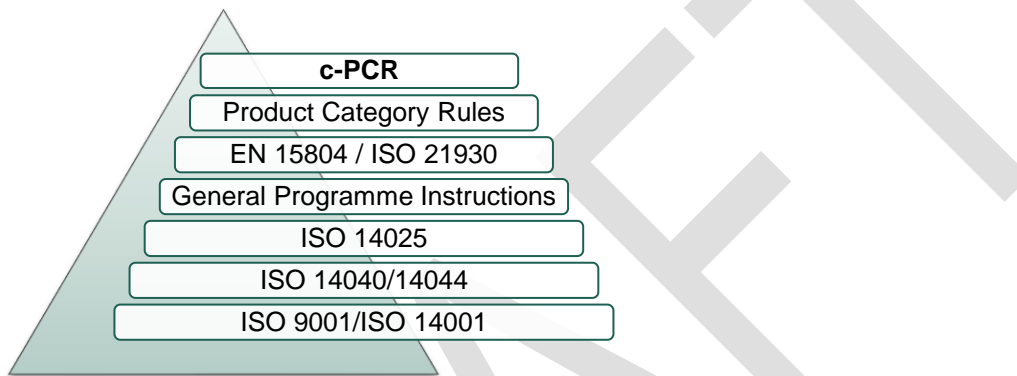


Figure 1 This c-PCR in relation to the hierarchy of standards and other documents.

Within the present PCR, the following terminology is adopted:

- The term “shall” is used to indicate what is obligatory.
- The term “should” is used to indicate a recommendation, rather than a requirement.
- The term “may” or “can” is used to indicate an option that is permissible

For the definition of terms used in the document, see the normative standards.

A PCR is valid for a pre-determined period to ensure that it is updated at regular intervals. The latest version of the PCR is available via [www.environdec.com](http://www.environdec.com). Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR document may be given via the PCR Forum at [www.environdec.com](http://www.environdec.com) or sent directly to the PCR moderator during its development or during the period of validity.

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

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.

## 1.2 ROLE OF THIS DOCUMENT

This document provides complementary product category rules (c-PCR) to PCR 2019:14 Construction products, version 1.1, available at [www.environdec.com](http://www.environdec.com). This document cannot be used by itself but shall be used together with PCR 2019:14 and the European standard EN 15804:2012+A2:2019 (called EN 15804 for short).

<sup>1</sup> Type III environmental declarations in the International EPD® System are referred to as EPD, Environmental Product Declarations.

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.

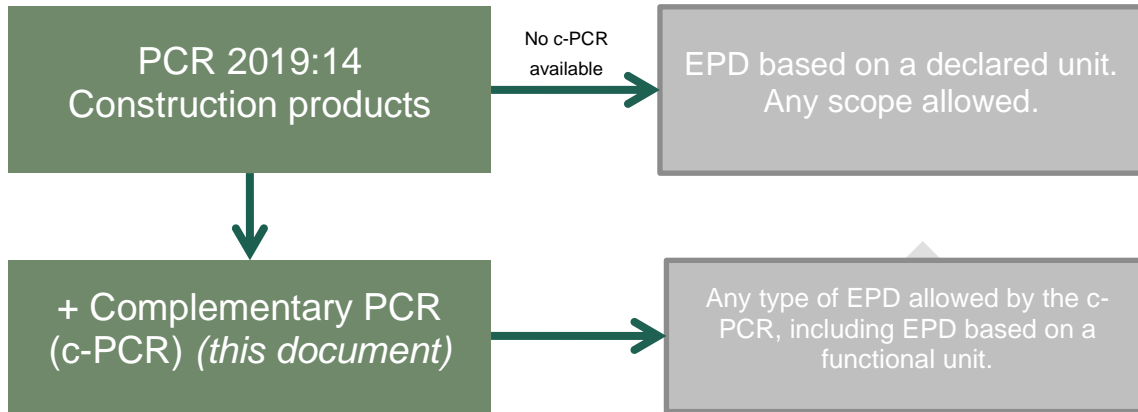



Figure 2 Overview of using PCR 2019:14 directly to develop an EPD, or how to use it together with this c-PCR.

