PRODUCT CATEGORY RULES (PCR)
PUBLICATION DATE 2026-10-23

EPD
INTERNATIONAL EPD SYSTEM

OTHER SPECIAL- AND GENERAL-PURPOSE MACHINERY AND PARTS THEREOF (NON-CONSTRUCTION)

PRODUCT CATEGORY CLASSIFICATION: UN CPC 431, 435, 439, 441, 442, 444, 445, 446, 448 AND 449.

PCR 2010:08
VERSION 5.0.0

VALID UNTIL 2031-10-23



TABLE OF CONTENTS

1 Introduction ... 3

2 General information ... 4

2.1 Administrative information ... 4
2.2 Scope of PCR ... 5

3 Review and background information ... 8

3.1 Open consultation ... 8
3.2 PCR review ... 8
3.3 Existing PCRs for the product category ... 9
3.4 Reasoning for development of PCR ... 11
3.5 Underlying studies used for PCR development ... 11

4 LCA method ... 12

4.1 Modelling approach ... 12
4.2 Declared/functional unit ... 12
4.3 System boundary ... 16
4.4 Process flow diagram ... 19
4.5 Cut-off rules ... 20
4.6 Allocation rules ... 20
4.7 Data and data quality rules ... 20
4.8 Other LCA rules ... 21
4.9 Specific rules per life-cycle stage and module D ... 21
4.10 Environmental performance indicators ... 22
4.11 SpecIfic rules per EPD type ... 22

5 Content of LCA report ... 24

6 Content and format of EPD ... 25

6.1 EPD languages ... 25
6.2 Units and quantities ... 25
6.3 Use of images in EPD ... 25
6.4 Sections of the EPD ... 25

7 List of abbreviations ... 30

8 References ... 31

9 Version history of PCR ... 32

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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. 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.

This PCR is a main PCR that may be complemented with one or several complementary PCR (c-PCR). If there is an applicable and valid c-PCR, it shall be used in case it has been valid for at least 90 days when the EPD is verified[3]. If it has been valid for less than 90 days, it is optional to use the c-PCR. The valid c-PCRs can be found on www.environdec.com.

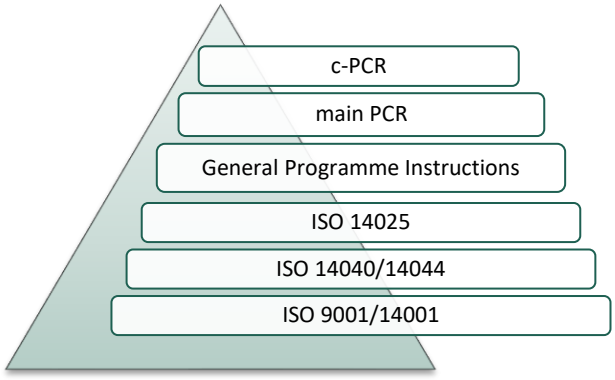


Figure 1. The hierarchy between PCRs, standards, and other documents. EN 15804, EN 15941, ISO 21930 and the ECO Platform standards are normative standards for construction products only.

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Other special- and general-purpose machinery and parts thereof (non – construction)
Registration number and version:	2010:08, version 5.0.0
Programme:	EPD INTERNATIONAL EPD SYSTEM
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: support@environdec.com
PCR Moderator:	Andrea Quintá Junquera, ABB S.A., andrea.quinta@es.abb.com
PCR Committee:	ABB AB - Daniel Nolkrantz, daniel.nolkrantz@se.abb.com ABB Limited - Noli Abecia, noli.abecia@ie.abb.com
Publication date:	2026-10-23 See Section 9 for a version history of the PCR.
Valid until:	2031-10-23 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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

Standards and documents conformance:	General Programme Instructions of the International EPD System, version 5.0.1, based on ISO 14025 and ISO 14040/14044.[2]
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 PCR serves as the main PCR for machinery classified under UN CPC Divisions 43 and 44, applying only to general-purpose and specific-purpose machinery not intended to be assessed as construction products under EN 15804. Product categories within this scope may be covered directly by this PCR unless additional product-specific methodological requirements are necessary (see Section 2.2.1.1). In the event of overlap between this PCR and a more specific PCR or c-PCR, the more specific PCR or c-PCR shall take precedence (see Section 2.2.1.2).

2.2.1.1 Identification of applicable c-PCRs

A complementary PCR (c-PCR) should be developed when additional rules are required to adequately address differences in functional requirements, operating conditions, regulatory frameworks, safety or hygiene requirements, service life assumptions, use-stage modelling, or other product-specific characteristics that may significantly affect the relevance, consistency, or comparability of EPD results.

Based on the characteristics of the product categories currently included within UN CPC Divisions 43 and 44, the PCR Committee anticipates that the development of a dedicated c-PCR may be particularly relevant for, but not limited to:

- Aircraft and aerospace machinery and equipment (UN CPC 4313);
- Machinery for filling, closing, sealing, capsuling, labelling, packing or wrapping products, particularly for food, beverage and pharmaceutical applications (UN CPC 43921); excluding items in scope of PCR 2012:18
- Milking and dairy machinery (UN CPC 4413);
- Machinery used in food, beverage and tobacco processing (UN CPC 445);
- Machinery used in textile, apparel and leather production (UN CPC 446);
- Machinery for pulp and paper production (UN CPC 44913);
- Machinery for rubber and plastics processing (UN CPC 44915);
- Semiconductor manufacturing equipment (UN CPC 44918).

The above list is indicative and non-exhaustive. The need for a c-PCR shall be evaluated with the help of PCR Committee and the secretariat at EPD International on a case-by-case basis.

2.2.1.2 Exclusions

The exclusions will be represented by the PCR already available in EPD International, followed by the UN CPC Code(s) under their scope:

- Construction products under **PCR 2019:14 Construction Products (EN 15804+A2) (v2.0.1)**, including consideration of applicable c-PCRs:
  - **UN CPC 4444** - Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid form; machinery for agglomerating, shaping or molding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry

[2] 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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

moulds of sand.
*The exclusion is limited to concrete batching plants, covered by **c-PCR-026 Concrete Batching Plants (v1.0.0)**.*

- **UN CPC 43540** - Lifts, skip hoists, escalators and moving walkways.
*Lifts are covered by **c-PCR-008 for Lifts (elevators) (v2.0.0)**.*

- **UN CPC 43540** - Lifts, skip hoists, escalators and moving walkways.
*Escalators and moving walkways are excluded, as they are covered by the **c-PCR for Escalators and Moving Walks (v1.0.0)**.*

- **UN CPC 43912** - Air-conditioning machines.
*Fan coils are covered by the **c-PCR-027 Fan coils (1.0.0)** & dehumidifiers are covered by **c-PCR-035 Desiccant dehumidifiers (v1.0.0)**.*

