

FIBRES FOR TEXTILE PRODUCTION

PRODUCT CATEGORY CLASSIFICATION: UN CPC 01921, 01922, 01929, 02941, 02942, 02943, 02944, 26110, 26130, 26140, 26150, 26160, 26170, 26190, 26210, 26220, 35510, 35540, 39213, 39215

PCR REGISTRATION NUMBER TO BE ADDED BY THE SECRETARIAT

VERSION NUMBER TO BE ADDED BY THE SECRETARIAT

VALID UNTIL 20XX-YY-ZZ (TO BE ADDED BY THE SECRETARIAT)

NOTE: THIS DOCUMENT IS A PCR TEMPLATE TO BE USED IN PCR DEVELOPMENT. IT IS NOT A PCR.

DRAFT FOR OPEN CONSULTATION

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INTRODUCTION TO OPEN CONSULTATION

This draft PCR document is available for open consultation from **2026-06-17** until **2026-08-17**. 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
 - Alignment with PCRs available in other programmes for type III environmental declarations, industry-specific LCA guidelines or similar.
- Scope of PCR
 - Product category definition and description
 - Classification of product category using CPC codes
- Goal and scope, life cycle inventory and life cycle impact assessment
 - Functional unit/declared unit
 - System boundary
 - Allocation rules
 - Data quality requirements
 - Recommended databases for generic data
 - Impact categories and impact assessment methodology
- Additional information

Comments shall be sent directly to the PCR Moderator (contact details available in Section 1). There is a template for comments on 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 <https://www.environdec.com/support>.

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1 INTRODUCTION

This document constitutes Product Category Rules (PCR) developed in the framework of the International EPD System: a programme for Environmental Product Declarations (EPD)¹ according to ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and product-specific standards, such as EN 15804 and ISO 21930 for construction products.² 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 **Error! Reference source not found.**), thereby enabling the generation of consistent EPDs within a product category. A PCR should not repeat the rules and guidelines of the GPI, but include additions, specifications and deviations to the rules set in the GPI. As such, a PCR shall be used together with the GPI.

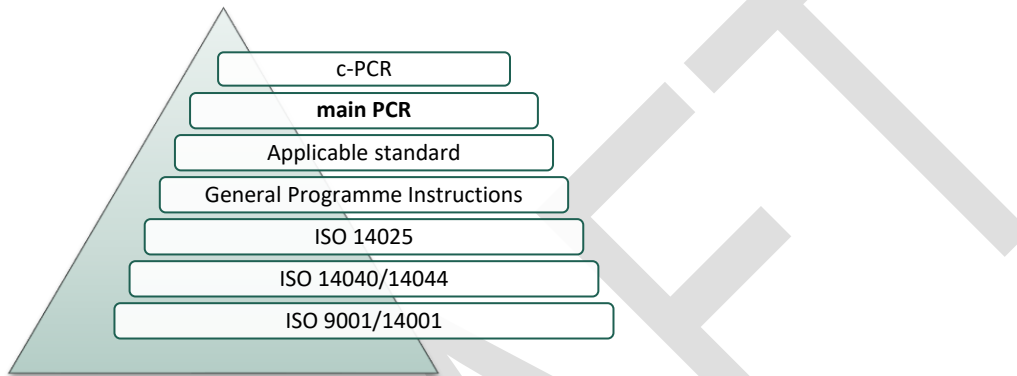


Figure 1 This PCR in relation to the hierarchy of standards and other documents.

The present 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 and normative standards.

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

The programme operator maintains the copyright of the PCR to ensure that it is possible to publish, update, and make it 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 8 is intended unless otherwise stated

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2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	<i>Fibres for textile sector</i>
Registration number and version:	<i>To be added by the Secretariat</i>
Programme:	
Programme operator:	<p>EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden.</p> <p>Website: www.environdec.com</p> <p>E-mail: support@environdec.com</p>
PCR Moderator:	<i>Pedro Patrique Ferreira da Silva, LCA.no, pedro@lca.no</i>
PCR Committee:	<i>LCA.no, Norsk Designindustrien, EPD Norge, Norilia AS, Norsk Tekstilgjenvinning AS</i>
Publication date:	<p><i>To be added by the Secretariat</i></p> <p>See Section 9 for a version history of the PCR.</p>
Valid until:	<p><i>To be added by the Secretariat</i></p> <p>The validity may change. See www.environdec.com for the latest version of the PCR and the latest information on its validity and transition periods between versions.</p>
Development and updates:	<p>The PCR has been developed following ISO 14027, including public consultation and review. The rules for the development and updating processes are described in Section 9 of the GPI.</p> <p>The 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 on if and how to proceed with updating the PCR and renewing its validity. A PCR may be updated before it expires, based on changes in normative standards or provided significant and well-justified proposals for changes or amendments are presented.</p> <p>When there has been an update of the PCR, the new version should be used to develop EPDs. For small updates (change of third-digit version number), the previous version is normally immediately removed from the PCR library on www.environdec.com and there is no transition period. For medium updates (change of second-digit version number), the previous version of the PCR is valid in parallel during a transition period of at least 90 days, but not exceeding its previously set validity period. For large updates (change of first-digit version number), the previous version is valid in parallel during a transition period of at least 180 days, but not exceeding its previously set validity period.</p> <p>Stakeholder feedback on PCRs is very much encouraged. Any comments on this PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.</p>

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Standards and documents conformance:	<ul style="list-style-type: none"> General Programme Instructions of the International EPD System, version 5.0.1, based on ISO 14025 and ISO 14040/14044.³
PCR language(s):	At the time of publication, this PCR was available in English. If the PCR is available in several languages, these are available on www.environdec.com . In case of translated versions, the English version takes precedence in case of any discrepancies.

2.2 SCOPE OF PCR

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of *fibres for textile sector* and the declaration of this performance by an EPD. The product category corresponds to UN CPC 0192 Fibre crops, UN CPC 0294 *Raw animal materials used in textiles*, UN CPC 261 Natural textile fibres prepared for spinning, UN 262 *Man-made textile staple fibres processed for spinning*, UN CPC 355 *Man-made fibres*, UN CPC 3921 *Miscellaneous textile wastes*.

