PANELS, SHEETS, BOARDS AND BLOCKS MADE OF POLYMERIC MATERIALS AND POLYMER-MATRIX COMPOSITES (NON-CONSTRUCTION)

PRODUCT CATEGORY CLASSIFICATION: UN CPC 36390, 36330, 31420

PCR 2010:18

VERSION 2.0.0

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 2025-10-09 until 2025-12-05. 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.

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.

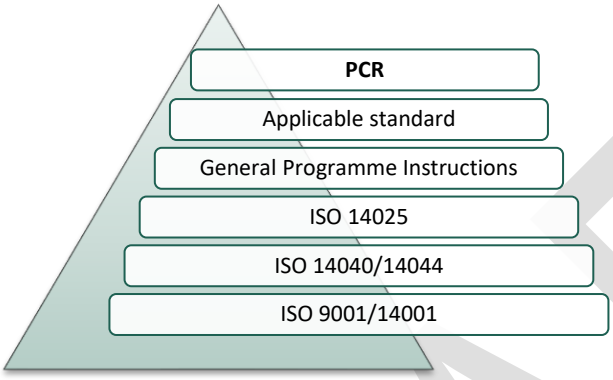

Figure 1 This PCR in relation to the hierarchy of standards and other documents.

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.

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	PANELS, SHEETS, BOARDS AND BLOCKS MADE OF POLYMERIC MATERIALS AND POLYMER-MATRIX COMPOSITES
Registration number and version:	2010:18, version 2.0.0
Programme:	INTERNATIONAL EPD SYSTEM
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: support@environdec.com
PCR Moderator:	Alessandro Bordignon, SEA InnovHub S.R.L (alessandro.bordignon@seainnovhub.com)
PCR Committee:	SEA InnovHub s.r.l., Quotasette s.r.l., MaPPIng LCA, NMG Europe s.r.l, MolBNL (University of Trieste – Department of Engineering and architecture).
Publication date:	*To be added by the Secretariat* See Section 9 for a version history of the PCR.
Valid until:	*To be added by the Secretariat* 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.
Development and updates:	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. 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. 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. 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.

Standards and documents conformance:	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 panels, sheets, boards and blocks made of polymeric materials and the declaration of this performance by an EPD. The product category corresponds to UN CPC:

- 36330 – Plates, sheets, film, foil and strip, of plastics, not self-adhesive, non-cellular and not reinforced, laminated, supported or similarly combined with other materials,
- 36390 - Other plates, sheets, film, foil and strip, of plastics
- 31422 - Other plywood, veneered panels and similar laminated wood, of non-coniferous wood (only when used as core materials in a composite system, like balsa wood)

The product category includes:

- Panels, sheets, boards, and blocks made of thermoplastic polymers (e.g. PP, PE, PVC, PET, PC, ABS, PMMA, etc.) and thermoset polymers (e.g. epoxy, phenolic, polyester, PU),
- Foamed/cellular products (EPS, XPS, PUR, PIR, expanded PVC, etc.)
- Wood panels used as core materials in the composite system,
- Composite panels with polymeric matrix, including:
  - glass-fibre reinforced plastics (GFRP),
  - carbon-fibre reinforced plastics (CFRP),
  - natural-fibre composites (NFRP),
  - other composite panels where the matrix is polymer-based,
  - laminated panels and sandwich structures with polymeric or natural cores.

The product category excludes:

- Composite materials with non-polymeric matrices (e.g. cement-based, ceramic-matrix, metal-matrix composites).
- Panels made entirely of wood or wood-based materials (e.g. plywood, particleboard, MDF – covered by other PCRs).
- Finished products with specific functions unrelated to semi-finished panels/blocks (e.g. wind turbine blades, fuselages, pressure vessels, pipes).
- Strips, films and foil.
- Self-adhesive, floor/wall coverings

For a useful definition of composite material, see ASTM D3878 – 15.

