

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)

PRODUCT GROUP CLASSIFICATION: UN CPC 264,355

C-PCR-XXX TO PCR 2019:14

VERSION NUMBER, PUBLICATION DATE

DRAFT VERSION FOR OPEN CONSULTATION. DO NOT USE OR CITE



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CONSULTATION

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## INTRODUCTION TO OPEN CONSULTATION

This draft c-PCR document is available for open consultation until 2021-08-08. Feel free to forward the draft to any other stakeholder you might think is relevant, including colleagues and other organisations.

We are 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 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).

## TABLE OF CONTENTS

1	Introduction .....	4
	1.1 General .....	4
	1.2 Role of this document .....	4
2	General information .....	6
	2.1 Administrative information .....	6
	2.2 Scope .....	7
3	PCR review and background information .....	9
4	Goal and scope, life cycle inventory and life cycle impact assessment .....	10
	4.1 declared unit .....	10
	4.2 system boundary .....	10
	4.3 Description of processes and information modules .....	11
	4.4 System diagram .....	13
	4.5 General cut-off rules .....	14
	4.6 Allocation rules .....	14
	4.7 Data quality requirements .....	14
	4.8 Impact categories and impact assessment .....	14
	4.9 Other calculation rules and scenarios .....	14
5	Content and format of EPD .....	15
	5.1 EPD language .....	15
	5.2 Unit and quantities .....	15
	5.3 EPD reporting format .....	15
6	Glossary .....	16
7	References .....	17
8	version history .....	18

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

# 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.

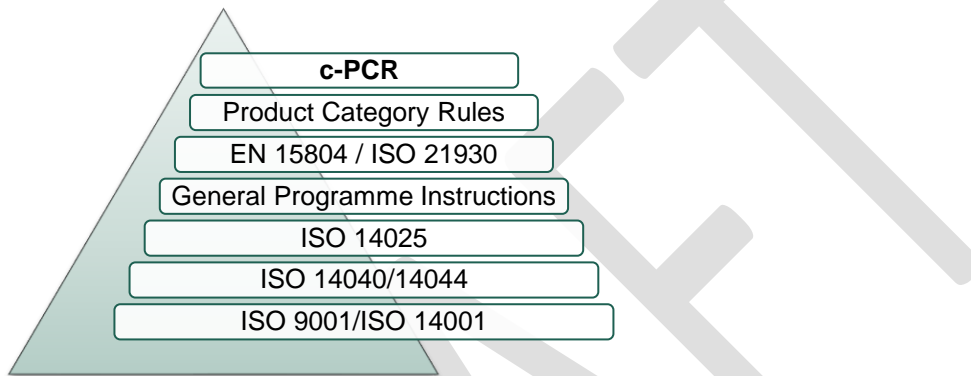


Figure 1 This PCR in relation to the hierarchy of standards and other documents.

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 of time 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 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).

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.

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

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

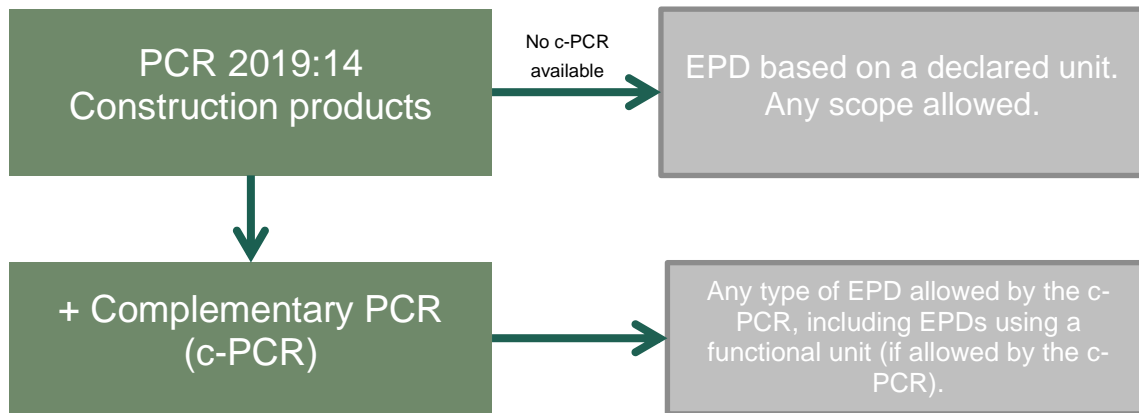



Figure 2 Overview of using PCR 2019:14 directly to develop an EPD, or how to use it together with a c-PCR.