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## 2 GENERAL INFORMATION

### 2.1 ADMINISTRATIVE INFORMATION

Name:	Air ducts, substantial materials
Registration number and version:	<i>To be added</i>
Programme:	 The International EPD System
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden.  Website: <a href="http://www.environdec.com">www.environdec.com</a> E-mail: <a href="mailto:info@environdec.com">info@environdec.com</a>
PCR moderator:	Antonio Temporin, a.temporin@p3italy.it
PCR Committee:	P3 S.r.l. and Life Cycle Engineering
Date of publication and last revision:	<i>To be added</i>
Valid until:	<i>To be added</i>
Schedule for renewal:	This document will be revised together with the PCR for Construction products. In case a c-PCR is developed by a CEN Product TC, the standard will replace this c-PCR.
Standards conformance:	<ul style="list-style-type: none"> <li>▪ General Programme Instructions (GPI) of the International EPD System, version 3.01, based on ISO 14025:2006, ISO 14040:2006 and ISO 14044:2006</li> <li>▪ EN 15804:2012+A2:2019</li> <li>▪ ISO 21930:2017. This standard is used in selected sections, such as allocation, when it provides additional but not contradictory rules to EN 15804.</li> <li>▪ PCR 2019:14: Construction Products v 1.1</li> </ul> <p>All EPDs based on this PCR shall be compliant with EN 15804:2012+A2:2019. If additional rules are followed, e.g. additional indicators, this PCR may also be used to develop an EPD compliant with ISO 21930:2017.</p>
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 document provides complementary Product Category Rules (c-PCR) for the assessment of the environmental performance of substantial products used for the realization of air ducts for ventilation and air-conditioning of buildings for human occupancy and the declaration of this performance by an EPD.

The product category corresponds to

- UN CPC 36950 "Builders' ware of plastic n.e.c.",

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- UN CPC 42190 “Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar equipment for scaffolding, shuttering or pitpropping”
- UN CPC 42999 “Metal Goods n.e.c.”.

In this group could be included substantial products used for:

- Sheet metal air ducts<sup>1</sup>: insulated metal air ducts and not insulated metal air ducts
- Air ducts made from insulated ductboards with metallic/non-metallic facings
- Flexible ducts

In this group cannot be included: substantial products used for particular applications such as ducts for smoke extraction and fire resistant ducts.

In any case the substantial products for air ducts shall be clearly declared in the LCA study and in the EPD document. Reference standards are the following:

- EN 1505 Ventilation for buildings – Sheet metal air ducts and fittings with rectangular cross section – dimensions
- EN 1506 Ventilation for buildings – Sheet metal air ducts and fittings with circular cross section – dimensions
- EN 13403 Ventilation for buildings – Non-metallic ducts – Ductwork made from insulated ductboards
- EN 13180 Ventilation for buildings – Ductwork – Dimensions and requirements for flexible ducts

Following specific product information shall be given:

- Product description;
- Main application;
- Main sector where the product is sold;
- Main areas where the product is sold;
- Exercise temperatures;
- Declared unit (total of square metre of the given product).
- Main characteristics:
  - Thickness of each single component [mm]
  - Total density [kg/m<sup>2</sup>]
  - Materials content in mass %
  - Blowing agent (for foamed materials):
  - Thermal Resistance (for insulated products) [m<sup>2</sup>K/W ]
  - Reaction to fire
  - Flexural Rigidity [Nmm<sup>2</sup>]
  - Microbial Growth
  - Fibrous material outflow



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Any claims made about the product must be verifiable.

The product group and CPC code shall be specified in the EPD

The company shall define and disclose the configuration of the product under analysis in a tabular or schematic format in the EPD.

This c-PCR and PCR 2019:14 are limited to those products that are used as construction products. Products used in other applications are outside of the scope.

## 2.2.2 TYPE OF EPD AND INFORMATION MODULES INCLUDED

The International EPD® System uses an approach where all attributional processes from “cradle to grave” should be included using the principle of “limited loss of information at the final product”. This is especially important in the case of business-to-consumer communication.

The scope of this c-PCR and EPDs based on it is cradle-to-grave. Following PCR 2019:14 and EN 15804, the following types of EPD are possible:

- a) Cradle to gate with modules C2–C4 and module D (A1–A3 + C2–C4 + D);
- b) Cradle to gate with options, modules C2–C4, module D and with optional modules (A1–A3 + C2–C4 + D and additional modules). The additional modules may be one or more selected from A4, C1 and/or B1–B7;

Information on modules B1–B7 are voluntary since the usage condition are not influenced by the air duct material, but it depends by the air conditioning system.

Module C1 is only optional given that it usually consists in human activities not requiring particular equipment, then it can be excluded from an LCA analysis.

## 2.2.3 LIFE CYCLE STAGES

The environmental information of an EPD covering all life cycle stages and module D (cradle to grave and module D) shall be subdivided into the modules A1–A3, A4, B1–B7, C2–C4 and module D.