- **UN CPC 43941 -** Parts of producer gas or water gas generators; parts of acetylene gas generators and similar water process gas generators; parts for the goods of subclass 43912; parts of refrigerating and freezing equipment and heat pumps; parts of machinery for the treatment of materials by a process involving a change of temperature (referencing parts for UN CPC 43912 - Air-conditioning machines), **UN CPC 43942 -** Parts of centrifuges, including centrifugal dryers; parts of filtering or purifying machinery and apparatus for liquids or gases (referencing parts for UN CPC 43931 - Fans, except domestic type; centrifuges, except cream separators and clothes dryers & UN CPC 43914 - Filtering or purifying machinery and apparatus for liquids or gases) & **UN CPC 43949** – Machinery parts, non-electrical n.e.c. (referencing ventilation components and accessories not more specifically covered under UN CPC 43941 or UN CPC 43942).
*Ventilation components used in construction, excluding fan coils (with c-PCR Fan coils (1.0.0)), are covered by **c-PCR-018 Ventilation components (Adopted from EPD Norway)***

- Bearings and parts under **PCR 2023:03 - Bearings, bearings units and parts thereof (1.0.0)**:
  - **UN CPC 4331** - Ball or roller bearings
  - **UN CPC 4332** - Transmission shafts and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws, gear boxes and other speed changers; flywheels and pulleys; clutches and shaft couplings; articulated link chain
  - **UN CPC 4333** - Parts for the goods of classes 4331 and 4332
- Industrial furnaces and ovens under **PCR 2022:10 Industrial furnaces and ovens (1.0.1)**:
  - UN CPC 43420 - Industrial or laboratory furnaces and ovens, except non-electric bakery ovens; other industrial or laboratory induction or dielectric heating equipment. With the exception of the non-electric bakery ovens as PCR 2022:10 explicitly excludes them.
- Industrial trucks under **PCR 2026:01 Industrial trucks (1.0.0)**:
  - UN CPC 43530 - Fork-lift trucks; other works trucks whether or not fitted with lifting or handling equipment; tractors of the type used on railway station platforms.
- Machines for filling and packaging of liquid food under **PCR 2012:18 Machines for filling and packaging of liquid food (3.0.0)**:
  - UN CPC 43921 - Machinery for cleaning or drying bottles or other containers; machinery for filling, closing, sealing, capsuling or labelling bottles, cans, boxes, bags or other containers; machinery for aerating beverages; other packing or wrapping machinery. However, limited to machinery related to packaging of liquid food products; optional equipment such as conveyer belts, packaging robots etc are excluded from the PCR 2012:18 scope.
- Presses under **PCR 2022:09 Presses for working metal (1.0):**
  - UN CPC 44217 - Machine-tools for working metal by forging, hammering or die-stamping; machine-tools for working metal by bending, folding, straightening, flattening, shearing, punching or notching; other presses for working metal or metal carbides. Limited to presses for the extrusion of metal.
- Machine-tools under **PCR 2012:02 Machine-tools for drilling, boring or milling metals and composite materials (4.0.0):**
  - UN CPC 44214 - Machine-tools for drilling, boring or milling metal.
- Electric equipment under **PCR 2024:06 Electronic and electric equipment, and electronic components (non-construction) (main PCR to be complemented by c-PCRs) (1.0.1).**
  - **UN CPC code 448** - Electrical appliances for household and similar purposes. Particularly mentioning:
    - **UN CPC 44812** - Dishwashing machines and clothes or linen washing or drying machines, household type, electric or non-electric. This c-PCR covers only clothes/linen washing machines and drying machines within Subclass 44812; dishwashing machines are excluded from the scope of this document.
    *Washing machines under c-PCR under **PCR 2024:06 Clothes or linen washing machines (1.0.0) (Under development).** Note: As this c-PCR is currently under development, the final scope, applicability, exclusions, and CPC coverage may be subject to change upon publication.*

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- **UN CPC 44811** - Refrigerators and freezers, household type, electric or non-electric.
  *Refrigerator and freezer under c-PCR under **PCR 2024:06 Refrigerator and freezer (1.0.0) (Under development).** Note: As this c-PCR is currently under development, the final scope, applicability, exclusions, and CPC coverage may be subject to change upon publication.*

The exclusions identified in this document are based on the validity and applicability of the PCRs and c-PCRs referenced at the time of assessment. Should any referenced PCR or c-PCR expire without a subsequent replacement or update, the scope and exclusions shall be reviewed and may be amended accordingly.

2.2.1.3 Further considerations

Machinery parts covered by this PCR shall be specifically designed for use within a defined type of machinery and shall perform a quantifiable technical function directly linked to the functional performance of that machinery. Only parts that are functionally specific to a given machinery type and are not generic products that can be described solely by their material composition, geometry, or mass without reference to a specific machinery function are within scope.

Their technical performance shall be described using quantitative parameters relevant to their function. Parts described only by qualitative characteristics, geometry (e.g. weight, dimensions), or material composition, without quantified functional performance linked to the parent machinery, are outside the scope of this PCR. In such cases, other PCRs (e.g. PCR 2023:01 – Fabricated metal products) shall be used.

For more information see https://unstats.un.org/unsd/classifications/.

2.2.2 GEOGRAPHICAL SCOPE

This main PCR may be used globally.

When conducting an EPD, any geographical limitations should be stated and should correspond to the geographical scenarios used in the LCA model.

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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 and 2.0 were available for open consultation via www.environdec.com.

3.1.2 VERSION 3.0.0

Version 3.0 of this PCR was available for open consultation from 2013-09-12 until 2013-11-12 via www.environdec.com.

3.1.3 VERSION 4.0.0

Version 4.0 of this PCR was available for open consultation from 2020-03-03 until 2020-05-01, via www.environdec.com, 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 at www.environdec.com.

- CTME

3.1.4 VERSION 5.0.0

Version 5.0.0 of this PCR was available for open consultation from 2026-02-25 until 2026-04-25, 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:

- Janneh Venicia Dukuly, BEDESCHI SPA

3.2 PCR REVIEW

3.2.1 VERSION 1.0.0, 2.0.0, 3.0.0

Version 1.0, 2.0 and 3.0 were reviewed by the Technical Committee of the International EPD® System.

3.2.2 VERSION 4.0.0

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:	2021-03-16 until 2021-05-03

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

3.2.3 VERSION 5.0.0

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:	Viktor Hakkaranien
Review dates:	2026-06-10 until 2026-09-30

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.
- PEP Ecopassport
- JEMAI Ecoleaf
- UL Environmental
- ASTM International EPD Programme
- NSF Interantional Center for Sustainability Standards EPD
- EPD Norway
- EPD Italy

Table 1. 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**
Machine-tools for drilling, boring or milling metals and composite materials (4.0.0) Registration number: 2012:02	EPD International AB	4.0.0/2024-02-27	UN CPC 44214 machine-tools for drilling, boring or milling metals and composite materials
Machine-tools for material working by removal of material (1.0.3) Registration number: 2021:10	EPD International AB	1.0.3/2022-06-01	Machine tools for material working by removal of material by laser or similar; the product category corresponds to a sub-set of UN CPC 44211.
Being updated - Machines for filling and packaging of liquid food (2.0.4)	EPD International AB	2.0.4/Being updated (v5.0.0)	This PCR covers the following types of machines which are part of CPC 43921:

