

CLOTHES OR LINEN WASHING MACHINES

PRODUCT GROUP CLASSIFICATION: UN CPC 44812

C-PCR-XXX (TO PCR 2024:06)

VERSION: X.Y.Z *(TO BE ADDED BY THE SECRETARIAT)*

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

DRAFT FOR OPEN
CONSULTATION

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INTRODUCTION TO OPEN CONSULTATION

This draft PCR document is available for open consultation during the period stated on www.environdec.com. Feel free to forward the draft to any other stakeholder you might think is relevant, including colleagues and other organisations.

We are interested in comments from stakeholders on:

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

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

For questions about the PCR, please contact the PCR moderator. For general questions about the International EPD System, EPD or PCR development, please contact the Secretariat via <https://www.environdec.com/support>.

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1 INTRODUCTION

1.1 GENERAL

This document constitutes complementary Product Category Rules (c-PCR) developed in the framework of the International EPD System: a programme for type III environmental declarations¹ according to ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and product-specific standards such as EN 50693 and IEC 63666. Environmental Product Declarations (EPD) are voluntary documents for a company or organisation to present transparent, consistent and verifiable information about environmental performance of their product (goods or services).

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

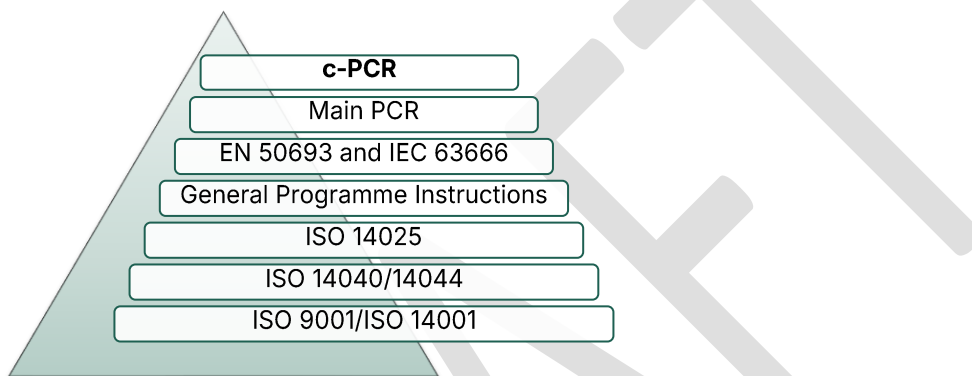


Figure 1 This c-PCR in relation to the hierarchy of standards and other documents.

The present c-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 further terms used in the document, see the GPI, the main PCR, and the normative standards.

A main PCR and its c-PCRs are valid for a pre-determined period of time to ensure that it is updated at regular intervals. The latest version of the PCR and its c-PCRs are available on www.environdec.com. Stakeholder feedback on PCRs and c-PCRs is very much encouraged. Any comments on this c-PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.

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

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.

1.2 ROLE OF THIS DOCUMENT

This c-PCR complements the main PCR 2024:06 Electronic and electric equipment, and electronic components (non-construction), available on www.environdec.com. The c-PCR cannot be used by itself but shall be used together with PCR

¹ Type III environmental declarations in the International EPD System are referred to as EPDs, Environmental Product Declarations.

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2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Clothes or linen washing machines
Registration number and version:	<i>To be added by the Secretariat</i>
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:	Yanjing Wang, Wuxi Little Swan Electric Co., Ltd, c18042839696@163.com
PCR Committee:	Wuxi Little Swan Electric Co., Ltd, Foshan Green Development Innovation Research Institute, China Association for Standardization, IVL Swedish Environmental Research Institute
Publication date	<i>To be added by the Secretariat</i> See Section 8 for a version history of the c-PCR.
Valid until:	<i>To be added by the Secretariat</i> 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 c-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 c-PCR is valid for a pre-determined time period to ensure that it is updated at regular intervals. When the c-PCR is about to expire, the PCR Moderator shall initiate a discussion with the Secretariat on if and how to proceed with updating the c-PCR and renewing its validity. A c-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 c-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 c-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. In case a c-PCR is developed by a CEN Product TC, the standard will replace this c-PCR, with a transition period of at least 90 days under which both are valid.

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	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 documents and conformance:	General Programme Instructions of the International EPD System, version 5.0 based on ISO 14025 and ISO 14040/14044. ² EN 50693 IEC 63366 If PCR 2024:06 refers to a later version of any of the above standards, the later version applies.
	At the time of publication, this c-PCR was available in English. If the c-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

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This document provides complementary Product Category Rules (c-PCR) for the assessment of the environmental performance of washing machines and the declaration of this performance by an EPD. The product category corresponds to a subset of UN CPC 44812 Dishwashing machines and clothes or linen washing or drying machines, household type, electric or non-electric.

The UN CPC classification hierarchy is:

- Section 4 - Metal products, machinery and equipment
- Division 44 - Special-purpose machinery
- Group 448 - Domestic appliances and parts thereof
- Class 4481 - Domestic electric appliances; non-electric refrigerators and clothes drying machines
- ▮ Subclass 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.

This subclass is defined through the following headings/subheadings of the HS 2022 (WCO Harmonized System Nomenclature):

84.50: Washing machines for domestic use or for use in laundries, including washing machines with drying function.

8450.11: Fully automatic washing machines (with a drying capacity not exceeding 10 kg).