The following product groups are covered (non-exhaustive): Textile fibres from synthetic polymers; Acrylic, Aramid, Chlorofibre, Elastane, Elastodiene, Elastolefin, Elastomultiester, Fluorofibre, Melamine, Modacrylic, Polyamide, Polyester, Polyethylene, Polyimide, Polylactide, Polypropylene, Vinylal. Textile fibres by transformation of natural polymers: Acetate, Alginate, Cupro, Elastodiene (rubber), Lyocell, Modal, Triacetate, Viscose. Plant-based natural fibres: Cotton, Flax, Hemp, Jute, Bamboo fibres, etc. Animal fibres: Wool, Silk, Cashmere, Mohair, Alpaca, Camel hair, etc. Recycled fibres with applications in textile production, both woven or nonwoven.

Fibres that fall under the scope of PCR 2019:14 Construction products (based on EN 15804 and ISO 21930) and other sectors' fibres (e.g. automotive) are excluded from this PCR.

Table 1 - Specification of the product, The ISIC-CPC's classification list class and subclass taken into consideration by the CPC 019, 029, 261, 262 and 355 groups.

Group	Class	Subclass	Description
019			Forage products; fibre crops; plants used in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet, forage plant and flower seeds; natural rubber; living plants, cut flowers and flower buds; unmanufactured tobacco; other raw vegetable materials
	0192		Fibre crops
		01921	Cotton, whether or not ginned
		01922	Jute, kenaf, and other textile bast fibres, raw or retted, except flax, true hemp and ramie
		01929	Other fibre crops, raw, n.e.c. (flax, raw or retted)
029			Other animal products
	0294		Raw animal materials used in textiles
		02941	Shorn wool, greasy, including fleece-washed shorn wool
		02942	Pulled wool, greasy, including fleece-washed pulled wool; coarse animal hair
		02943	Fine animal hair, not carded or combed
		02944	Silk-worm cocoons suitable for reeling
261			Natural textile fibres prepared for spinning

³ Some rules influencing EPD development are independent of the GPI version referred to in the PCR. For example, the latest rules on EPD verification procedures in the GPI shall be followed within 90 days of its publication. See Section 5.1 in the GPI for a description of the four categories of rules and when they shall be followed.

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	2611		Raw silk (not thrown)
		26110	Raw silk (not thrown)
	2613		Wool, degreased or carbonized, not carded or combed
		26130	Wool, degreased or carbonized, not carded or combed
	2614		Noils of wool or of fine animal hair
		26140	Noils of wool or of fine animal hair
	2615		Wool and fine or coarse animal hair, carded or combed
		26150	Wool and fine or coarse animal hair, carded or combed
	2616		Cotton, carded or combed
		26160	Cotton, carded or combed
	2617		Jute and other textile bast fibres (except flax, true hemp and ramie), processed but not spun; tow and waste of these fibres
		26170	Jute and other textile bast fibres (except flax, true hemp and ramie), processed but not spun; tow and waste of these fibres
	2619		Other vegetable textile fibres, processed but not spun; tow and waste of these fibres
		26190	Other vegetable textile fibres, processed but not spun; tow and waste of these fibres¹
262			Man-made textile staple fibres processed for spinning
	2621		Synthetic staple fibres, carded, combed or otherwise processed for spinning
		26210	Synthetic staple fibres, carded, combed or otherwise processed for spinning
	2622		Artificial staple fibres, carded, combed or otherwise processed for spinning
		26220	Artificial staple fibres, carded, combed or otherwise processed for spinning
355			Man-made fibres
	3551		Synthetic filament tow and staple fibres, not carded or combed
		35510	Synthetic filament tow and staple fibres, not carded or combed
	3554		Artificial filament tow and staple fibres, not carded or combed
		35540	Artificial filament tow and staple fibres, not carded or combed
392			Non-metal wastes or scraps
	3921		Miscellaneous textile wastes
		39213	Garnetted stock of wool or of fine or coarse animal hair
		39215	Other cotton waste; garnetted stock

Note 1: This subclass includes: flax, processed (broken, scutched or hackled, rovings and slivers); true hemp, processed (scutched, rovings and slivers, combed, cordage, cottonized, bleached or dyed); tow and waste of flax or true hemp; garnetted stock obtained from rags or rope of true hemp; fibres, processed but not spun, nails, tow and waste of abaca, agave, alfa, aloe, ananas, coconut, esparto, hemp (Manila and other), kapok, New Zealand flax, peat, ramie, Typha.

2.2.2 GEOGRAPHICAL SCOPE

This PCR may be used globally. The data for the core module shall be representative for the site/region where the respective process is taking place.

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2.2.3 EPD VALIDITY

An EPD becomes valid as of its version date (see Section 8.4.5 of the GPI). When an EPD is originally published, the validity period is normally five years starting from the version date or until the EPD has been de-registered from the International EPD System. Shorter validity periods are also accepted, for example if decided by the EPD owner.

For rules on when an EPD shall be updated and re-verified during its validity, see Section 6.8.1 of the GPI. For validity periods in case of updates of EPDs, see Section 6.8 of the GPI.

The version date and the period of validity shall be stated in the EPD.

Publication of a new version of the PCR or the GPI does not affect the validity of already published EPDs.

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3 REVIEW AND BACKGROUND INFORMATION

This 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 1.0.0

Version 1.0.0 of this PCR was available for open consultation from **2026-XX-XX until 2026-XX-XX**, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

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 in the PCR and on www.environdec.com:

- *List of stakeholder names and affiliation (to be added after the open consultation).*

In case no stakeholders provided comments and agreed to be listed as contributors, the above sentence shall be adjusted accordingly ("No stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and on www.environdec.com." and the bullet list shall be removed.

3.2 PCR REVIEW

3.2.1 VERSION 1.0.0

PCR review panel:	The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com . The review panel may be contacted via support@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:	<i>To be added by the Secretariat</i>
Review dates:	<i>To be added by the Secretariat</i>

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this PCR, existing PCRs and other internationally standardised methods that could potentially act as 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.
- All programmes listed as mutually recognized on www.environdec.com.

Table 2 lists the identified PCRs and other standardised methods.

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Table 2. Existing PCRs and other internationally standardised methods that were considered to avoid overlap in scope and to ensure harmonisation with established methods.