For products used in the construction sector, PCR 2019:14 is applicable and this PCR shall not be used.

[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.

2.2.2 GEOGRAPHICAL SCOPE

This PCR may be used globally.

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.

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 *2018-06-28* until *2018-08-28*, 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. No stakeholders provided comments during the open consultation and agreed to be listed as contributors in the PCR and on www.environdec.com-

In case of multiple major revisions of the PCR (1.0, 2.0, etc.), information about each open consultation should be added as sub-sections (3.2.1, 3.2.2, etc.).

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:	Lars-Gunnar Lindfors
Review dates:	2018-11-22 until 2018-12-20

In case of multiple major revisions of the PCR (1.0, 2.0, etc.), information about each review should be added as sub-sections (3.1.1, 3.1.2, etc.).

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.
- GlobalEPD
- EPD Norway
- IBU
- PEP ecopassport®
- EPD italy
- EarthSure
- EDF

- KEITI Environmental Declaration of Product
- JEMAI EcoLeaf
- JEMAI CFP Program
- UL Environment
- ASTM International EPD Program
- NSF International National Center for Sustainability Standards EPD
- SM Transparency Report Program
- FPInnovations EPD Program on wood building products
- ICC Evaluation Service Environmental Product Declaration Program
- Carbon Leadership Forum PCRs
- BRE Global EN EPD Verification Scheme
- DAPcons®
- SCS Global Services

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

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.

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:

- Osswald, Tim A., Baur, Erwin, Brinkmann, Sigrid, Oberbach, Karl, and Schmachtenberg, Ernst – 2006 International Plastics Handbook – Carl Hanser Verlag GmbH & Co.
- LCA Report: Life Cycle Assessment (LCA) of Atlas F 60, Atlas HPE 120 and Atlas HPE 220 polyurethane rigid foam – First edition 05.12.2023 (Italian version available).
- PCR 2010:16 Plastics in primary foam 4.0.0,
- 2012:01-Sub-PCR-I Sub-PCR-I Thermal insulation products (EN 16783) 2021-11-08

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.

4.2 DECLARED UNIT

The declared unit shall be defined as 1 m^3 of panel, sheet, board or block made of polymeric material or polymer-matrix composite and its packaging (the weight of the packaging is not included in this 1 m^3). The reference flow corresponds to the declared unit and shall be defined at the point where the product arrives at the customer gate, i.e., any losses occurring before then shall be accounted for.

A declared unit 1 m^2 of panel, sheet, board made of polymeric material or polymer-matrix composite and its packaging (the weight of the packaging is not included in this 1 m^2) may also be declared if clearly justified in the LCA report and EPD.

The product's mass, density, and dimensions (such as thickness, length, width, and volume), where applicable, shall be declared to facilitate conversion into other reference units.

4.2.1 REFERENCE SERVICE LIFE (RSL)

Not applicable for this product category.

4.2.2 PRODUCT LIFESPAN

Not applicable for this product category.

4.2.3 TECHNICAL SPECIFICATION

See section **Error! Reference source not found.** on this PCR.

This PCR uses a declared unit instead of a functional unit. This is because the relevant functional aspects are not known or are not possible to capture in one or a few predefined functional units. All relevant functional aspects shall, however, be considered when comparing EPDs based on this PCR.

4.3 SYSTEM BOUNDARY

The scope of this PCR and EPDs based on it is “Cradle to gate plus distribution and installation stage and end-of-life” for all products in the scope of this PCR.

The use stage (B1–B7) is excluded because panels and blocks made of polymeric and polymer-matrix composites do not involve significant energy or material flows during use. In addition, these products are destined for a wide range of markets and applications, and the specific use-phase conditions are often not known at the time of the EPD, making results not comparable across products.