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

Name of PCR/standard, incl. registration number	Programme/standardisation body	Version number/date of publication	Scope
Registration number: 2012:18			• machinery for filling, closing, sealing, capsuling or labelling bottles, cans, boxes, bags or other containers for liquid food; • other packing or wrapping machinery used in liquid food filling lines
Under development - Clothes or linen washing machines (c-PCR under PCR 2024:06)	EPD International AB	Under development	Electric or non-electric washing machines for use on clothes or linen. These electrical appliances may also have a drying function. The product category corresponds to a subset of UN CPC 44812
Escalators and moving walks (1.0.0) C-PCR-025 (TO PCR 2019:14)	EPD International AB	1.0.0/2025-04-22	Escalators and moving walks and the declaration of this performance by an EPD corresponding to UN CPC 4354 Lifts, skip hoists, escalators and moving walkways. Excluding skip hoists.
Construction products (EN 15804+A2) (version 2.0.1) Registration number: 2019:14	EPD International AB	2.0.1/2025-04-07	Construction products; Infrastructure & buildings
Concrete batching plants (c-PCR under PCR 2019:14) (1.0.0) Registration number: 2019:14-c-PCR-026	EPD International AB	1.0.1/2025-04-22	UN CPC 4444 Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand.
Lifts (elevators) (v2.0.0) c-PCR-008 to PCR 2019:14	EPD International AB	v2.0.0 / 2025-11-27	UN CPC 43540 - Lifts, skip hoists, escalators and moving walkways. Only including lifts in its scope
Fan coils (1.0.0) c-PCR-027 to PCR 2019:14	EPD International AB	1.0.0 / 2025-04-23	Fan coils are covered by the c-PCR-027 under UN CPC 43912 - Air-conditioning machines
Desiccant dehumidifiers (v1.0.0) c-PCR-035 to PCR 2019:14	EPD International AB	v1.0.0 / 2025-06-04	Dehumidifiers are covered by the c-PCR-027 under UN CPC 43912 - Air-conditioning machines
Ventilation components (Adopted from EPD Norway) c-PCR-018 to PCR 2019:14	EPD International AB	Adopted from EPD Norway / 13.11.2024	Ventilation components used in construction, excluding fan coils (with c-PCR Fan coils (1.0.0))
Bearings, bearings units and parts thereof (1.0.0) PCR 2023:03	EPD International AB	v1.0.0 / Being updated	UN CPC 4331 - Ball or roller bearings UN CPC 4332 - Transmission shafts and cranks; bearing housings and plain shaft bearings; gears and gearing; ball or roller screws, gear boxes and other speed changers; flywheels and pulleys; clutches and shaft couplings; articulated link chain UN CPC 4333 - Parts for the goods of classes 4331 and 4332

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

Name of PCR/standard, incl. registration number	Programme/standardisation body	Version number/date of publication	Scope
Industrial furnaces and ovens (1.0.1) PCR 2022:10	EPD International AB	v1.0.1 / 2023-01-23	UN CPC 43420 - Industrial or laboratory furnaces and ovens, except non-electric bakery ovens; other industrial or laboratory induction or dielectric heating equipment. With the exception of the non-electric bakery ovens as PCR 2022:10 explicitly excludes them.
Industrial trucks (1.0.0) PCR 2026:01	EPD International AB	v1.0.0 / 2026-02-17	UN CPC 43530 - Fork-lift trucks; other works trucks whether or not fitted with lifting or handling equipment; tractors of the type used on railway station platforms.
Presses for working metal (1.0) PCR 2022:09	EPD International AB	v1.0 / 2022-12-21	UN CPC 44217 - Machine-tools for working metal by forging, hammering or die-stamping; machine-tools for working metal by bending, folding, straightening, flattening, shearing, punching or notching; other presses for working metal or metal carbides. Limited to presses for the extrusion of metal.
Electronic and electric equipment, and electronic components (non-construction) (main PCR to be complemented by c-PCRs) (1.0.1) PCR 2024:06	EPD International AB	v1.0.1 / 2024-12-09	UN CPC divisions 43-48, 84 and HS codes - category 85 - Electrical machinery and equipment and parts thereof. Any electronic and electric equipment that classifies as construction product, is excluded from the scope of this PCR.
Refrigerator and freezer (1.0.0) (Under development) PCR 2024:06	EPD International AB	v1.0.0 / Under development	UN CPC 44811 - Refrigerators and freezers, household type, electric or non-electric.

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:

- COMEXI, 2017. Life Cycle Assessment of Comexi F2 MC Flexographic printer.
- Erumban, A. A. (2008). Lifetimes of Machinery and Equipment: Evidence from Dutch Manufacturing. Review of Income and Wealth, 2(54), 237-268.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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/FUNCTIONAL UNIT

The declared unit (DU) for this PCR is one (1) product unit, including its packaging, unless an applicable c-PCR specifies otherwise. Results shall be expressed per declared unit; however, the life-cycle modelling shall be carried out over the selected Reference Service Life (RSL) to ensure consistent temporal boundaries and comparability between products.

A description of the function of the product shall be included in the EPD (quantified performance of the machine). To enable meaningful comparison between EPDs, it is recommended that the machinery being compared delivers a similar output. The technical specifications shall be provided according to Section 6.4.4 and shall include the information listed in Table 3 (Technical Information), whenever relevant. If a recognized technical standard exists that defines the operational or testing conditions for the machinery (e.g., duty cycles, loads, or performance test conditions), it shall be applied for the modelling of the use stage (Module B). The reference to this standard shall be included in Table 3.

This PCR is based on the use of a Declared Unit (DU). Where a recognized market, industry, or product standard defines a functional performance metric that deviates from the DU and is considered necessary to ensure relevance and comparability of EPD results for a specific machinery category, a complementary PCR (c-PCR) shall be developed to establish the appropriate Functional Unit (FU) and any associated product-specific rules. Until such a c-PCR is available, environmental performance shall be declared using the DU only.

Machinery parts covered by this PCR shall perform a quantifiable technical function that is directly linked to the functional performance of the specific machinery to which they belong. This implies that such parts shall contribute measurably to the delivery of the specific machine's function (e.g. transmission, sealing under defined pressure, load transfer, motion, energy conversion) and that their technical performance can be described using quantitative parameters relevant to that function.

Parts whose technical specification is limited to qualitative descriptions, geometric characteristics (e.g. weight, diameter, dimensions), or material composition only, without a quantified functional performance linked to the operation of the specific parent machine, shall not be considered suitable for declaration under this PCR. In such cases, alternative PCRs shall be considered, particularly PCR 2023:01 – Fabricated metal products, except construction products (v2.0.1), or other more appropriate product category rules depending on the nature and intended market placement of the product.

For machinery parts, Table 3 of Section 6.4.4 is replaced by the mandatory Table 4

4.2.1 TECHNICL SPECIFICATION, LIFESPAN AND REFERENCE SERVICE LIFE (RSL)

The EPD shall declare both the technical lifespan and, where available, the actual lifespan of the product, together with a description of the product function, operating conditions, and use pattern. The use pattern shall be stated in terms appropriate to the product type, such as hours of operation per day, number of work shifts, days of operation per year, or years of use (Section 6.4.4 Table 3).