Name of PCR/standard, incl. registration number	Programme/standardisation body	Version number/date of publication	Scope
Man-made fibres for textile sector, 2020:03	EPD International®	2024-01-29 (Version 1.0.1)	This PCR has expired. This PCR only covers man-made fibres, excluding natural and animal fibres.
Textile yarn and thread of natural fibres, man-made filaments or staple fibres, 2013:12	EPD International®	2022-02-25 (Version 3.0)	Related PCR but no overlap in scope. This PCR covers only textile yarn and thread, not fibres.
Fabrics, 2022:04	EPD International®	2022-08-24 (version 1.0.1)	Related PCR but no overlap in scope. This PCR covers only fabric, not fibres.
Apparel, except fur and leather apparel,	EPD International®	2024-05-28 (version 1.0.0)	Related PCR but no overlap in scope. This PCR covers only apparel, not fibres.
Woven, knitted or crocheted fabrics, 2012:14	EPD International®	2020-11-18 (Version 2.13)	The PCR is expired.
Product Environmental Footprint Category Rules: Apparel and Footwear	Cascale	2025-04-29 (Version 3.1)	This standard covers the production of Product Environmental Footprints (PEFs) and not Environmental Product Declarations (EPDs).

3.4 REASONING FOR DEVELOPMENT OF PCR

This PCR was developed to enable publication of EPDs for the product category defined in Section 2.2.1 based on ISO 14025 and ISO 14040/14044. The PCR 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.

The PCR for Fibres for Textile Production is established for the following reasons:

- Shared upstream production stage: Fibre manufacturing is the common starting point for a wide range of textile products, regardless of whether fibres are natural or synthetic, virgin or recycled. Existing PCRs for finished textiles do not fully address fibre-specific modelling aspects, which can lead to inconsistencies in cradle-to-gate results. A dedicated PCR ensures a consistent approach at this foundational stage.
- Harmonized methodological framework: Assessing fibre production involves complex issues such as allocation for co-products and recycled materials, system boundaries, and biogenic carbon accounting. Without aligned rules, results across fibre types are not fully comparable. This PCR defines common methodological requirements to ensure transparency and consistency.
- Foundation for downstream assessments: The PCR covers cradle-to-gate fibre production and provides standardized inputs for later stages such as spinning, fabric production, and garment manufacturing. Harmonizing fibre-level calculations supports comparability and coherence throughout the textile value chain.

It is important to highlight that some product groups may later require complementary PCRs, focusing on specific rules and regulations based on production systems (for example, plant-based fibres, animal fibres, man-made fibres, etc.). Therefore, this PCR aims to set the first step towards complementary, product-specific c-PCRs.

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3.5 UNDERLYING STUDIES USED FOR PCR DEVELOPMENT

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

- *Product Environmental Footprint Category Rule (PEFCR) – Apparel and Footwear, v. 3.1, 2025.*
- *Muthu, S. S. (2015). Handbook of Life Cycle Assessment (LCA) of Textiles and Clothing. Woodhead Publishing.*
- *Wiedemann, S. G., Ledgard, S. F., Henry, B. K., Yan, M., Mao, N., & Russell, S. J. (2015). Application of life cycle assessment to sheep production systems: investigating co-production of wool and meat using case studies from major global producers. The International Journal of Life Cycle Assessment, 20(4), 463–476. <https://doi.org/10.1007/s11367-015-0849-z>*
- *Allen, M.R., Shine, K.P., Fuglestvedt, J.S. et al. A solution to the misrepresentations of CO₂-equivalent emissions of short-lived climate pollutants under ambitious mitigation. npj Clim Atmos Sci 1, 16 (2018). <https://doi.org/10.1038/s41612-018-0026-8>*
- *ISO 14067:2018, Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification. <https://www.iso.org/standard/71206.html>*
- *Corella-Puertas, E., Hajjar, C., Lavoie, J., & Boulay, A. (2023). MarLCA characterization factors for microplastic impacts in life cycle assessment: Physical effects on biota from emissions to aquatic environments. Journal of Cleaner Production, 418, 138197. <https://doi.org/10.1016/j.jclepro.2023.138197>*
- *Saling, P., Gyuzeleva, L., Wittstock, K. et al. Life cycle impact assessment of microplastics as one component of marine plastic debris. Int J Life Cycle Assess 25, 2008–2026 (2020). <https://doi.org/10.1007/s11367-020-01802-z>*
- *Abagnato, S., Rigamonti, L., & Grosso, M. (2024). Life cycle assessment applications to reuse, recycling and circular practices for textiles: A review. Waste Management, 182, 74–90. <https://doi.org/10.1016/j.wasman.2024.04.016>*
- *Bianco, I., Gerboni, R., Picerno, G., & Blengini, G. A. (2022). Life Cycle Assessment (LCA) of MWOOL® recycled wool fibers. Resources, 11(5), 41. <https://doi.org/10.3390/resources11050041>*
- *Hammar, T., Peñaloza, D., Hanning, A., Haatanen, N., & Pakkasmaa, J. (2023). Life cycle assessment of textile fibre-to-fibre recycling by cellulose carbamate technology. Journal of Cleaner Production, 426, 139189. <https://doi.org/10.1016/j.jclepro.2023.139189>*
- *Shen, L.; Patel, M.K. (2010). Life Cycle Assessment of man-made cellulose fibres. Lenzinger Berichte, volume 88, pp. 1 – 59.*
- *Muthu, S. (2015). Comparative life cycle assessment of natural and man-made textiles. In Elsevier eBooks (pp. 275–281). <https://doi.org/10.1016/b978-0-08-100169-1.00012-5>*
- *Life Cycle Assessment for Cotton (Country averages, organic, regenerative recycled) - Textile Exchange. (2026, March 26). Textile Exchange. <https://textileexchange.org/knowledge-center/documents/cotton-lca-technical-report/>*

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4 LCA METHOD

This section provides rules for the LCA method used to develop an EPD for the product category as defined in Section 2.2.1. The basic rules of the LCA method are set in Annex A of the GPI, and this section only includes additions, specifications and deviations to the rules set in the GPI. Guidance and examples of applying the LCA method are also available on www.environdec.com/methodology.

4.1 MODELLING APPROACH

See Section A.1 of the GPI.

DECLARED/FUNCTIONAL UNIT

The declared unit is defined as 1 kg of fibres, packaged, leaving the factory gate (the weight of packaging materials is not included in this 1 kg). The declared unit shall be stated in the EPD. The environmental impact shall be given per declared unit.