For intermediate products or other products for which further processing and/or the end use is unknown, the system boundary may be limited to “cradle to gate”. If end-of-life treatment is excluded, the following criteria shall be fulfilled (the first three criteria are adapted from EN 15804, and the fourth criteria is adapted from ISO 14025):

- the product is physically integrated with other products in subsequent life-cycle process (e.g., during installation in a building) so they cannot be physically separated from them at end of life,
- the product or material is no longer identifiable at end-of-life as a result of a physical or chemical transformation process,
- the product or material does not contain biogenic carbon, and
- the EPD shall not be used for business-to-consumer communication.

Note that system boundaries, and to which module or life-cycle stage a certain process belongs, should not depend on the ownership or operational control of the process. For example, if the life-cycle stages A-C or upstream-downstream are used, the processes in A3 or core, respectively, are not necessarily the processes that are under operational control of the EPD owner.

4.3.1 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 rolling, drawing and 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 product[4]
- Distribution and installation stage, modules A4-A5:
  - A4: Transport of the product to the building/installation site/user, including storage of product (e.g., warehouse and retail operations)
  - A5: Installation of the product (e.g., including transports and waste processing of material and product losses arising in A5)
- End-of-life stage, modules C1-C4:
  - C1: De-construction/demolition/deinstallation
  - C2: Transport to waste processing and/or disposal
  - C3: Waste processing for reuse, recovery and/or recycling
  - C4: Disposal

In addition, consequences of recovered material/energy beyond the product cycle shall be reported in module D.

In the EPD, the environmental performance of each of the life-cycle stages and module D shall be reported separately, and in aggregated form for the life-cycle stages (modules A-C).

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-cy cle stage.

Note that generation of electricity and production of fuels, steam and other energy carriers shall be assigned to the information module in which the energy carrier is used. Also note that each module shall include the waste processing of waste generated in the module up to the end-of-waste state or final disposal; except waste processing of the product itself, which is included in module C. Related, note the way of assigning losses described in Figure 3 of Section A.3.1 of the GPI.

4.3.1.1 Modules A1-A3: Product stage

- Module A1:
  - Extraction and processing of non-renewable resources (e.g. crude oil, natural gas, minerals).
  - Cultivation and harvesting of renewable resources (e.g. natural fibres, balsa wood).
  - Refining and conversion of feedstocks into polymers, resins, monomers, and additives.
  - Production of reinforcements and fillers (e.g. glass fibre, carbon fibre, natural fibres).

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

- Production of adhesives and auxiliary chemicals used for bonding or surface treatments.
- Processing of recycled materials and secondary raw materials used as inputs.
- Production of primary and secondary packaging materials.
- Upstream waste management and wastewater treatment.
- Production of energy carriers (electricity, heat, fuels) used in upstream processes.
- Transport of raw materials, semi-finished inputs and energy carriers between upstream suppliers (prior to delivery to the manufacturer).

- Module A2:
  - External transport of polymers, resins, fibres, additives, adhesives, cores (e.g. foam, honeycomb, balsa wood), packaging, and other inputs to the manufacturing facility.
- Module A3:
  - Reception and storage of raw materials and auxiliaries (resins, polymers, fibres, additives, adhesives, core materials such as foams or balsa).
  - Preparation of raw materials:
    - Drying, compounding or blending of polymers and additives.
    - Cutting, conditioning or bonding of natural cores (e.g. balsa panels, veneer sheets).
  - Polymerization or pre-polymer preparation, if applicable.
  - Forming and shaping processes, depending on product type:
    - Extrusion, calendaring, lamination or compression moulding of sheets and boards.
    - Foaming/expansion processes for cellular products (EPS, XPS, PUR, PIR, expanded PVC).
    - Pultrusion or lay-up processes for reinforced composites.
    - Pressing and curing cycles for thermoset laminates.
    - Assembly and bonding of sandwich structures (e.g. skins with foam, honeycomb or balsa cores).
  - Cutting, trimming, machining and surface finishing of panels/blocks.
  - Application of coatings, films or surface treatments if applicable.
  - Waste management within the plant (scraps, off-cuts, dust, solvents, adhesives, and packaging of inputs),
  - Energy use: electricity, heat, steam and fuels consumed in the processes above.
  - Auxiliary operations and maintenance of production equipment that significantly affect resource use or emissions.