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SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
 PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 2 GENERAL INFORMATION

### 2.1 ADMINISTRATIVE INFORMATION

Name:	Synthetic carpet yarn (construction product)
Registration number and version:	<i>Added by the Secretariat</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:	Jaka Jelenc, Aquafil S.p.A., <a href="mailto:jaka.jelenc@aquafil.com">jaka.jelenc@aquafil.com</a>
PCR Committee:	Aquafil & Life Cycle Engineering
Date of publication and last revision:	<i>Added by the Secretariat</i>
Valid until:	<i>Added by the Secretariat</i>
Schedule for renewal:	<p>A PCR is valid for a pre-determined time period to ensure that it is updated at regular intervals. When the PCR is about to expire, the PCR Moderator shall initiate a discussion with the Secretariat how to proceed with updating the PCR and renewing its validity.</p> <p>A PCR may be also be updated without prolonging its period of validity, provided significant and well-justified proposals for changes or amendments are presented.</p> <p>See <a href="http://www.environdec.com">www.environdec.com</a> for the latest version of the PCR.</p> <p>When there has been an update of the PCR, the new version should be used to develop EPDs. The old version may however be used for 90 days after the publication date of the new version, as long as the old version has not expired.</p>
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> </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.

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
 PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 2.2 SCOPE

### 2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This c-PCR provides category rules for the assessment and declaration of the environmental performance of all **synthetic carpet yarns (construction product)** comprised within the scope of the following standards:

- BISFA

### 2.2.2 SPECIFICATION OF THE COMPANY

Information about the company issuing the EPD shall be specified in the EPD, including a description of the company and a description of its overall environmental work, as follows:

Mandatory information:

- Name and address of the company

Voluntary information:

- Short description of the company
- Geographical location of suppliers/manufacturing sites/customers
- Information about management system certifications (e.g ISO 14001 and/or others) in the core processes
- Specific aspects regarding the production
- Company logotype

### 2.2.3 SPECIFICATION OF THE PRODUCT

The product category referred to in this PCR includes all synthetic yarn used for building purposes (e.g. in floor, roof, ceiling, walls, etc.).

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

The ISIC-CPC's classification list class and subclass taken into consideration by the CPC 355, 262, 264 groups are hereby reported.

Table 1 Specification of the product

GROUP	CLASS	DESCRIPTION	CORRESPONDING HS 2012 CODES
355		Man-made fibres	
	3551	Synthetic filament tow and staple fibres, not carded or combed	5501, 5503
	3552	Synthetic filament yarn (except sewing thread and multiple or cabled yarn), not put up for retail sale	5402.11-.59
	3553	Synthetic monofilament and strip	5404
262		Man-made textile staple fibres processed for spinning	
	2621	Synthetic staple fibres, carded, combed or otherwise processed for spinning	5506
264		Textile yarn and thread of man-made filaments or staple fibres	
	2642	Yarn of man-made filaments, multiple or cabled (other than sewing thread, high tenacity yarn of polyamides, polyesters or viscose rayon), not put up for retail sale; man-made filament yarn (other than sewing thread), put up for retail sale	5402.61-.69

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

In case of inclusion of several similar products the international EPD® System offers the possibility for similar products to be included in the same EPD. See General Programme Instructions for additional information.

## 2.2.4 TYPE OF EPD AND INFORMATION MODULES INCLUDED

According to EN 15804 Section 5.2 the following type of EPDs are possible for construction products:

- a) Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D);

Following the requirements in Section 2.2.2 of PCR 2019:14, an EPDs based on this c-PCR is a type b EPD, including modules A1-A3, C1-C4 and D. Section 4.2 below provide more information on each life cycle stage concerning the product category in scope.

## 2.2.5 GEOGRAPHICAL REGION

This PCR may be used globally.

## 2.2.6 EPD VALIDITY

To be carried out as in PCR 2019:14, Section 2.2.4.

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SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

### 3 PCR REVIEW AND BACKGROUND INFORMATION

This PCR was developed as a c-PCR to PCR 2019:14 in the International EPD® System.

Open consultation was held *Added by the Secretariat* 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):

- *Added by the Secretariat*
- *Added by the Secretariat*

The updated draft was subsequently reviewed by the PCR review panel (the Technical Committee of the International EPD® System) from *Added by the Secretariat*, with *Added by the Secretariat* as review chair.

The main purpose of this c-PCR is to serve for the implementation of additional LCA rules for synthetic carpet yarns (construction product) that go beyond the scope of PCR 2019:14 and EN 15804.

DRAFT

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
 PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 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.

### 4.1 DECLARED UNIT

EPDs based on this c-PCR shall be based on a declared unit (DU), which is used to quantify the environmental performance of the investigated product. All subsequent analyses shall refer to that DU, as all inputs and outputs in the life cycle inventory (LCI) and consequently the life cycle impact assessment (LCIA) profile are related to the DU.