This PCR uses a declared unit instead of a functional unit as all functional and qualitative aspects are not possible to capture in the same unit. These aspects should be taken into consideration when comparing EPDs based on this PCR. A description of the functions of the product should be included in the EPD, if known and relevant.

4.1.1 REFERENCE SERVICE LIFE (RSL)

Not applicable for this product category as it only covers intermediate products.

4.1.2 PRODUCT LIFESPAN

Not applicable for this product category as it only covers intermediate products. Therefore, the lifespan cannot be determined.

4.1.3 TECHNICAL SPECIFICATION

Since this PCR applies to intermediate materials rather than finished end-use products, the technical requirements influencing performance differ considerably depending on the final application. Therefore, it is not appropriate to prescribe a single performance-related technical specification at the PCR level.

To maintain transparency and support proper interpretation of EPD results, manufacturers are required to include a general technical description of the material in the Product Information section of the EPD (see Section 6.4.4). Some examples of technical description to be included in the EPD are (non-exhaustive):

Table 3 - Examples of technical specifications to declare in the EPD

Technical Specification	Reference Standard
Fibre count	ISO 1144:2016
Fibre length	ISO 6989:1981; ISO 2648:2020; ISO 2646:1974; ISO 4913:1981
Fibre uniformity	ISO 4913:1981; ISO 6989:1981
Fibre micronaire	ISO 2403:2021
Fibre strength	ISO 5079:2020; ISO 3060:1974
Colour	ISO 105-F10:1989

These specifications allow users of the EPD to understand the nature of the fibre and assess the relevance of the product for their downstream applications. For finished products, the performance requirements and technical specifications will be defined in the application-specific PCR (e.g., yarn, fabrics, nonwovens, etc.) and reflected in the functional unit of those EPDs. If applicable, product certification(s) may be included as part of the technical specifications.

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4.2 SYSTEM BOUNDARY

The scope of this PCR and EPDs based on it is cradle-to-gate, including distribution when relevant. The use stage and end-of-life stage are excluded, as fibres are intermediate products that require further processing before reaching their final application. In addition, fibres are typically manufactured for use across multiple sectors, making the definition of representative use and end-of-life scenarios inherently complex and often limited by the availability of both product-specific and generic data.

Fibres may contain fossil and/or biogenic carbon, depending on their composition and intended application. Where applicable (e.g., natural fibres, bio-based man-made fibres), biogenic carbon uptake within the product system shall be included. Accounting for carbon uptake at this stage prevents miscalculations and double counting in subsequent supply chain tiers governed by other relevant PCRs (e.g., for yarns, fabrics, or apparel).

However, any biogenic carbon uptake included within the product system shall be balanced by a corresponding release within the same life cycle. Therefore, for transparency and compliance with EN 15804+A2:2019 and the GPI 5.0, direct biogenic carbon emissions shall be reported in module C3 whenever carbon uptake is reported in module A1.

Accordingly, the default reporting scope is modules A1–A3 for cradle-to-gate assessments. Modules A4 and A5 may be included where relevant to the intended EPD application and where sufficient data quality is available. Where biogenic carbon uptake is reported in module A1, module C3 shall include a corresponding balancing biogenic carbon flow. Further guidance on the definition of system boundaries is provided in Section A.3 of the GPI.

4.2.1 LIFE-CYCLE STAGES AND INFORMATION MODULES

Because of different data quality rules and the presentation of results, the product life cycle shall be divided into the following life-cycle stages and information modules:

- Product stage, modules A1-A3:
 - A1: Raw material extraction and processing (e.g., mining, agricultural and forestry operations), production of intermediate materials and components (e.g., including transformation processes such as extrusion), processing of secondary material input (e.g., recycling processes), production of distribution and consumer packaging, etc.
 - A2: Transports to the manufacturer of the product
 - A3: Manufacturing of the product⁴
- Distribution and installation stage, modules A4-A5:
 - A4: Transport of the product to next tier of the supply chain or end-user, including storage of product (e.g., warehouse and retail operations)
 - A5: Installation of the product, which is not applicable for fibres. Waste treatment of packaging materials accompanying the product (it might be relevant for fibres).
- Use stage, modules B1-B7: Not applicable for fibres products and shall therefore be excluded from the system boundaries.
- End-of-life stage, modules C1-C4: Not applicable for fibres and shall therefore be excluded from the system boundaries.⁵

Section A.3.1 of the GPI outlines rules for how to assign generation of electricity and production of fuels, steam and other energy carriers used, and losses arising, in each information module.

Sections **Error! Reference source not found.**–**Error! Reference source not found.** further describe the processes to include or exclude for each life-cycle stage.

4.2.1.1 Modules A1-A3: Product stage

The following attributional processes are part of the product system and classified as product stage processes:

- Module A1:

⁴ These are often, but not always, the processes under operational control of the EPD owner.

⁵ End-of-life modelling shall be addressed under the relevant PCR for the final product. Module C3 shall include biogenic carbon release when the uptake is included in module A1.

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- Plant-based fibres (from primary sources): Land preparation and cultivation (e.g. irrigation, fertilization, crop protection); harvesting; primary separation processes; ginning (cotton); retting and decortication (flax, hemp); baling and storage
- Animal hair-based fibres (from primary sources): Animal husbandry (feed production, grazing, veterinary inputs); shearing or combing; sorting and grading; initial washing (scouring at farm or first processor stage)
- Fossil-based synthetic fibres (from primary sources): Crude oil or natural gas extraction; refining and cracking; production of petrochemical monomers (e.g. ethylene, terephthalic acid, caprolactam); polymer production (e.g. PET, PA, PP polymerization); chip or pellet production
- Bio-based man-made fibres (from primary sources): Forestry operations (plantation management, harvesting); wood debarking and chipping; pulp production (dissolving pulp); production of bio-based polymers (e.g. PLA resin)
- Recycled fibres (all origins): Manufacturing of additional raw materials used in recycling (anti-static agents, chemicals, dyes, when applicable). The environmental impacts related to the “previous life cycle” shall not be considered (e.g., impacts with producing textiles, activities of collecting textile waste, etc.). The recycling process itself shall be included in A3.Module A2:
 - Transportation of input materials to the production of fibres and packaging materials in module A3

- Module A3:

Energy, fuels and waste related to the following processes (this list is non-exhaustive and should be considered as recommended processes to be included, when applicable):