Information modules within any of the life cycle stages are communicated depending on the types of EPD. They include impacts and aspects related to losses in the module in which the losses occur (i.e. production, transport, and waste processing and disposal of the lost waste products and materials).

For detailed information on each information module, refer to EN 15804 (Section 6.3.5).

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

The product stage includes:

- 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 A1-3.

### 2.2.3.2 A4, transport to the building site

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

The use stage, related to the building fabric includes:

- B1, use or application of the installed product;
- B2, maintenance;



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- B3, repair;
- B4, replacement;
- B5, refurbishment;

including provision and transport of all materials, products and related energy and water use, as well as waste processing up to the end-of-waste state or disposal of final residues during this part of the use stage. These information modules also include all impacts and aspects related to the losses during this part of the use stage (i.e. production, transport, and waste processing and disposal of the lost products and materials).

#### 2.2.3.4 B6-B7, use stage, information modules related to the operation of the building

The use stage related to the operation of the building includes:

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

These information modules include provision and transport of all materials, products, as well as energy and water provisions, waste processing up to the end-of-waste state or disposal of final residues during this part of the use stage.

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

The end-of-life stage includes:

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

including provision and all transport, provision of all materials, products and related energy and water use.

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

Module D includes:

- D, reuse, recovery and/or recycling potentials, expressed as net impacts and benefits.

### 2.2.4 GEOGRAPHICAL REGION

As in PCR 2019:14, Section 2.2.3.

### 2.2.5 EPD VALIDITY

As in PCR 2019:14, Section 2.2.4.

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### 3 PCR REVIEW AND BACKGROUND INFORMATION

This c-PCR was developed in accordance with the process described in the General Programme Instructions of the International EPD® System, including c-PCR review and open consultation.

#### 3.1 C-PCR REVIEW

##### 3.1.1 VERSION 2021-XX-YY

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members available on <a href="http://www.environdec.com">www.environdec.com</a> . The review panel may be contacted via <a href="mailto:info@environdec.com">info@environdec.com</a> .  Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee, and were excused from the review
Chair of the PCR review:	To be added
Review dates:	To be added

#### 3.2 OPEN CONSULTATION

##### 3.2.1 VERSION 2021-XX-YY

This PCR is available for open consultation from 2021-02-01 until 2021-04-01, during which any stakeholder was able to provide comments by posting on the PCR forum on [www.environdec.com](http://www.environdec.com) or by contacting the PCR moderator.

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. The following stakeholders provided comments during the open consultation, and agreed to be listed as contributors to the PCR and at [www.environdec.com](http://www.environdec.com):

- To be added

#### 3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

This c-PCR has been developed in order to update PCR 2012:12 “Air Ducts, Substantial Materials – Non Construction Products” v 2.01, and to make it compliant with EN 15804: 2012+A2:2019 and PCR 2019:14 in the International EPD® System.

In this way, product categories that were included in the previous PCR 2012:12 v 2.01 and now interested by this new c-PCR will be considered as “Construction Products”.

Both the previous PCR (PCR 2012:12 v 2.01) and this new c-PCR will be available in parallel during a transition period (see [www.environdec.com](http://www.environdec.com) for details), since the first is intended to non-construction products and the new c-PCR to construction products, and this avoids the possibility of an overlap in scope.

#### 3.4 REASONING FOR DEVELOPMENT OF C-PCR

This c-PCR was developed to enable publication of Environmental Product Declarations (EPD) for this product category based on ISO 14025, ISO 14040/14044, EN 15804, PCR 2019:14 and other relevant standards to be used in different applications and target audiences.

#### 3.5 UNDERLYING STUDIES

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

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- Environmental Product Declarations, Piral HD Hydrotec sandwich panel for air ducts
- European standard EN 15804:2012+A2:2019.
- General application of LCA methodology of the International EPD® System as described in Annex A of the General Programme Instructions version 3.01
- PCR 2019:14 version 1.1

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

The goal of this section is to provide specific rules, requirements and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

The requirements listed here are not complete as all requirements from EN 15804:2012+A2:2019 shall also be fulfilled.

### 4.1 DECLARED UNIT

Since the duct geometry can vary according to specific conditions (i.e. room dimensions, air speed and pressure, main or secondary branches) and it is not directly related to the function, this PCR adopts a modular approach taking into account the unit surface of the substantial materials to be differently used to generate the duct surface area by, for example, cutting, bending and joining.

The declared unit shall be 1 m<sup>2</sup> of substantial product used to produce the duct surface area of any single duct section of the ductwork, as commonly used by consumers and architects.

This unit shall take into account any substantial element of the duct surface area but not of the duct itself (e.g. in case of flexible ducts, the functional unit might take into account 1 m<sup>2</sup> of corrugated metal independently of the final pipe shaping).