The use of the DU is necessary to ensure comparability of the LCA results. This is particularly critical when synthetic carpet yarns (construction product) of different materials are being assessed. Furthermore, comparability is only achievable if the comparison is made on a common basis. Hence, EPDs based on this c-PCR are only comparable if the performance characteristics described in the specifications of the product are equivalent.

Based on this, the DU is defined as **1 kg of synthetic carpet yarn (construction product)**. In this regard, LCA results shall be presented per 1 kg of synthetic carpet yarn (construction product) with the required packaging as presented to the final destination. The declared unit shall be declared in the EPD. The environmental impact shall be given per declared unit.

### 4.2 SYSTEM BOUNDARY

EPDs that are developed based on this c-PCR shall cover product stage (A1-A3), end of life stage (C1-C4) as well as benefits and loads beyond the system boundary (D). In the following Table 1, the life cycle stages, and information modules are described in relation to the specifics of synthetic carpet yarns (construction product).

Table 1 Life cycle stages and information modules relevant for synthetic carpet yarn (construction product).

Life cycle stage	Information module	Comment	
A1-A3 Product stage	A1	Raw material supply	Included
	A2	Transport	Included
	A3	Manufacturing	Included
A4-A5 Construction process stage	A4	Transport	Excluded
	A5	Installation	Excluded
B1-B7 Use stage	B1	Use	Excluded;
	B2	Maintenance	Excluded;
	B3	Repair	Excluded;
	B4	Replacement	Excluded;
	B5	Refurbishment	Excluded;
	B6	Operational energy use	Excluded;
	B7	Operational water use	Excluded;
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

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

The scope of the LCA for yarn production shall be "Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)", as defined by the PCR 2019:14 Construction products and construction services.

Module A1, A2 and A3 may be declared as one aggregated module A1-3 (§ 6.2.2, 15804:2014).

In [Section 4.3](#), more detailed information and description of each life cycle stage and information module are provided.

## 4.3 DESCRIPTION OF PROCESSES AND INFORMATION MODULES

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

### 4.3.1 PRODUCTION STAGE: MODULES A1 – A3

To be carried out as in PCR 2019:14 and Section 6.3.5.2 of EN 15804.

**A1 Raw material supply:** Extraction and production of raw material for parts needed to produce the product, including:

- extraction or synthesis of the raw material
- Polymer production
- Plastic waste and scrap recovery/recycling processes<sup>1</sup>
- Production of materials (including additives, etc.) and ancillaries used in the process
- Pigments and dyes where applicable
- Production of packaging, if relevant
- Other ancillary materials (e.g. lubricants)

If generic data are used for raw material acquiring it shall be stated in the EPD for which materials this is valid. The source of raw materials dataset and main hypotheses adopted shall be declared in the EPD.

For dyes and pigments, the following rules could be used if no LCA data are available:

- TiO<sub>2</sub> instead of inorganic pigments
- Soot for organic pigments
- Anthraquinone as a replacement substance for dyes, that are applied with aqueous dyeing process

In the case of PA6 yarn, special care has to be taken when using data set for caprolactam or PA6 polymer production due to the relevant difference within results. Most common datasets available are:

- Gabi record DE: PA 6 (caprolactam via cyclohexane)
- Gabi record NL: PA 6 (caprolactam via phenol-route)
- Plastics Europe dataset for PA6 polymer (System expansion used in 2014 report)

Selection of specific database has to be appropriately justified in the EPD and based on relevant proof of evidence.

Data calculated with system expansion should not be used, but if no other data is available, any negative flows should be changed to zero.

Processes that can be excluded:

- Production, maintenance and disposal of manufacturing infrastructure (buildings, machinery and capital goods).

**A2 Transportation:**

- External transportation to the core processes and internal transport.

**A3 Manufacturing:** Manufacturing of the product.

- spinning of man-made fibers (e.g. melt spinning, wet spinning, dry spinning, gel spinning)