It is important to distinguish between RSL and the technical, average, or actual service life of a product:

- The RSL is a standardized, comparative reference period for the product category and does not represent the guaranteed, average, or expected real-world life of an individual product.
- The technical lifespan refers to the average time for which a product has been designed or demonstrated to perform (which may differ from the warranty period).
- The actual lifespan refers to the observed average time products remain in use under real operating conditions.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

Industrial machinery covered by this PCR exhibits a wide range of realistic lifespans depending on product design, duty cycle, operating conditions, and maintenance quality. In general, the technical or actual lifespan of the machines within this product category ranges between 10 and 30[3] years or more, when installed, operated and maintained in accordance with manufacturer instructions.

To ensure transparency and comparability across EPDs, a Reference Service Life (RSL) is assigned to each relevant UN CPC code within the scope of this PCR. The categories below group machinery with similar durability profiles.

- Category A – Short lifespan (0–10 years) – This includes compact machinery and equipment with intrinsically short operational lives due to intensive cyclic loading, high rotational stress, accelerated obsolescence of precision electronic components, or continuous exposure to corrosive laboratory/process conditions. Their reduced structural mass and compact construction provide limited refurbishment potential compared to larger industrial equipment.
  - RSL shall be 5 years
  - The UN CPC Codes included are:
    - Class 4393 - General-purpose machinery n.e.c.
      - Subclass 43931 - Centrifuges, except cream separators and clothes dryers. Only lab/benchtop centrifuges, heavy process centrifuges are included in category C.
    - Class 4423 - Tools for working in the hand, powered
- Category B - Medium lifespan (10–20 years). Here machinery include high wear, high cycling fatigue, obsolescence risk or precision components requiring regular replacement for the hole machine.
  - The RSL shall be 15 years
  - The UN CPC Codes included are:
    - Class 4312 - Internal combustion engines of a kind used for motor vehicles
    - Class 4322 - Pumps for liquids; liquid elevators
    - Class 4323 - Air or vacuum pumps; air or other gas compressors
    - Class 4352 - Derricks; cranes; mobile lifting frames, straddle carriers and works trucks fitted with a crane
    - Class 4355 - Pneumatic and other continuous-action elevators and conveyors, for goods or materials
    - Class 4356 - Other lifting, handling, loading or unloading machinery
    - Class 4392 – Machinery for cleaning bottles, packing, and weighing, spraying machinery with the exception of subclass 43921.
    - Class 4393 – General-purpose machinery n.e.c.
      - Subclass - 43931 Fans, except domestic type.
      - Subclass - 43934 Automatic goods vending machines
      - Subclass - 43935 Dishwashing machines, except household type
    - Class 4412 - Harvester and threshers; machines for cleaning, sorting or grading agricultural products
    - Class 4413 - Milking and dairy machines
    - Class 4415 - Mechanical appliances for projecting, dispersing or spraying liquids or powders for agriculture or horticulture
    - Class 4419 - Other agricultural machinery
    - Class 4424 - Machinery and apparatus for soldering, brazing or welding; gas-operated surface tempering machines and appliances; electric machines and apparatus for hot spraying of metals or sintered metal carbides
    - Class 4442 - Other moving, grading, levelling, scraping, excavating, tamping, compacting or extracting machinery, self-propelled, for earth, minerals or ores (including bulldozers, mechanical shovels and road rollers)

[3] The considered categories for the estimation of the defined RSL, include Textile and Leather products, Paper and paper products, Publishing and printing, Fabricated metal products, Ice machinery, Machinery and Equipment n.e.c., Electrical machinery n.e.c.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- Class 4443 - Pile-drivers and pile-extractors; snow-ploughs and snow-blowers; other moving, grading, levelling, scraping, excavating, tamping, compacting, extracting or boring machinery, not self-propelled
- Class 4462 - Other machinery for textile and apparel production (including sewing machines)
- Class 4474 - Bombs, grenades, torpedoes, mines, missiles and similar munitions of war and parts thereof; cartridges and other ammunition and projectiles and parts thereof, including shot and cartridge wads
- Class 4482 - Domestic cooking and heating equipment, non-electric

- Class - 4491 Other special-purpose machinery Category C - Long-life machinery (20–30+ years). Large capital machinery, heavy-duty processing equipment, mechanical systems with robust construction and long asset lives.

  - The RSL shall be 25 years
  - The UN CPC Codes included are:
    - Class 4311 - Internal combustion piston engines, other than for motor vehicles and aircraft
    - Class 4313 - Motors and engines for aircraft and spacecraft; aircraft launching gear, deck-arrestor or similar gear, and ground flying trainers
    - Class 4314 - Steam turbines and other vapour turbines; hydraulic turbines and water wheels; gas turbines other than turbo-jets and turbo-propellers
    - Class 4321 - Hydraulic and pneumatic power engines and motors
    - Class 4341 - Furnace burners for liquid fuel, for pulverized solid fuel or for gas; mechanical stokers, mechanical grates, mechanical ash dischargers and similar appliances
    - Class 4351 - Pulley tackle and hoists other than skip hoists; winches and capstans; jacks
    - Class 4352 - Derricks; cranes; mobile lifting frames, straddle carriers and works trucks fitted with a crane
    - Class 4353 - Fork-lift trucks; other works trucks whether or not fitted with lifting or handling equipment; tractors of the type used on railway station platforms
    - Class 4354 - Lifts, skip hoists, escalators and moving walkways. The scope of this PCR is limited to machinery defined as skip hoists.
    - Class 4356 - Other lifting, handling, loading or unloading machinery
    - Class 4358 - Buckets, shovels, grabs and grips for cranes, excavators and the like
    - Class 4391 – Gas generators, distilling plant, air conditioning and refrigerating equipment, filtering equipment, filtering machinery with the exception of subclass 43912.
    - Class 4393 – General-purpose machinery n.e.c.
      - Subclass 43931 Centrifuges, except cream separators and clothes dryers. Lab/benchtop centrifuges are excluded. Refer to Category A.
      - Subclass 43932 Machinery n.e.c. for the treatment of materials by a process involving a change of temperature.
      - Subclass 43933 Calandering or other rolling machines, except for metals or glass
    - Class 4411 - Soil machinery (Agricultural, horticultural or forestry machinery for soil preparation or cultivation; lawn or sports-ground rollers)
    - Class 4414 - Agricultural tractors
    - Class 4416 - Self-loading or self-unloading trailers and semi trailers for agricultural purposes