- Natural plant fibres: Cleaning and opening; carding and combing; cutting to staple length (if required); drying; bleaching; dyeing; baling and packaging
- Animal fibres: Scouring (washing to remove grease and impurities); carbonizing (if applicable); carding and combing; drying; baling
- Synthetic fibres – Melt spinning (e.g. PET, PP, PA): Polymer drying; extrusion; melt spinning through spinnerets; drawing/stretching; crimping (for staple fibres); cutting to staple length (if applicable); oiling/finishing application; dyeing; packaging
- Synthetic fibres – Solution spinning (e.g. viscose, lyocell, acrylic): Polymer dissolution; filtration and deaeration; wet or dry-jet wet spinning; coagulation and regeneration; washing; drying; finishing application; dyeing; packaging
- Recycled fibres - mechanical recycling: Sorting; pre-processing; mechanical shredding; fiberization; cutting; dyeing; packaging
- Recycled fibres - Chemical recycling: Sorting; grading; cleaning; mechanical shredding; depolymerization; hydrolysis; purification; re-polymerization; pelletizing; finishing (as per virgin synthetic fibre process); dyeing, when applicable.

Processes not listed here may also be included. All elementary flows at resource extraction shall be included, except for the flows that fall under the general cut-off rule in Section 4.4. The following processes shall not be included:

- Business travel of personnel
- Travel to and from work by personnel
- Production and distribution and consumer packaging for components, additives and semi-finished goods
- Production of capital goods, like machines and infrastructure.

4.2.1.2 Modules A4-A5: Distribution and installation stage

- Module A4:

- Distribution of fibres from the manufacturing site (“gate”) to the next business customer (“gate”) and associated intermediate storage/handling (e.g., warehousing), as applicable.

- Module A5:

- Waste treatment of packaging materials, when relevant.

Processes not listed here may also be included. All elementary flows at resource extraction shall be included, except for the flows that fall under the general cut-off rule in Section 4.4.

4.2.1.3 Modules C1-C4: End-of-life stage

When relevant, the end-of-life stages should include:

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- Module C1:
 - Not relevant for fibres.
- Module C2:
 - Not relevant for fibres.
- Module C3:
 - Module C3 shall contain a flow of biogenic carbon leaving then system when carbon uptake is considered in module A1.
- Module C4:
 - Not relevant for fibres.
- Module D:
 - Not relevant for fibres.

Processes not listed here may also be included. All elementary flows at resource extraction shall be included, except for the flows that fall under the general cut-off rule in Section 4.4.

4.2.1.4 Excluded processes

See Section A.3.1.1 of the GPI.

4.2.1.5 Infrastructure and capital goods

See Section A.3.1.2 of the GPI.

4.2.2 OTHER BOUNDARY SETTING RULES

See Section A.3.2 of the GPI for rules on setting boundaries to nature as well as geographical and temporal boundaries. See Section A.4 of the GPI and Section 4.5 for rules on setting boundaries to other product systems.

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4.3 PROCESS FLOW DIAGRAM

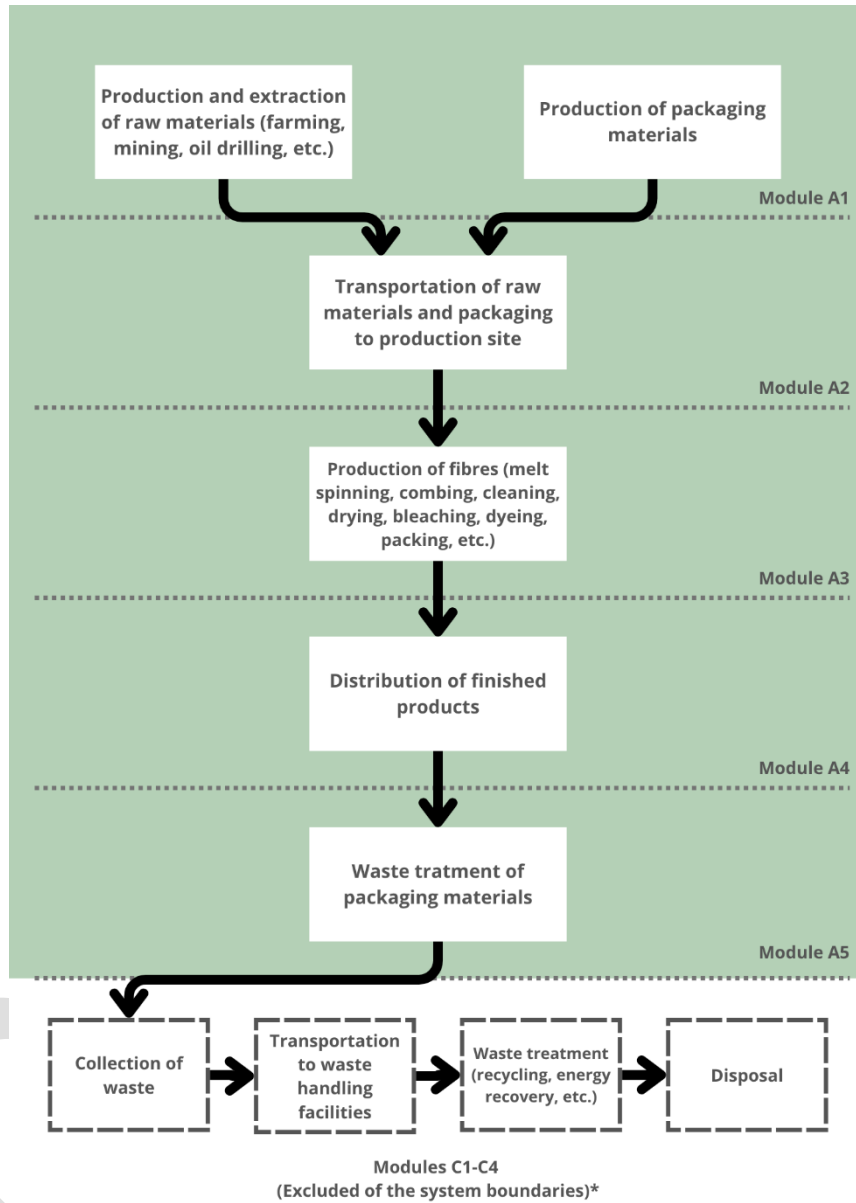


Figure 2. Process flow diagram illustrating the processes that shall be included in the product system, divided into the life-cycle stages. The illustration of processes to include may not be exhaustive. NOTE: module C3 shall contain the release of biogenic carbon when uptake is considered in A1, in compliance with EN 15804 and the GPI 5.0.