The declared unit includes:

- any substantial products before any processing made to achieve the final duct shaping,
- the packaging materials related to 1 m<sup>2</sup>.

The declared unit does not include ancillary materials:

- tape,
- flanges,
- welding materials.

The declared unit shall be stated in the EPD. The environmental impact shall be given per declared unit. A description of the function of the product should be included in the EPD®, if relevant.

For the development of scenarios, for example for transport and disposal, conversion factors to mass per declared unit shall be provided.

An EPD based on a declared unit may provide one or more alternative scenarios for its information modules.

### 4.2 REFERENCE SERVICE LIFE (RSL)

RSL is optional for type a) EPDs, and mandatory for type b) if any module in B is included.

### 4.3 SYSTEM BOUNDARIES

As in PCR 2019:14, Section 4.3.

### 4.4 CUT-OFF RULES

As in PCR 2019:14, Section 4.4.

In addition, flanges, hangers, supports, connection devices to diffusers related to the installation of the duct have not to be considered.

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## 4.5 ALLOCATION RULES

### 4.5.1 CO-PRODUCT ALLOCATION

As in PCR 2019:14 Section 4.5.1.

### 4.5.2 REUSE, RECYCLING, AND RECOVERY

As in PCR 2019:14 Section 4.5.2.

### 4.5.3 SEPARATE REPORTING ON RECYCLING – MODULE D

As in PCR 2019:14, Section 4.5.3.

## 4.6 DATA QUALITY REQUIREMENTS

As in PCR 2019:14, Section 4.6.

## 4.7 IMPACT CATEGORIES AND IMPACT ASSESSMENT

See Section 5.3.5.

## 4.8 OTHER CALCULATION RULES AND SCENARIOS

As in PCR 2019:14, Section 4.8.

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## 5 CONTENT AND FORMAT OF EPD

As in PCR 2019:14, Section 5.

### 5.1 EPD LANGUAGE

As in PCR 2019:14, Section 5.1.

### 5.2 UNIT AND QUANTITIES

As in PCR 2019:14, Section 5.2.

### 5.3 EPD REPORTING FORMAT

As in PCR 2019:14, Section 5.3.

#### 5.3.1 COVER PAGE

As in PCR 2019:14, Section 5.3.1.

#### 5.3.2 PROGRAMME INFORMATION

As in PCR 2019:14, Section 5.3.2.

In addition, the mandatory statement as per PCR 2019:14 “EPDs of construction products may not be comparable if they do not comply with EN 15804” shall be extended to as follows: “EPDs of construction products may not be comparable if they do not comply with EN 15804+A2:2019.”

#### 5.3.3 PRODUCT INFORMATION

As in PCR 2019:14, Section 5.3.3.

#### 5.3.4 CONTENT DECLARATION INCLUDING PACKAGING

As in PCR 2019:14, Section 5.3.4.

#### 5.3.5 ENVIRONMENTAL PERFORMANCE

As in PCR 2019:14, Section 5.3.5.

#### 5.3.6 ADDITIONAL ENVIRONMENTAL INFORMATION

As in PCR 2019:14, Section 5.3.6.

Moreover, toxic emissions may be included if relevant and methodology and key assumptions used for calculation shall be declared.

#### 5.3.7 INFORMATION RELATED TO SECTOR EPD

As in PCR 2019:14, Section 5.3.7.

#### 5.3.8 DIFFERENCES VERSUS PREVIOUS VERSIONS

As in PCR 2019:14, Section 5.3.8.

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### 5.3.9 REFERENCES

As in PCR 2019:14, Section 5.3.9.

### 5.3.10 EXECUTIVE SUMMARY IN ENGLISH

As in PCR 2019:14, Section 5.3.10.

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## 6 GLOSSARY

As in PCR 2019:14, Section 6.

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## 7 REFERENCES

EPD International (2017) General Programme Instructions for the International EPD® System. Version 3.0, dated 2017-12-11. [www.environdec.com](http://www.environdec.com)

ISO (2000), ISO 14020:2000, Environmental labels and declarations – General principles

ISO (2004), ISO 8601:2004 Data elements and interchange formats – Information interchange – Representation of dates and times

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 (2013), ISO/TS 14067:2013, Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication

ISO (2014), ISO 14046:2014, Environmental management – Water footprint – Principles, 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

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

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## 8 VERSION HISTORY OF C-PCR

### VERSION 2021-XX-YY

Original version, based on PCR 2019:14 Construction products, updating and substituting PCR 2012:01.

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