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- Class 4421 - Machine-tools for working metal; machine-tools for working any material by laser or similar process; with the exceptions of UN CPC 44214 and UN CPC 44217.
- Class 4422 - Machine-tools for working stone, ceramics and the like, and for working wood, bone, hard plastics and the like; presses for the manufacture of particle board and the like
- Class 4431 - Converters, ladles, ingot moulds and casting machines, of a kind used in metallurgy or in metal foundries; metal-rolling mills
- Class 4441 - Continuous-action elevators and conveyors, for goods or materials, specially designed for underground use; coal or rock cutters and tunnelling machinery; other boring and sinking machinery
- Class 4444 - Machinery for sorting, screening, separating, washing, crushing, grinding, mixing or kneading earth, stone, ores or other mineral substances, in solid form; machinery for agglomerating, shaping or moulding solid mineral fuels, ceramic paste, unhardened cements, plastering materials or other mineral products in powder or paste form; machines for forming foundry moulds of sand. With the exception of concrete batching plants.
- Class 4451 - Machinery for the food, beverage and tobacco industries
- Class 4461 - Machinery for preparing, spinning, weaving and knitting textiles
- Class 44629 - Other machinery for textile and apparel production n.e.c.
- Class 4463 - Machinery for preparing, tanning or working hides, skins or leather or for making or repairing footwear or other articles of hides, skins or leather, other than sewing machines
- Class 4471 - Tanks and other armoured fighting vehicles, motorized, and parts thereof
- Class 4472 - Military weapons, other than revolvers, pistols and swords and the like
- Class 4473 - Revolvers, pistols, other firearms and similar devices; other arms
- Class 4475 - Swords, cutlasses, bayonets, lances and similar arms and parts thereof and scabbards and sheaths therefor

For machinery parts classified under UN CPC classes related to parts of machinery (e.g. class 4394 – Parts for the goods of classes 4391 to 4393), the Reference Service Life (RSL) shall be aligned with the RSL assigned to the corresponding parent equipment category, solely as a reference period for comparability.

The allocation of classes to categories in this PCR is not fixed. Adjustments may be necessary based on product characteristics or material composition. If you believe a class should be reassigned or split between categories, please contact the PCR moderator for clarification and approval. In some cases, a single class or subclass may be divided across categories depending on the type of material or function. For example, check subclass 43931.

Group 449 is assigned to Category B due to the wide diversity and complexity of the machinery included within this group, which leads to durability profiles that most consistently fit the medium-lifespan range defined in this PCR. In such a broad and heterogeneous group, a mid-range category represents the most technically reasonable default classification. However, Group 449 may be subdivided across categories when justified as offered above.

When the lifespan of a product differs from the RSL defined in this PCR, the RSL shall be used as the modelling period for the life cycle assessment. In such cases, the number of product units required to deliver the declared service over the RSL shall be determined based on the ratio between the RSL and the lifetime of the product. All applicable life cycle modules shall be adjusted to reflect the number of product units required over the RSL, except for modules or flows already modelled over the full RSL (e.g. B6 or B7). This approach avoids penalizing more durable machinery, while ensuring that products with shorter lifespans reflect the higher material, transportation and end-of-life burdens associated with repeated product units required during the RSL. Therefore, when the technical lifespan differs from the RSL, the impacts to be declared in the EPD shall be calculated using the following allocation formula:

$$Impact\ allocated = Full - time\ impacts\ x \frac{RSL}{Lifespan}$$

For example, if the RSL for a given product category is set at 20 years, but a specific machine has a demonstrated technical lifespan of 10 years, then two units are required to provide the service across the full RSL. Conversely, if a machine has a technical lifespan of 30 years, only two-thirds of a unit is allocated over the RSL, reflecting its longer durability and lower replacement frequency. Provided that both machines deliver the same function under comparable operational conditions (as defined in Table 3 of Section 6.4.4), the EPD results are comparable.

To avoid misinterpretation by readers, each impact results table in the EPD shall clearly indicate how to obtain the real, full-time impacts for one physical product unit and its packaging. A note shall be placed directly above each results table using the following wording: “The values in this

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

table are allocated according to the Reference Service Life (RSL). Multiply the values in this table by *x* to obtain the full impacts for one product unit and its packaging." Where *x* is:

$$x = \frac{Lifespan}{RSL}$$

When the technical lifespan of the product is equal to the Reference Service Life (RSL), no allocation or adjustment of impacts is required. In this case, the product delivers its full service over the entire RSL without the need for replacement, and therefore the impacts modelled for the product unit correspond directly to the allocated impacts over the RSL. Consequently, the note above the impact tables shall state that no multiplication is needed, as the declared values already represent the complete life-cycle impacts for a single product: "The RSL is equal to the technical lifespan of the product; therefore, the values in this table already represent the full impacts for one physical product unit and its packaging".

4.3 SYSTEM BOUNDARY

The system boundary of the product life cycle determines the processes to be included or excluded in the assessment. The scope of this PCR and EPDs based on it is cradle-to-grave.

For more information on the setting of system boundaries, see Section A.3 of the GPI.

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:

- Upstream process (Product stage - Module A1)
  - 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.
- Core processes (Product stage - Modules A2 & A3)
  - A2: Transports to the manufacturer of the product
  - A3: Manufacturing of the product[4]
- Downstream processes (Distribution and installation stage - Modules A4 & A5; Use stage - Modules B1 to B7; and End-of-life stage - Modules C1 to C4)
  - 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, for example in a building as part of the construction of the building (e.g., including transports and waste processing of material and product losses arising in A5)
  - B1: Use/application/operation of the product (e.g., including direct emissions associated with its use)
  - B2: Maintenance of the product
  - B3: Repair of the product
  - B4: Replacement
  - B5: Refurbishment
  - B6: Energy use in use/application/operation
  - B7: Water use in use/application/operation
  - C1: De-construction/demolition/deinstallation
  - C2: Transport to waste processing and/or disposal
  - C3: Waste processing for reuse, recovery and/or recycling

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

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- C4: Disposal

The consequences of recovered material or energy beyond the product system boundary (Module D) shall not be reported.

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.

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.

For more information on the division into life-cycle stages, see Section A.3.1 of the GPI.

4.3.1.1 Upstream process (Module A1)

- Module A1:
  - Extraction and production of raw materials for all main parts and components.
  - Production of electricity and fuels used in the product stage.
  - Production of semi products used in Module A3, if applicable.
  - Manufacturing of primary and secondary packaging.
  - Transport between raw material extraction and processing of materials.

4.3.1.2 Core processes (Modules A2 and A3)

- Module A2:
  - Transport of materials/components to the manufacturing plant
- Module A3:
  - Manufacturing process for main parts and components.
  - Internal transports within the manufacturing plant.
  - Assembly, preparation and packaging of the final product.
  - Generation of electricity and production of fuels, steam and other energy carriers used in the module.
  - Maintenance (e.g., of the manufacturing machines).
  - Waste treatment of waste generated during manufacturing, including waste transport to waste manager.

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.

The following processes shall not be included:

- Manufacturing of production equipment, buildings and other capital goods (products used in the studied product system that are not consumed and retains their function for more than three years).
- Building, maintenance, decommissioning and disposal of service facilities.
- Business travel of personnel.
- Travel to and from work by personnel.
- Research and development activities.

Any other exclusion shall be justified.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

4.3.1.3 Downstream processes (Modules A4, A5, B1, B2, B3, B4, B5, B6, B7, C1, C2, C3 and C4)

- Module A4:
  - Transport of the final product from manufacturing to the distribution platform (if applicable).
  - Transport to the final user.
- Module A5:
  - Waste treatment of the product packaging (if applicable) , including its transport to waste treatment platform.
  - Installation (if applicable), e.g. electricity consumptions for assembly of some components at the final user.

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.