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

- any post spinning process of yarn of man-made filaments (e.g. air entanglement, twisting, cabling, heat setting...)
- ▪ any post spinning process of yarn of man-made staple fibers (e.g. drawing, carding, combing, mechanical spinning,)
- ▪ Quality control
- ▪ Emission to air: data at the stacks, after treatment shall be considered; fugitive emissions should be considered if appropriate
- ▪ Emissions to water: data from process release shall be considered
- ▪ Energy consumption with specific regard to the use of electricity and thermal energy. The production stage shall be included in the core process. Other fuels shall be considered if used for the process or local transports (e.g. forklifts). Local energy mix shall be considered.
- If waste from the process is considered as by-product, then it should satisfy the requirement of Article 5 of 2008/98/EC of 19 November 2008. This shall be clearly mentioned in the EPD in order to make evident that such by-products are not environmentally free of burdens. Outputs of the system relevant to energy production processes (waste to energy processes) shall never be considered a by-product.
- Waste treatments
- Waste that is deposited in landfill shall be declared as kg of waste and kg of hazardous waste
- A minimum of 99% of the total weight of the declared product including packaging shall be included
- Waste treatment is omitted for the processing of waste into a resource for a subsequent user

Processes that can be excluded:

- Business travel of personnel and travel to and from work by personnel
- Indirect activities (such as administration, sales, research and development activities, etc.)

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

To be carried out as in PCR 2019:14 and section 6.3.5.5 of EN 15804. The used EOL scenario shall be clearly documented and justified in the EPD, describing the adopted method for waste handling, i.e. recycling, incineration and/or landfill.

**C1 Deconstruction:** This module can be calculated using generic data and literature values.

- Energy used for dismantling and/or demolition of the product at the construction site.
- Auxiliary materials and energy used during deconstruction of the product.
- Transport for decommissioning and disassembly (e.g. machinery and equipment needed for decommissioning services)

**C2 Transport:** transport of the deconstructed product from the site of construction to waste treatment site.

**C3 Waste Processing:** processing of waste for re-use, recovery and/or recycling.

**C4 Waste disposal**

#### 4.3.3 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY: MODULE D

To be carried out as in PCR 2019:14 and Section 6.4.3.3 of EN 15804.

Module D includes reuse, recovery and/or recycling potentials, expressed as net impacts (loads) and benefits. Any net flow leaving the product system that has passed the end-of-waste state shall be included in module D, except those which have been allocated as co-products. Declared scenario in module D shall conform to specified scenarios in module A and C. The used scenario for module D shall be clearly documented and justified in the EPD.

Please refer to Annex D (Section D.3.4) of EN 15804 for an approach to calculate the net impacts in Module D.