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 4.5.

4.3.1.2 Modules A4-A5: Distribution and installation stage

- Module A4:
  - Transporting of finished products from the factory gate to the site of use or installation or for further processing, including intermediate storage and distribution centre.
- Module A5:
  - Cutting, trimming or machining is required for fitting the panels/blocks.
  - Adhesives, sealants or auxiliary materials used during installation, if applicable.
  - Energy consumption for on-site equipment (e.g. lifting, cutting, bonding).
  - Waste generated at the site (off-cuts, packaging waste) and its treatment (recycling, incineration, landfill).
  - In this module, the processes to create the composite material shall be included, in addition to the previous processes. See section 4.9.2. (applicable only for the panels or blocks used as core materials to make the final composite material).

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 4.5.

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

- Module C1:
  - Removal activity of panels, sheets, boards and blocks from their application (e.g. wind blade, vehicle, industrial product, etc.).
  - Energy consumption of equipment used for dismantling, cutting, or demolition.
- Module C2:
  - Transport dismantled products to waste treatment or disposal facilities
- Module C3:
  - Sorting, cleaning, shredding, grinding or cutting of polymeric/composite waste.
- Module C4:
  - Final disposal of waste fractions not recycled or recovered.
  - Incineration with or without energy recovery, including flue gas cleaning and ash management.
  - Landfilling of polymeric/composite residues, including leachate treatment and landfill gas emissions.

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 4.5.

4.3.1.4 Excluded processes

See Section A.3.1.1 of the GPI.

4.3.1.5 Infrastructure and capital goods

See Section A.3.1.2 of the GPI.

4.3.2 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 4.6 for rules on setting boundaries to other product systems.