4.4 CUT-OFF RULES

See Section A.3.3 of the GPI.

4.5 ALLOCATION RULES

See Section A.4 of the GPI.

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4.5.1 ALLOCATION OF CO-PRODUCTS

See Section A.4.1 of the GPI.

Sheep production systems are inherently multifunctional, generating wool, meat, and in some cases additional outputs. In regions where wool constitutes a primary or co-primary production objective and significantly influences flock management, breeding strategies, and input use (e.g. fine wool production systems), environmental burdens shall be distributed using biophysical allocation, reflecting the shared biological processes responsible for both fibre and meat outputs. This is the case for most farms in New Zealand, Australia, and South Africa.

In contrast, in systems where meat production is the dominant driver and wool represents a secondary, low-value output, environmental burdens shall be allocated using economic allocation, as this more accurately reflects the functional motivation of the production system and avoids over-attribution of impacts to a non-driving co-product. This is applicable to most farms in Norway and the United Kingdom.

The selection of allocation method shall be justified based on documented characteristics of the production system, including revenue shares, breed type, and management orientation, and shall be transparently reported in the EPD.

For key processes in the product system, **Error! Reference source not found.** Table 4 provides specifications of the allocation method to use.

Table 4 - Allocation method for key processes in the product system.

Process	Main product and co-products	Allocation method
Seed removal (ripping, ginning, etc.) - plant-based natural fibres	Fibre (main), seeds for animal feed (co-product)	Economic Allocation.
Forestry – bio-based man-made fibres	Pulpwood (main), timber and other co-products (co-products)	If allocation cannot be avoided and system partition is not possible, then economic allocation shall apply.
Pulp mill - bio-based man-made fibres	Pulp (main), chemicals and lignin (co-products)	If allocation cannot be avoided and system partition is not possible, then economic allocation shall apply.
Pulp mill with energy recovery - bio-based man-made fibres	Pulp (main), chemicals, lignin and exported energy (co-products)	If allocation cannot be avoided and system partition is not possible, then economic allocation shall apply.
Farming – animal fibres (fibre as main product)	Fibre (main), milk and meat (co-products)	Biophysical allocation (see below for further guidance).
Farming – animal fibres (fibre as co-product)	Meat (main), fibre (co-product)	Economic Allocation.
Scouring – animal fibres (wool)	Clean fibre (main), lanolin (co-product)	Economic Allocation.
Scouring – animal fibre (silk and silk-like fibres)	Clean fibre (main), sericin (co-product)	Economic Allocation.

The environmental burden for main products and co-products to which economic allocation applies shall be evaluated using their average market value, considering this parameter over the last three years, with annual verification of updates; the allocation factors shall be reported in the LCA report, along with a description of sources and main hypotheses done for calculation. Key assumptions shall be documented.

A biophysical allocation approach shall be used for systems in which wool is the main product, with co-production of meat and/or milk. The allocation factor for fibre (AF_{fibre}), relative to the farm’s total production shall be calculated from the ratio of the metabolizable protein requirement for fibre production (PR_{fibre}) to the metabolizable protein requirement for fibre (PR_{fibre}), meat (the component for live weight sold for meat) (PR_{meat}), and milk (if relevant) (PR_{milk}) production, using:

$$AF_{fibre} = \left(\frac{PR_{fibre}}{PR_{fibre} + PR_{meat} + PR_{milk}} \right) \times 100$$

Farm survey data should be used to define ruminant production systems (extensive grazing, intensive feeding, mixed farming, etc.) and ruminant population. The data should be used to determine the protein requirements with the recommended hierarchy:

1. Apply a published country-specific model such as stated in Australian Livestock Feeding Standards – Ruminants.
2. Apply another model that has been peer-reviewed and published and that is applicable to the region and country.

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3. Apply National Research Council (2007) metabolizable protein requirement model.

For biophysical allocation, a sensitivity analysis shall be carried out to illustrate the effects of the choice of biophysical allocation. The biophysical allocation approach, protein requirements calculation model, sensitivity analysis methodology and sensitivity analysis result shall be available to the verifier and shall be presented in the EPDs.

4.5.2 ALLOCATION OF WASTE

See Section A.4.2 of the GPI.

Additionally, recycled materials from a textile waste collection or sorting facilities where the origin is unknown (e.g., data/statistics on shares of post- and pre-consumer materials are missing for the specific scrapyard or the country of its location), shall be assumed to be waste and allocated accordingly, unless default data provided on www.environdec.com/methodology says otherwise. For consistency, textile waste or recovered fibres sent to a textile waste collection or sorting facility shall be assumed to be waste and allocated accordingly, unless default data provided on says otherwise.

4.6 DATA AND DATA QUALITY RULES

See Section A.5 of the GPI.

See Section 4.7 for further rules related to data and data quality per life-cycle stage and module D.

4.6.1 DATA CATEGORIES

See Section A.5.1 of the GPI.

4.6.2 DATA QUALITY REQUIREMENTS FOR PRIMARY DATA

See Section A.5.2 of the GPI.

4.6.3 DATA QUALITY REQUIREMENTS FOR REPRESENTATIVE SECONDARY DATA

See Section A.5.3 of the GPI.

4.6.4 DATA QUALITY ASSESSMENT AND DECLARATION

See Section A.5.4 of the GPI.

4.6.5 EXAMPLES OF DATABASES FOR SECONDARY DATA

Not relevant.

4.7 OTHER LCA RULES

See Section A.6 of the GPI.

For specific LCA rules per life-cycle stage, see Section 4.8.

4.7.1 MASS BALANCE

See Section A.6.1 of the GPI.

4.7.2 ELECTRICITY MODELLING

See Section A.6.2 of the GPI.

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The following requirement for contractual instruments in the GPI may not be possible to comply with in all markets for contractual instruments: “the contractual instrument shall ... be valid for at least the upcoming six months from the publication of the EPD.” Therefore, it is replaced with the following: “is produced as close as possible to the period to which the contractual instrument is applied and comprises a corresponding timespan.”

4.7.3 BIOGAS MODELLING

See Section A.6.3 of the GPI.