- Module B1:
  - Direct emissions, consumables directly attributable to the operation of the declared unit and required to deliver its intended function; and other not accounted for in Modules B2-B7.Module B2:
  - Maintenance of the declared unit, including energy required for the maintenance and the production of spare parts (if applicable).
- Module B3:
  - Repairing of the declared unit, including energy for repairing and the production of repaired parts (if applicable).
- Module B4:
  - Replacement of spare parts, including energy for replacement and the production of replaced parts.
- Module B5:
  - Refurbishment of declared unit, including the energy required for refurbishment and the production of refurbished parts.
- Module B6:
  - Operational energy use (e.g. electricity or fuel), shall be evaluated by physical measurements.
- Module B7:
  - Operational water use

All modules shall be accounted for over the Reference Service Life.

If a component is required for Modules B1-B5, its production and distribution shall be included. Modules B1-B5 shall be aligned with, or refer to, the same scenario adopted for A4. Any variation shall be justified. Also, for the waste generated in Modules B1-B5, both the transport to the waste management facility (an average distance of 50 km may be assumed) and the waste treatment shall be included.

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.

- Module C1:
  - Disassembling of the product, including the impact of the disassembling process (if existent).
- Module C2:
  - Transport to the waste treatment facilities (waste processing and/or disposal).
- Module C3:
  - Waste processing for reuse, recovery and/or recycling, up to the end-of-waste state.
- Module C4:
  - Disposal of the waste

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

4.3.1.4 Module D: Benefits and loads beyond the system boundary

Module D is a concept taken from the norm EN 15804, which includes the benefits and loads beyond the system boundary through the reuse, recovery or recycling of materials and/or energy, including the processes avoided or substituted due to these practices. However, Module D shall not be declared under this PCR.

4.3.1.5 Excluded processes

See Section A.3.1.1 of the GPI.

4.3.1.6 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

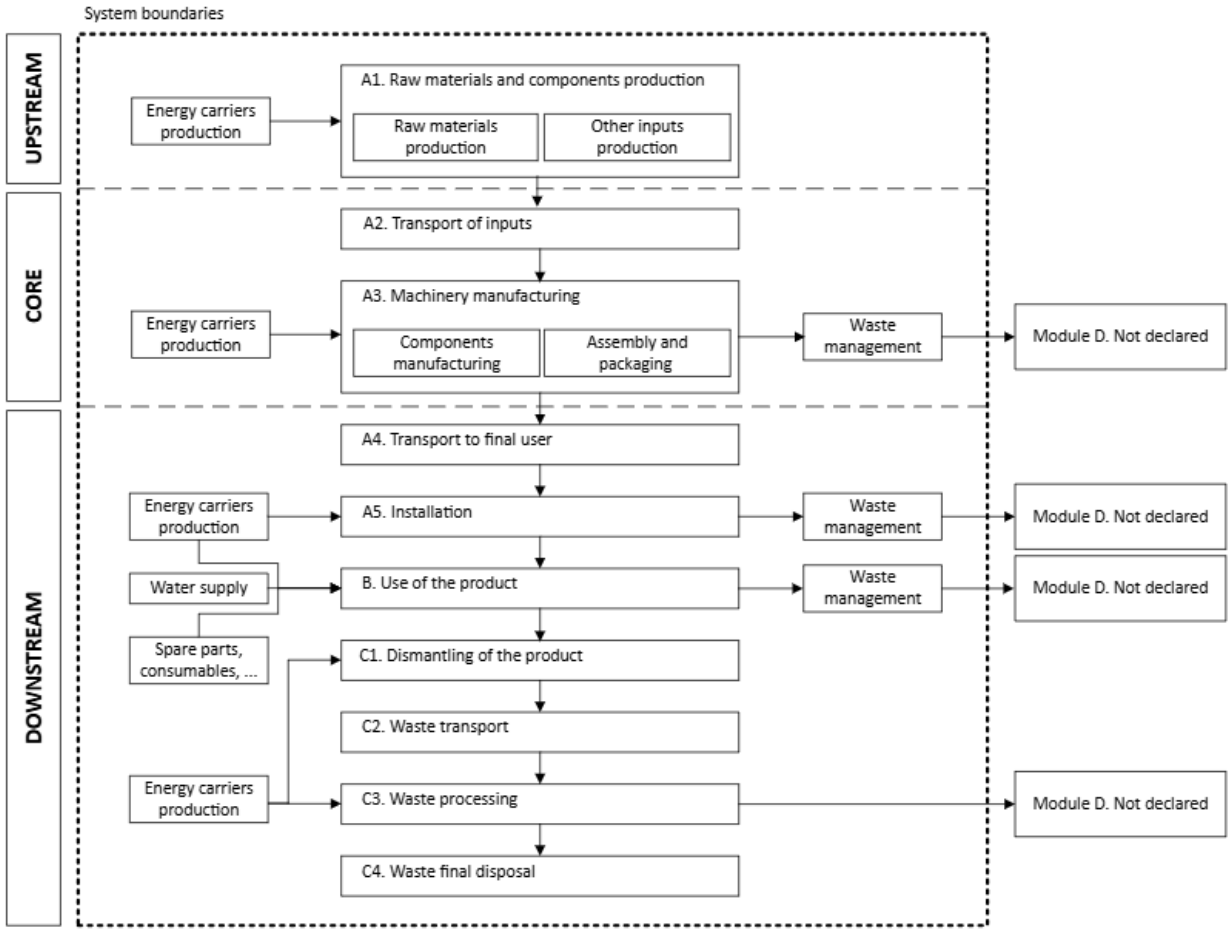


Figure 2. Process flow diagram illustrating the processes that shall be included in the product system, divided into the life-cycle stages. The illustration of processes to include may not be exhaustive.

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.

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.

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 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.

[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.

[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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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

No specific databases are recommended. All commercial or publicly available databases that meet the data quality requirements may be used. The specifications and the version of the database shall be reported in the EPD.

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.

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 UPSTREAM PROCESS (PRODUCT STAGE - MODULE A1)

See Section A.7.1 of the GPI.

4.9.2 CORE PROCESSES (PRODUCT STAGE - MODULES A2 & A3)

See Section A.7.1 of the GPI.

- For Module A2, at least 95% of the declared unit weight shall be based on the actual transportation mode (e.g., road, sea, rail, or air) and distances from suppliers. The remaining minor components may be modelled according to fixed distances as follows:
- Intercontinental transport: 20000 km by ship plus 1000 km by lorry.
- Intracontinental transport: 3500 km by lorry.
- Domestic transport: 1500 km by lorry.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- Local transport: 50 km by lorry.

If this option is adopted, the choice shall reflect the representative scenario and be justified.

4.9.3 DOWNSTREAM PROCESSES (DISTRIBUTION/INSTALLATION STAGE - MODULES A4 & A5; USE STAGE - MODULES B1 TO B7; AND END-OF-LIFE STAGE - MODULES C1 TO C4)

See A.7.2 of the GPI for Modules A4-A5. See A.7.3 of the GPI for Modules B1-B7. See A.7.4 of the GPI for Modules C1-C4.

If no primary data are available for Module A4, the following default transportation option may be used:

- Intercontinental transport: 20000 km by ship plus 1000 km by lorry.
- Intracontinental transport: 3500 km by lorry.
- Domestic transport: 1500 km by lorry.
- Local transport: 50 km by lorry.