### 4.4 SYSTEM DIAGRAM

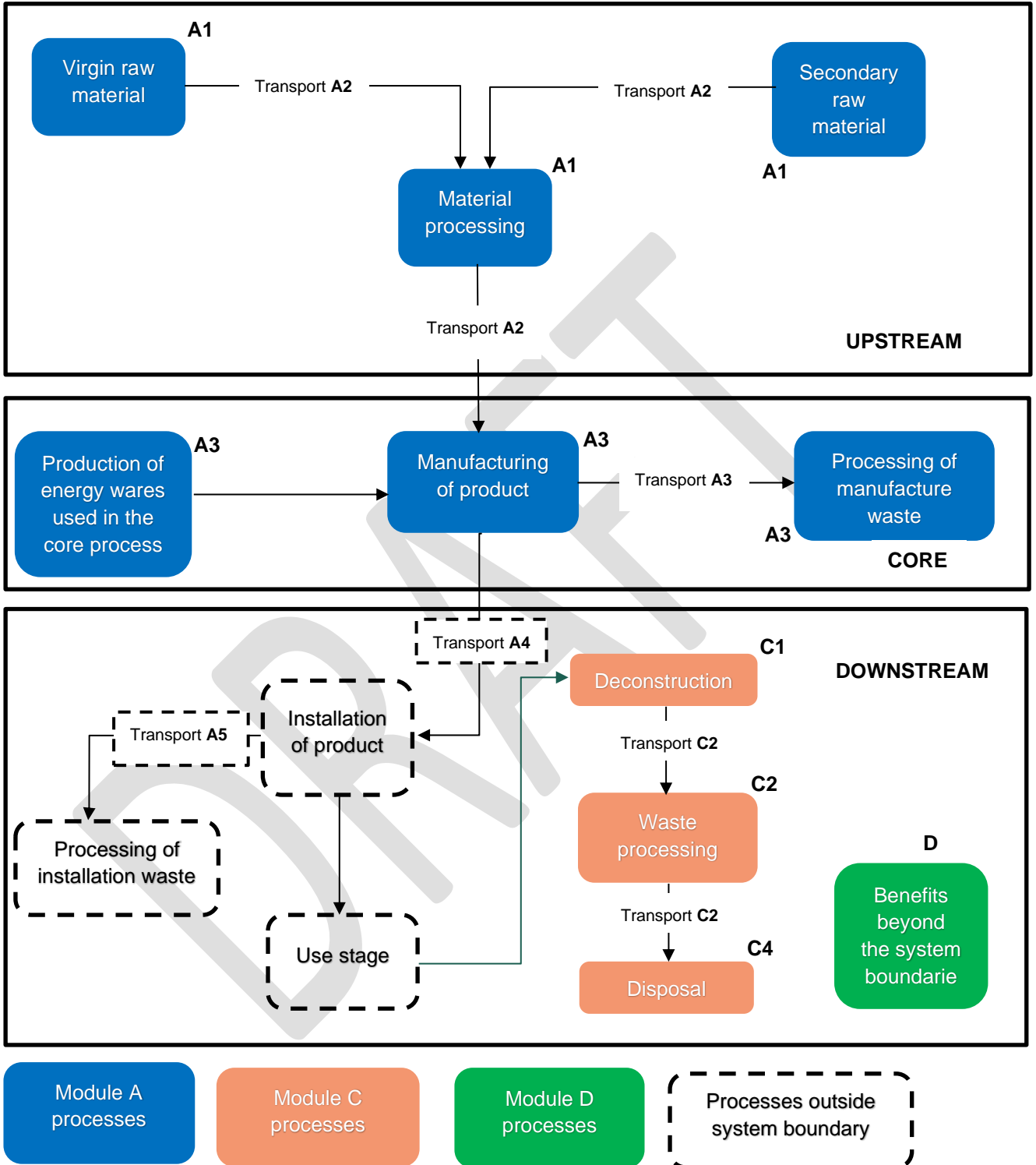


Diagram 1 System diagram illustrating the processes that are included in the product system, divided into upstream, core and downstream processes. The system diagram also displays the partitioning of the product processes into module A, C and D.

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 4.5 GENERAL CUT-OFF RULES

To be carried out as in PCR 2019:14, Section 4.4.

## 4.6 ALLOCATION RULES

To be carried out as in PCR 2019:14, Section 4.5.

The methodological choices in the allocation process shall be documented and motivated in the EPD. In case of economic allocation, the reference values shall also be documented and explained in the EPD.

## 4.7 DATA QUALITY REQUIREMENTS

To be carried out as in PCR 2019:14, Section 4.6.

Generic and specific data shall be applied as defined by EN 15804 and PCR 2019:14.

## 4.8 IMPACT CATEGORIES AND IMPACT ASSESSMENT

To be carried out as in PCR 2019:14, Section 4.7.

## 4.9 OTHER CALCULATION RULES AND SCENARIOS

To be carried out as in PCR 2019:14, Section 4.8.

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 5 CONTENT AND FORMAT OF EPD

To be carried out as in PCR 2019:14, Section 5.

### 5.1 EPD LANGUAGE

To be carried out as in PCR 2019:14, Section 5.1.

### 5.2 UNIT AND QUANTITIES

To be carried out as in PCR 2019:14, Section 5.2.

### 5.3 EPD REPORTING FORMAT

To be carried out as in PCR 2019:14, Section 5.3.

In addition, the EPD shall contain the following statement:

"Comparability between EPDs is only achievable if the following performance characteristics are equivalent: declared unit, containment level, level of working width, assumed service life, geographic region and fulfilment of the same requirements of the applicable standard."

DRAFT

SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 6 GLOSSARY

As in PCR 2019:14, Section 6 and in addition:

CPC	Central Product Classification
EOL	End-of-Life
DU	Declared unit
c-PCR	Complementary product category rules
LCA	Life cycle assessment
ISO	International organization for standardization
EPD	Environmental product declaration
EN	European Standards
LCIA	Life cycle impact assessment

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SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 7 REFERENCES

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

EPD International (2019): PCR 2019:14 Construction products, version 1.0.

EPD International (2019): General Programme Instructions for the International EPD System. Version 3.01 dated 2019-09-18.  
[www.environdec.com](http://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

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SYNTHETIC CARPET YARN (CONSTRUCTION PRODUCT)  
PRODUCT GROUP CLASSIFICATION: UN CPC 262, 264,355

## 8 VERSION HISTORY

VERSION 2015-08-14

Original version of sub-PCR, based on PCR 2012:01 Construction products and construction services, Version 2.0.

VERSION 2017-05-30

- Updated nomenclature of sub-PCRs in accordance with version 2.2 of PCR 2012:01.
- Editorial changes

VERSION 2018-11-16

- Updated validity to 2020-03-03 to align with version 2.3 of PCR 2012:01
- Editorial changes

VERSION 2020-02-17

- Updated validity to 2020-09-01 to align with version 2.31 of PCR 2012:01.

VERSION 2021-5-24

- Updated to be in accordance with version 1.11 of PCR 2019:04.
- Editorial changes

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