4.8 SPECIFIC RULES PER LIFE-CYCLE STAGE AND MODULE D

See Section A.7 of the GPI.

Below are further data quality requirements and other LCA rules per life-cycle stage, and for module D, of relevance for the product category.

4.8.1 PRODUCT STAGE, A1-A3

EPD developers for fibres should consider the assumptions related to farming and animal husbandry defined in PCR 2025:03 for Food and Beverage products (see chapter 4.6.1 of the referred PCR).

4.8.2 DISTRIBUTION AND INSTALLATION STAGE, MODULES A4-A5

This PCR does not provide any additions to the rules and guidance in the GPI on the modelling of the construction/installation stage.

4.8.3 USE STAGE, MODULES B1-B7

This PCR does not provide any additions to the rules and guidance in the GPI on the modelling of the use stage.

4.8.4 END-OF-LIFE STAGE, MODULES C1-C4

Since this stage is typically based on scenarios, EPD developers should consider the scenarios described in the PEFCR for Apparel and Footwear whenever the fibres under study are intended for such applications. If specific scenarios are not available, the most conservative approach shall be applied.

4.8.5 CONSEQUENCES FOR RECOVERED MATERIAL/ENERGY BEYOND THE PRODUCT LIFE CYCLE (MODULE D)

This PCR does not provide any additions to the rules and guidance in the GPI on the modelling of module D.

4.9 ENVIRONMENTAL PERFORMANCE INDICATORS

See Section A.8 of the GPI.

The PCR does not mandate the inclusion of Global Warming Potential indicators that account for the actual atmospheric lifetime of short-lived gases, such as the GWP* indicator that may be included as additional information. Similarly, it does not oblige indicators related to macro-, micro-, and nano plastics emissions, nor those addressing systemic services to biodiversity. These gaps should be examined in greater detail in future revisions of the PCR. At present, no ISO-standardized or harmonized indicators and methods are available for these environmentally relevant aspects of fibre production, use, and end-of-life. Nevertheless, such aspects may be reported under “additional environmental information,” provided that peer-reviewed methods from the scientific literature are applied and transparently documented (see Section 6.4.8).

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4.10 SPECIFIC RULES PER EPD TYPE

4.10.1 MULTIPLE PRODUCTS FROM THE SAME COMPANY

See Section A.9.1 of the GPI.

4.10.2 SECTOR EPD

See Section A.9.2 of the GPI.

4.10.3 EPD OWNED BY A TRADER

See Section A.9.3 of the GPI.

4.10.4 EPD OF PRODUCT NOT YET ON THE MARKET

See Section A.9.4 of the GPI.

4.10.5 EPD OF PRODUCT RECENTLY ON THE MARKET

See Section A.9.5 of the GPI.

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5 CONTENT OF LCA REPORT

Data for verification shall be presented in the form of an LCA report – a systematic and comprehensive summary of the project documentation that supports the verification of an EPD. The LCA report is not part of the public communication.

See Section 8.3.1 of the GPI for rules on the content of the LCA report.

Note that there may be rules on the content of the LCA report elsewhere in the GPI or in this PCR.

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6 CONTENT AND FORMAT OF EPD

See Section 7 of the GPI.

6.1 EPD LANGUAGES

See Section 7.1 of the GPI.

6.2 UNITS AND QUANTITIES

See Section 7.2 of the GPI.

6.3 USE OF IMAGES IN EPD

See Section 7.3 of the GPI.

6.4 SECTIONS OF THE EPD

See Section 7.4 of the GPI.

6.4.1 COVER PAGE

See Section 7.4.1 of the GPI.

6.4.2 GENERAL INFORMATION

See Section 7.4.2 of the GPI.

6.4.3 INFORMATION ABOUT EPD OWNER

See Section 7.4.3 of the GPI.

6.4.4 PRODUCT INFORMATION

See Section 7.4.4 of the GPI.

6.4.5 CONTENT DECLARATION

See Section 7.4.5 of the GPI.

6.4.6 LCA INFORMATION

See Section 7.4.6 of the GPI.

6.4.7 ENVIRONMENTAL PERFORMANCE

See Section 7.4.7 of the GPI.

The EPD shall declare the environmental performance indicators listed or referred to in Section 4.9, per declared unit, per life-cycle module and module D.

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6.4.8 ADDITIONAL ENVIRONMENTAL INFORMATION

See Section 7.4.8 of the GPI.

- The following potential environmental impacts may be calculated and reported in the EPD,:
 - Global Warming Potential Star (GWP*) – Allen, M.R., Shine, K.P., Fuglestedt, J.S. et al. A solution to the misrepresentations of CO₂-equivalent emissions of short-lived climate pollutants under ambitious mitigation. *npj Clim Atmos Sci* 1, 16 (2018). <https://doi.org/10.1038/s41612-018-0026-8>
 - Macro-, micro-, and nano-plastics: Corella-Puertas, E., Hajjar, C., Lavoie, J., & Boulay, A. (2023). MarILCA characterization factors for microplastic impacts in life cycle assessment: Physical effects on biota from emissions to aquatic environments. *Journal of Cleaner Production*, 418, 138197. <https://doi.org/10.1016/j.jclepro.2023.138197>
 - Marine microplastics: Saling, P., Gyuzeleva, L., Wittstock, K. et al. Life cycle impact assessment of microplastics as one component of marine plastic debris. *Int J Life Cycle Assess* 25, 2008–2026 (2020). <https://doi.org/10.1007/s11367-020-01802-z>
 - Carbon footprint of products (including considerations on biogenic carbon): ISO 14067:2018, Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification. <https://www.iso.org/standard/71206.html>

6.4.9 ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

6.4.10 SEE SECTION 7.4.9 OF THE GPI. INFORMATION RELATED TO SECTOR EPDS

See Section 7.4.10 of the GPI.

6.4.11 VERSION HISTORY

See Section 7.4.11 of the GPI.

6.4.12 ABBREVIATIONS

See Section 7.4.12 of the GPI.