4.4 PROCESS FLOW DIAGRAM

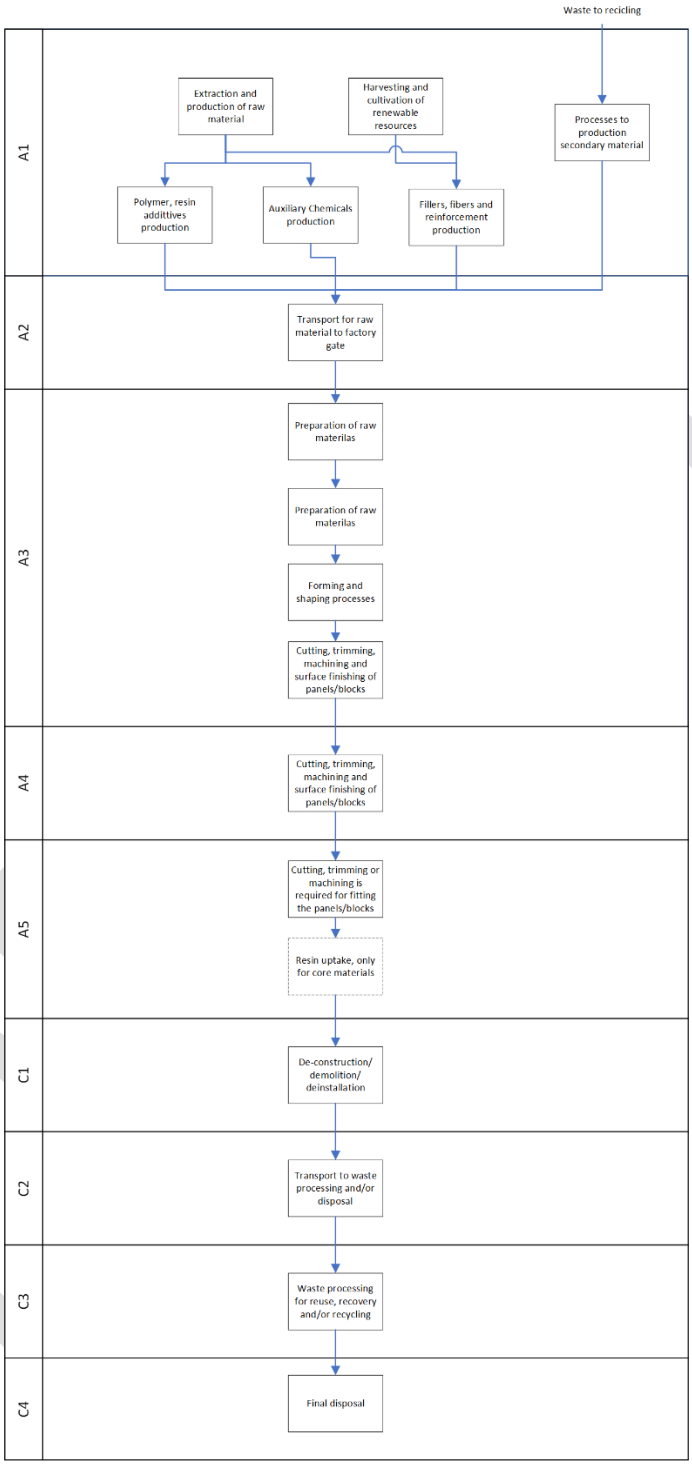

Figure 2. Process flow diagram illustrating the processes that shall be included in the product system, divided into the life-cycle stages. The illustration of processes to include may not be exhaustive.

4.5 CUT-OFF RULES

See Section A.3.3 of the GPI.

4.6 ALLOCATION RULES

See Section A.4 of the GPI.

4.6.1 ALLOCATION OF CO-PRODUCTS

See Section A.4.1 of the GPI.

For key processes in the product system, Table 1**Error! Reference source not found.** provides specifications of the allocation method to use.

Table 1. Allocation method for key processes in the product system.

Process	Main product and co-products	Allocation method
Forming and shaping processes	Main product: panel, sheet, board or block Co-products: secondary product carries out cutting process or production scrap	Mass allocation
Cutting, trimming, machining and surface finishing of panels/blocks	Main product: panel, sheet, board or block Co-products: secondary product carries out cutting process or production scrap	Mass allocation

4.6.2 ALLOCATION OF WASTE

See Section A.4.2 of the GPI.

Additionally, recycled materials from a scrapyard where the origin is unknown (e.g., data/statistics on 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, scrap sent to a scrapyard shall be assumed to be waste and allocated accordingly, unless default data provided on www.environdec.com/methodology says otherwise.

4.7 DATA AND DATA QUALITY RULES

See Section A.5 of the GPI.

See Section 4.8 for further rules related to data and data quality per life-cycle stage and module D.

4.7.1 DATA CATEGORIES

See Section A.5.1 of the GPI.

4.7.2 DATA QUALITY REQUIREMENTS FOR PRIMARY DATA

See Section A.5.2 of the GPI.

Additionally, the reference year of the primary data shall not be more than five years old and shall be representative for the validity period of the EPD (if not, the EPD shall be updated, see Section 2.2.4). The reference year, which does not need to be a calendar year, is the latest year in which the data provider confirmed the data to be representative/valid, i.e., the end year for the most recently set validity period.[5] This means that primary LCI data can have been collected more than five years ago, but the representativeness/validity shall have been reassessed and

[5] This definition of "reference year" is a specification and merge of the definitions in EN 15804, EN 15941, ISO 21930 and in the ILCD format.

confirmed by the data provider (the manufacturer/service provider) within the past five years.[6] In such reassessments, it may be that data is confirmed to be conservative compared to fully representative data, for example because it is known that the manufacturing process has improved (e.g., less material losses or lower energy use) but collected data from the past five years is missing. In such cases, the reference year can still be updated, and the data can still qualify as primary data. If this is done, it shall be described and justified in the LCA report.