If this option is adopted, the choice shall reflect the representative scenario and be justified.

Operation consumptions and maintenance shall be modelled according to a scenario based on manufacturer technical data sheets/actual data.

If transportation distance of the waste to the waste management facilities is unknown, 50 km truck transportation shall be assumed.

Scenarios for the end-of-life stage shall be technically and economically practicable and compliant with current regulations in the relevant geographical region based on the geographical scope of the EPD. An end-of-life scenario shall be defined as example and declared into the EPD. Assumptions on the end-of life scenario shall be documented in the LCA report and the EPD. If no primary data is available, Table G.4 of EN 50693 can be used as reference.

The potential loads and benefit of recycling and waste treatment of the products according to the specified scenarios shall not be presented in the EPDs under this PCR.

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

Module D shall not be declared under this PCR.

4.10 ENVIRONMENTAL PERFORMANCE INDICATORS

See Section A.8 of the GPI.

The results of the environmental performance indicators shall be declared according to Section 6.4.7.

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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 EPD shall specify the technical performance and other relevant information on the product in Table 2 and in either Table 3 or Table 4 depending on whether the declared product is machinery or a machinery part. The inclusion of these two tables is mandatory, and they shall be presented in the exact tabular format defined in this PCR; however, the information within the tables is mandatory only when applicable.

The inclusion of Table 3 is mandatory for machines to enable meaningful product comparison and shall be presented exclusively in the exact tabular format defined in this PCR. The information shall not be provided as narrative text, paragraphs, or split across multiple sections.

When the declared product is a machinery part and not a complete machine, Table 3 shall be replaced by Table 4 (Technical information for machinery parts), which is mandatory in such cases. Table 4 shall be completed in full, where applicable, and shall be presented in the exact tabular format defined in this PCR, not as narrative text or explanatory paragraphs.

Table 2. Machine or part description

Information	**Examples/explanations**
Commercial name	
Functions	
Main components	Body

Information	Examples/explanations
	Engine
	Tanks
	Pollution prevention and control apparatus
	Electric power accumulator
	Movement system
	Electronic components
	Others
Used fuels or energy vectors	Gasoline, diesel fuel, LPG (Liquid Petroleum Gas), CNG
Size and dimension	Length, width, height (m)
Weight	kg

Table 3. Technical information

Information	Examples/explanations
Standard used for Module B (operational conditions, maintenance, etc)	e.g., ISO XXXX, EN XXXX
Operating profile	Duty cycle, operating hours, load conditions
Environmental operating conditions	Temperature, humidity, pressure, inlet/outlet fluid conditions for heat exchangers, etc.
Power	Rated power input (W or kW)
RSL and lifespan	Declared RSL (PCR-defined) and lifespan (manufacturer or market data)
Spare parts consumption and replacement frequency	As described into the use and maintenance manuals. Declare only if not excluded under the cut-off rules. If cut-off or none expected, state: “No spare parts expected / below cut-off threshold.”
Chemical products and other consumables consumption	As described into the use and maintenance manuals. Lubricants, filtration media, chemicals, cutting fluids, etc. Declare only if not excluded under the cut-off rules. If cut off or none expected, state: “No consumables expected / below cut-off threshold.”

Table 4 is mandatory for EPDs where the declared product is a machinery part, spare part, or auxiliary mechanical component covered by the scope of this PCR. The objective of Table 4 is to ensure that machinery parts are described and declared based on quantitative technical criteria linked to the performance range of the specific machinery they are designed for, rather than solely on material composition, geometry, or mass.

The information declared in Table 4 shall enable verification of:

- the technical role of the part within the machinery system,
- the range of machinery configurations and performance levels for which the part is applicable, and
- the relevance of this PCR compared to alternative PCRs (e.g. fabricated metal products).

Only parameters relevant to the technical function of the part shall be declared. Information that is not applicable to the declared part shall be explicitly indicated as “Not applicable”. The absence of applicable parameters shall not be compensated by qualitative descriptions alone.

Quantitative technical parameters linking the part to the functional performance range of the parent machinery shall be declared for all relevant aspects of the part. If such quantitative linkage cannot be established, the suitability of declaring the product under this PCR shall be reassessed.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

Meaning that declaring only supporting parameters (e.g. geometry or mass) without addressing the core functional aspects of the part does not fulfil this requirement.

Table 4. Technical information for machinery parts

Information	Examples/explanations
Standard used for Module B (operational conditions, maintenance, etc, if applicable)	Applicable standards defining operating or testing conditions of the part when relevant (e.g. ISO XXXX, EN XXXX). If no operational phase is applicable, state: “Not applicable”.
Operating profile (if applicable)	Duty cycle, operating hours, flow rate, thermal duty, or other use-related parameters (e.g. cooling box, pump module). If not relevant for quantitative functional performance, state: “Not applicable”.
Environmental operating conditions	Environmental or process conditions the part is designed to withstand, such as temperature, humidity, pressure, chemical exposure, inlet/outlet fluid conditions, soil or groundwater pressure, etc. Important category for passive parts.
Power (if applicable)	Rated power input or output (W or kW) for parts that consume or transfer energy. For passive parts, state: “Not applicable”.
RSL and lifespan	Declared RSL (PCR-defined) and lifespan from manufacturer or market data (e.g. single-use)
Machines compatible with the part	Specific type(s) or class(es) of machinery the part is designed to be used with, as defined in technical documentation or use and maintenance manuals.
Functional performance range of the machinery the part is designed for	Rated or limiting performance parameters of the parent machinery for which the part is intended, such as machine power (e.g. 500–600 kW; 800–950 kW), pressure class, thrust force, flow rate, cooling capacity, or equivalent parameters, as specified in technical documentation or use and maintenance manuals.

The aim of these tables is to enable effective comparison between EPDs. It is recommended that the machines or parts of machinery being compared have similar output capacities. Previously published EPDs for a specific machine category or parts of machinery should be used as a reference.

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.

All mandatory life-cycle stages from A1 to C4 shall be assessed (cradle to grave). However, individual modules may be reported as "ND" where the EPD owner demonstrates that no representative scenario exists or that modelling would require unsupported speculative assumptions that cannot be justified with representative data. Individual modules may be reported as "N/A" where the module is not applicable to the declared product or where no such process occurs. Any module reported as "ND" or "N/A" shall be justified in the LCA report.

Examples of modules that may be reported as "ND" include repair (B3), replacement (B4), and refurbishment (B5), particularly for long-life or highly customized products where future activities cannot be reasonably predicted during the Reference Service Life (RSL).

Examples of modules that may be reported as "N/A" include transport to site (A4) and installation (A5) where no such process occurs for the declared product, such as when products or components are delivered directly from suppliers to the customer site and assembled at the final installation location.Table 3 provides an example of how modules declared and geographical scopes may be declared. If reported in a table, the following rules apply:

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- Modules declared shall be noted with "X".
- Modules not declared due to the absence of a representative scenario or because their modelling would require unsupported speculative assumptions shall be marked as "ND".
- Modules that are not applicable to the declared product shall be marked as "N/A".
- Geographical scope shall be reported by the country code(s) (e.g. UK, FR, DE) and/or name of the region(s) (e.g. EU 27, Global).