6.4.13 REFERENCES

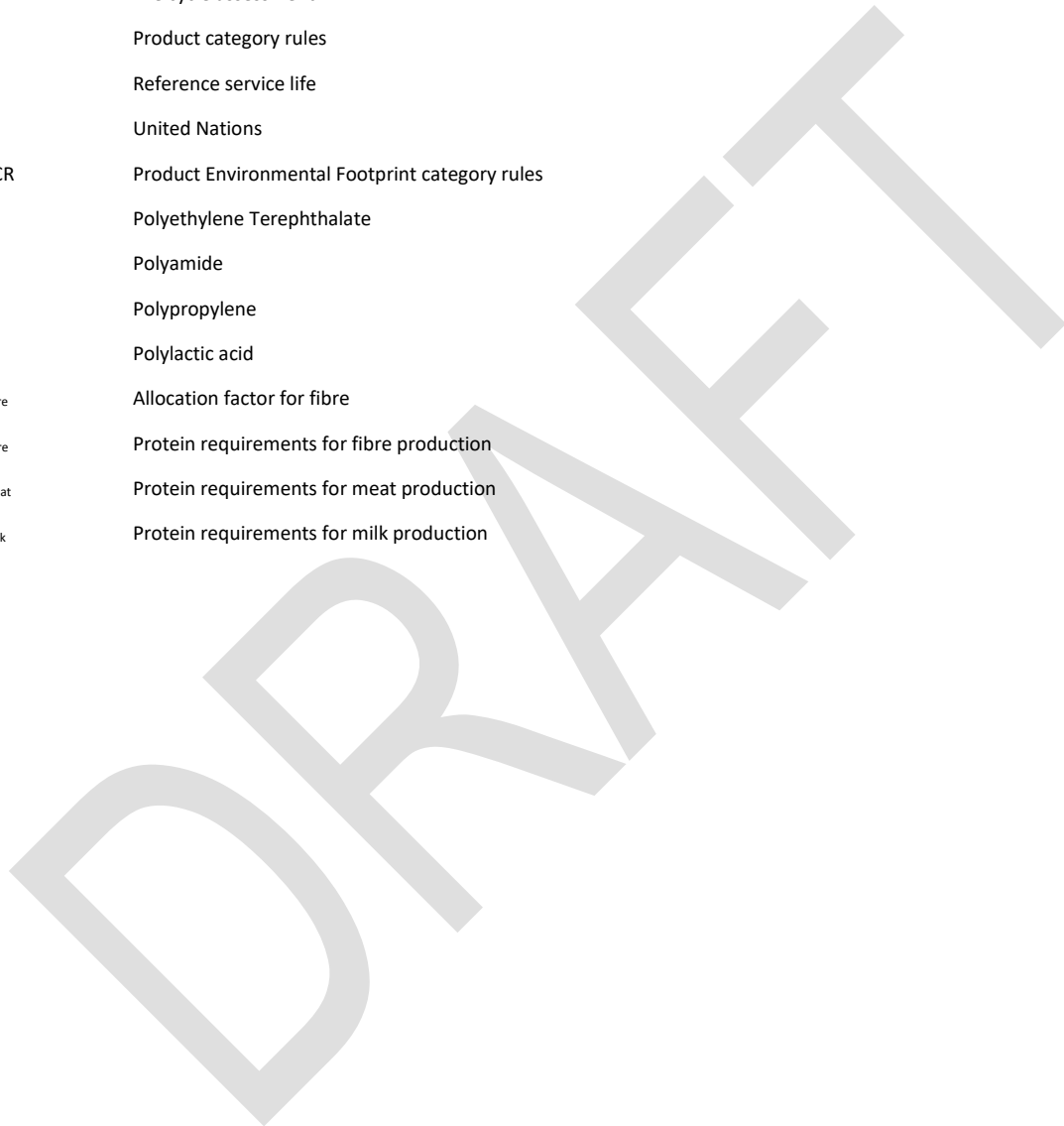
See Section 7.4.13 of the GPI.

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7 LIST OF ABBREVIATIONS

CPC	Central product classification
EPD	Environmental product declaration
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life cycle assessment
PCR	Product category rules
RSL	Reference service life
UN	United Nations
PEFCR	Product Environmental Footprint category rules
PET	Polyethylene Terephthalate
PA	Polyamide
PP	Polypropylene
PLA	Polylactic acid
AF _{fibre}	Allocation factor for fibre
PR _{fibre}	Protein requirements for fibre production
PR _{meat}	Protein requirements for meat production
PR _{milk}	Protein requirements for milk production



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- ISO (1981a) ISO 6989:1981, Textile fibres — Determination of length and length distribution of staple fibres (by measurement of single fibres).
- ISO (1981b) ISO 4913:1981, Textiles — Cotton fibres — Determination of length (span length) and uniformity index.
- ISO (1989) ISO 105-F10:1989 Textiles — Tests for colour fastness, Part F10: Specification for adjacent fabric: Multifibre.
- 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 (2015a) ISO 14001:2015, Environmental management systems – Requirements with guidance for use.
- ISO (2015b) ISO 9001:2015, Quality management systems – Requirements.
- ISO (2016) ISO 1144:2016, Textiles — Universal system for designating linear density (Tex System).
- ISO (2017) ISO 21930:2017, Sustainability in buildings and civil engineering works – Core rules for environmental product declarations of construction products and services.
- ISO (2018b) ISO/TS 14067:2018, Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication.
- ISO (2020a) ISO 5079:2020, Textile fibres — Determination of breaking force and elongation at break of individual fibres.
- ISO (2020b) ISO 2648:2020, Wool — Determination of fibre length distribution parameters — Capacitance method.
- ISO (2021) ISO 2403:2021, Textiles — Cotton fibres — Determination of micronaire value.
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FIBRES FOR TEXTILE PRODUCTION

PRODUCT CATEGORY CLASSIFICATION: UN CPC 01921, 01922, 01929, 02941, 02942, 02943, 02944, 26110, 26130, 26140, 26150, 26160, 26170, 26190, 26210, 26220, 35510, 35540, 39213, 39215

9 VERSION HISTORY OF PCR

VERSION 1.0.0, 2026-01-DD

Original version of the PCR.

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PRODUCT CATEGORY RULES (PCR)

PUBLICATION DATE 20YY-MM-DD (TO BE ADDED BY THE SECRETARIAT)

FIBRES FOR TEXTILE PRODUCTION

PRODUCT CATEGORY CLASSIFICATION: UN CPC 01921, 01922, 01929, 02941, 02942, 02943, 02944, 26110, 26130, 26140, 26150, 26160, 26170, 26190, 26210, 26220, 35510, 35540, 39213, 39215

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COVER IMAGE © TO BE ADDED BY THE SECRETARIAT IN THE PCR