4.7.3 DATA QUALITY REQUIREMENTS FOR REPRESENTATIVE SECONDARY DATA

See Section A.5.3 of the GPI.

4.7.4 DATA QUALITY ASSESSMENT AND DECLARATION

See Section A.5.4 of the GPI.

4.7.5 EXAMPLES OF DATABASES FOR SECONDARY DATA

Table 2 lists examples of databases and datasets to be used for secondary data. Note that a data quality assessment shall be performed also for data listed in the table, and that other data that fulfil the data quality requirements may also be used.

Table 2. Examples of databases and datasets to use for secondary data.

Process	Geographical scope	Dataset	Database
Additive production for polymer and resin	Global	Chemical organics	Ecoinvent database

Note: Chemical Organics should be used only if the additives are not in the database and are difficult to model.

4.8 OTHER LCA RULES

See Section A.6 of the GPI.

For specific LCA rules per life-cycle stage, see Section 4.9.

4.8.1 MASS BALANCE

See Section A.6.1 of the GPI.

4.8.2 ELECTRICITY MODELLING

See Section A.6.2 of the GPI.

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.”

4.8.3 BIOGAS MODELLING

See Section A.6.3 of the GPI.

[6] This reassessment can, for example, be done based on collected metadata, such as information on the type of machinery being used in a manufacturing process. So it can be that some data (LCI and/or meta data) have been collected within five years, while some data are older than five years but has been confirmed to still be representative based on the more recently collected data. An example: the amount of electricity a machinery use and the emissions generated was measured seven years ago, but within the past five years the producer has confirmed the same machine is still in use and has provided updated data on the type of electricity used to run the machine.

4.9 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.

4.9.1 PRODUCT STAGE, A1-A3

See Section A.7.1 of the GPI.

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

4.9.2 DISTRIBUTION AND INSTALLATION STAGE, MODULES A4-A5

See Section A.7.2 of the GPI.

Only for the core material used to produce sandwich composite panels in this phase shall be declared, in addition to the composite processes formation, and the following flows and allocation methods shall be used:

- **Electricity:** Energy consumption to produce the composite system is allocated to core material (products) by mass,
- **Resin production:** All environmental impacts of resin consumption to produce the composite system are allocated to the core material.

The resin consumption shall be based on the resin uptake value, which shall be determined by testing or verified manufacturer data (kg resin per m^2 or per m^3 of core). The resin uptake value and method used to evaluate this property shall be reported in EPD.

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

See A.7.4 of the GPI.

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

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

See A.7.5 of the GPI

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

4.10 ENVIRONMENTAL PERFORMANCE INDICATORS

See Section A.8 of the GPI.

The total results over all included life-cycle stages shall not be declared. The total results for A1-A3 shall be declared.

The conversion factor to convert the environmental performance indicator to 1 kg of panel, sheet, board, or block shall be declared in the additional environmental information.

4.11 SPECIFIC RULES PER EPD TYPE

4.11.1 MULTIPLE PRODUCTS FROM THE SAME COMPANY

See Section A.9.1 of the GPI.

4.11.2 SECTOR EPD

See Section A.9.2 of the GPI.

4.11.3 EPD OWNED BY A TRADER

See Section A.9.3 of the GPI.

4.11.4 EPD OF PRODUCT NOT YET ON THE MARKET

See Section A.9.4 of the GPI.

4.11.5 EPD OF PRODUCT RECENTLY ON THE MARKET

See Section A.9.5 of the GPI.

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.

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.

The product's mass, density, and dimensions (such as thickness, length, width, and volume), where applicable, shall be declared to facilitate conversion into other reference units.

The following information on the product shall be included into EPD to provide correct information as the technical properties of the

panel, sheet, board, or block in the field of application. This data sheet with the declared unit is a reference for the comparison the EPD based on this PCR.