Table 5. Example for the reporting of modules declared and geographical scope

LIFE CYCLE STAGES	UPSTREAM	CORE		DOWNSTREAM												
	Raw material supply	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**
Modules declared																
Geography																

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 and per life-cycle stage

The declared modules may be presented individually, while also including the total sum for each product stage (upstream, core, and downstream). Alternatively, the modules may be grouped as shown in the following table; however, no further grouping beyond this structure shall be applied.

Table 6. Example of a minimum reporting structure for declaring environmental performance per life cycle stage and information

LIFE CYCLE STAGES	UPSTREAM	CORE			DOWNSTREAM					UPSTREAM to DOWNSTREAM
	Raw material supply	Transport	Manufacturing	**Total core**	Transport & Installation	Use & Operational interventions	Operational energy & water use	End-of-life stage	**Total downstream**	**Total**
Module	**A1**	**A2**	**A3**	**A2-A3**	**A4-A5**	**B1-B5**	**B6-B7**	**C1-C4**	**A4-C4**	**A1-C4**
Impact category indicators										
Resource use indicators										
Waste indicators										
Output flow indicators										

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

To avoid misinterpretation by readers, each impact results table in the EPD shall clearly indicate how to obtain the real, full-time impacts for one physical product unit and its packaging. A note shall be placed directly above each results table using the following wording: "The values in this table are allocated according to the Reference Service Life (RSL). Multiply the values in this table by *x* to obtain the full impacts for one product unit and its packaging." Where *x* is:

$$x = \frac{Lifespan}{RSL}$$

When the technical lifespan of the product is equal to the Reference Service Life (RSL), no allocation or adjustment of impacts is required. In this case, the product delivers its full service over the entire RSL without the need for replacement, and therefore the impacts modelled for the product unit correspond directly to the allocated impacts over the RSL. Consequently, the note above the impact tables shall state that no multiplication is needed, as the declared values already represent the complete life-cycle impacts for a single product: "The RSL is equal to the technical lifespan of the product; therefore, the values in this table already represent the full impacts for one physical product unit and its packaging".

6.4.8 ADDITIONAL ENVIRONMENTAL INFORMATION

See Section 7.4.8 of the GPI.

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.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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
DU	Declared unit
FU	Functional unit

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

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.

EN 50693:2019, Product category rules for life cycle assessments of electronic and electrical products and systems

Industrial trucks, v1.0.0 , https://www.environdec.com/pcr-library/PCR%202026:01%20v1.0.0

EPD International (2024) General Programme Instructions for the International EPD System. Version 5.0.1, dated 2025-02-27. Available on www.environdec.com.

Erumban, A. A. (2008). Lifetimes of Machinery and Equipment: Evidence from Dutch Manufacturing. Review of Income and Wealth, 2(54), 237-268.

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.

ISO 15686-1:2011, Buildings and constructed assets — Service life planning — Part 1: General principles.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

9 VERSION HISTORY OF PCR

VERSION 1.0.0, 2010-04-19

Original version published

VERSION 2.0.0, 2010-05-12

Updated template

VERSION 3.0.0, 2014-01-24

no specific data are available for Module A4, the following default transportation option may be used:

- Compliance with General Programme Instructions 2.01.
- Recommendation to use regional or national databases, where data quality rules are respected.
- Clarification that the use phase should be based on 1.200 hours in the declared unit.
- Clarification that indicators such as noise is only applicable to the use phase.
- Recommendation to use regional or national databases, where data quality rules as respected.

VERSION 3.0.1, 2015-01-27

Editorial changes by the secretariat, without changes to LCA methodology.

VERSION 4.0.0, 2015-01-27

- Compliance with General Programme Instructions 4.0.
- EPD validity has been updated.
- 2.2.1 Product category definition and description: scope has been updated to include UN CPC group 449 (Other special-purpose machinery and pats thereof) and underlying classes, as well as machines designed for a general purpose, as defined by the UN CPC group 439 (Other general-purpose machinery and parts thereof) and underlying classes. Inclusion of Annex A Flexible printing machinery.
- 3.3 Existing PCR for the product category: List of other PCRs available has been updated.
- 4.1 Functional unit/declared unit: modification from 1200 working hours (Reference service life) to 1 product unit, including the proportional impact of the raw materials production, manufacturing, transportation and end of life. The function of the product shall de declared to allow comparability of results.
- 4.3.1 Life cycle stages have been updated including consumption of chemicals and consumables during use phase. Module D explanation has been included
- 4.3.1.2 Core processes system boundaries: the description of the manufacturing parts to be included has been eliminated. Process waste that is deposited in landfill is included in the system boundaries. In this PCR version is not mandatory to declare waste that is deposited in landfill as hazardous waste.
- 4.4 System Diagram: Diagram was updated including processes described in life cycle stages. Module D reference has been included.
- 4.6 Allocation rules: co-product allocation rules have been clarified.
- 4.10.3 Other calculation rules and scenarios; Downstream module: modification of the processes included in the Downstream module.
- 4.7 Recommended databases for generic data: modification of the recommendation of the LCA databases to be used.
- 4.8 Specific impact indicators were removed. Reference to https://environdec.com/resources/indicators has been included.
- 5.4.6 Additional Environmental Performance: More comprehensive guidance has been included.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

- Annex A: FU, RSL and System diagram were updated to provide specific guidance, based on market standard

VERSION 4.0.1, 2025- 12-12

- Validity was extended for 6 months until 2026-10-04 as a new version was being developed and to ensure stability in the market.

VERSION 5.0.0, 2026-10-23

- Compliance with General Programme Instructions 5.0.1.
- 2.2.1 Product category definition and description: scope has been updated to include UN CPC Divisions 43 and 44.
- Changing the PCR into a main PCR.
- Indication of a default transportation option for core and downstream stages
- Annex for printing machines was removed
- RSL definitions for three classes of products included in the scope was defined.

© EPD INTERNATIONAL AB 2026. ALL USE IS SUBJECT TO OUR GENERAL TERMS OF USE PUBLISHED ON WWW.ENVIRONDEC.COM

PUBLICATION DATE 2026-10-23

OTHER SPECIAL- AND GENERAL-PURPOSE MACHINERY AND PARTS THEREOF (NON-CONSTRUCTION)

PRODUCT CATEGORY CLASSIFICATION: UN CPC DIVISION 431, 435, 439, 441, 442, 444, 445, 446, 448 AND 449.

© EPD INTERNATIONAL AB 2026

YOUR USE OF THIS MATERIAL IS SUBJECT TO THE GENERAL TERMS OF USE PUBLISHED ON BY EPD INTERNATIONAL AB:S HOMEPAGE ON WWW.ENVIRONDEC.COM. IF YOU HAVE NOT REGISTERED AND ACCEPTED EPD INTERNATIONAL AB:S THE GENERAL TERMS OF USE, YOU ARE NOT AUTHORIZED TO EXPLOIT THIS WORK IN ANY MANNER.

COVER IMAGE © ISTOCKPHOTO.COM / SAFAKOGUZ