Table 1 lists information on the technical specification for core material (like balsa, foamed or cellular products) that shall be reported if relevant.

Table 3 Mandatory product information to declare in the EPD for core material

Technical specification	Test method
Density	ISO 845, ASTM C-271
Compressive strength	ISO 844
Shear strength	ISO 1922, ASTM C-273
Shear modulus	ISO 1922, ASTM C-273

Table 2 lists information on the technical specification for the panel, sheet, board or block made of polymeric material or polymer-matrix composite, excluding core material that shall be reported if relevant

Table 4 Mandatory product information to declare in the EPD for other products

Technical specification	Test method
Compressive strength	ISO 604
Tensile strength	ISO 527
Tensile modulus	ISO 527
Flexural strength	ISO 178, ISO 14125

Where specific properties or test methods indicated in the table are not relevant or not applicable to the declared product, this shall be explicitly indicated in the EPD together with a technical justification.

Equivalent standard methods, other than those indicated, may be used (e.g. ASTM). The company that develops the EPD can use the latest version of the standards if it verifies that the content is equivalent to the standards listed above.

For anisotropic materials, the direction of stress application during the mechanical test shall be indicated.

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 4.10, per declared unit, per life-cycle stage and module D.

The total results over all included life-cycle stages shall not be declared. The total results for A1-A3 shall be declared.

6.4.8 ADDITIONAL ENVIRONMENTAL INFORMATION

See Section 7.4.8 of the GPI.

This section shall declare the conversion factor used to convert the environmental performance indicator to 1 kg of panel, sheet, board, or block, which shall be included in the additional environmental documentation information.

6.4.9 ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

See Section 7.4.9 of the GPI.

6.4.10 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.

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

8 REFERENCES

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

CEN, 2024. EN 15941:2024, Sustainability of construction works – Data quality for environmental assessment of products and construction work – Selection and use of data.

EPD International (2024) General Programme Instructions for the International EPD System. Version 5.0.1, dated 2025-02-27. Available on 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 (2015a) ISO 14001:2015, Environmental management systems – Requirements with guidance for use.

ISO (2015b) ISO 9001:2015, Quality management systems – Requirements.

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.

9 VERSION HISTORY OF PCR

VERSION 1.0.0, 2018-12-27

Original version of this PCR boards, blocks, panels, sheets of plastics, or in composite system, for structural application (non-construction).

VERSION 1.0.1, 2018-12-27

- Clarified terms of use
- Editorial changes

VERSION 1.0.2, 2022-11-22

- The validity of this PCR has been extended until 2023-12-27, as an updating process has been initiated.
- Editorial changes in Sections 5.4.5.1 to 5.4.5.3, to clarify the indicator list at www.environdec.com applies also for the indicatorsof resource use, waste production and other output flows. Also clarification done in Section 5.4.5.4.

VERSION 1.0.3, 2024-03-11

- The validity period of this PCR has been extended for a second time until 2024-06-27, as the updating process was delayed.

VERSION 2.0.0, 2025-XX-XX

- Scope update: extended to panels, sheets, boards and blocks of polymeric materials and polymer-matrix composites, including sandwich structures with foam, honeycomb and balsa cores.
- CPC codes: updated to 36330, 36390, 31422.
- Add the possibility to use 1 m^2 as declared unit for a product with specific application and function during use phase
- System boundary: revised from cradle-to-grave to cradle-to-gate with options (A4-A5, C1-C4, D); use stage (B1-B7) excluded as not relevant and not comparable across products destined for different markets/applications.
- Technical specifications: updated tables with required properties and test methods for panels/blocks

PANELS, SHEETS, BOARDS AND BLOCKS MADE OF POLYMERIC MATERIALS AND POLYMER-MATRIX COMPOSITES (NON – COSTRUCTION)

PRODUCT CATEGORY CLASSIFICATION: UN CPC XX, YY, ETC.