8450.12: Washing machines with centrifugal driers (with a drying capacity not exceeding 10 kg).

8450.19: Washing machines without centrifugal driers (with a drying capacity not exceeding 10 kg).

8450.20: Washing machines with a drying capacity exceeding 10 kg.

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.

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2.2.2 GEOGRAPHICAL SCOPE

This c-PCR may be used globally.

2.2.3 EPD VALIDITY

See PCR 2024:06.

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3 PCR REVIEW AND BACKGROUND INFORMATION

This c-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, 2026-XX-XX

This c-PCR was available for open consultation from 2026-xx-xx until 2026-xx-xx, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

Stakeholders were invited via e-mail or other means to take part in the open consultation and were encouraged to forward the invitation to other relevant stakeholders. The following stakeholders provided comments during the open consultation and agreed to be listed as contributors in the c-PCR and at www.environdec.com.

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

3.2 PCR REVIEW

3.2.1 VERSION 1.0.0, 20YY-MM-DD

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:	To be added by the Secretariat
Review dates:	To be added by the Secretariat

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this c-PCR, existing PCRs/c-PCRs and other internationally standardised methods that could potentially act as c-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®: www.pep-ecopassport.org
- JEMAI EcoLeaf: www.ecoleaf-jemai.jp
- EPD Italy: www.epditaly.it/en/
- EPD Global: <https://www.epd-norge.no/>

Table 1 lists the identified PCRs and other standardised methods.

Table 1 Existing PCRs/c-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
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4 LCA METHOD

This section provides specific rules, requirements and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

4.1 MODELLING APPROACH

See PCR 2024:06

4.2 DECLARED/FUNCTIONAL UNIT

The functional unit shall be defined as washing and drying 1 kilogram goods over the 10-year reference service life (RSL) of the washing machine under specified annual washing cycle. To facilitate comparison among products with different rated capacities, full-load and half-load conversion factors differentiated by capacity segments (rated capacity above 10 kg and rated capacity ≤ 10 kg) shall be adopted for normalization calculation.

The functional unit shall be stated in the EPD. The environmental impact shall be given per functional unit.

4.2.1 REFERENCE SERVICE LIFE (RSL)

The reference service life for washing machines shall be 10 years under specified annual washing cycles.

4.2.2 PRODUCT LIFESPAN

The product lifespan for washing machines shall be 10 years. If other lifespans are chosen, it must be clearly indicated.

4.2.3 TECHNICAL SPECIFICATION

A description of the function of the product shall be included in the EPD, which includes product type (such as front-loading washing machine, top-loading washing machine, washer-dryer combo, etc.), rated washing capacity, rated drying capacity (if applicable), product overall dimensions (width $\times$ height $\times$ depth, unit: mm), and additional product functions (such as sterilization, drum self-cleaning, scheduled washing, etc.).

4.3 SYSTEM BOUNDARIES

See PCR 2024:06.

The scope of this c-PCR and EPDs based on it is cradle-to-grave.

The following subsections describe the covered information modules, respective processes, and other rules on the setting of system boundary.

4.3.1 MANUFACTURING STAGE: MODULES A1-A3

Material and components supply

- Production of raw material for all main parts and components.
- Production of semifinished products, packaging components and auxiliary.
- Production of components.
- Generation of electricity and production of fuels, steam and other energy carriers used in the production of materials and components.
- Transport of raw materials and components along the supply chain to a distribution point(e.g., a stockroom or warehouse), including energy inputs for warehouse storage for the raw materials/components corresponding to at least 75% of the mass of the product.
- Collection and processing of used components, parts and materials, if applicable.

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Transport

- Transport of materials and components to the manufacturing site.
- End-of-life treatment of transport waste, even if conducted by third parties.
- Generation of electricity and production of fuels, steam and other energy carriers used in the transport processes.

Manufacturing

- Internal transports within the manufacturing plant.
- Manufacturing process for main parts and components.
- Production of distribution and consumer packaging.
- Assembly of the final product and testing.
- Packaging of products.
- Storage of finished products.
- Maintenance (e.g. of the manufacturing equipment)
- Waste treatment of waste generated during manufacturing.
- Production of electricity and fuels used in the manufacturing processes.
- Emission and treatment of manufacturing

Manufacturing processes do not listed 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 (with a few exceptions, see Section 4.3.2).
- Building, maintenance, decommissioning and disposal of service facilities.
- Business travel of personnel.
- Travel to and from work by personnel.
- Research and development activities, marketing, and advertisement (including design activities).

4.3.2 DISTRIBUTION AND INSTALLATION STAGE: MODULES A4-A5

Distribution

- Transportation from manufacturer's last logistics platform to the distributor and from the distributor to the place of installation and/or operation.
- Production processes associated with additional materials and components (e.g., additional packaging materials) needed for the distribution of the product.
- In case of repacking, end-of-life management of the generated waste (e.g., packaging).

Installation stage

- Installation at point of use, including required materials, energy and components needed for installation.
- End-of-life management of waste generated at the installation place, including packaging, discarded installation materials, and other waste associated with the installation processes.

4.3.3 USE STAGE: MODULES B1-B7

- Lifetime operation of the product including power consumption, water consumption, and wastewater treatment.
- Production, use and waste treatment of consumables used in product use.
- Maintenance and repair during life time.

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

- Collection of the product at the end of its life.
- Transportation of the product to end-of-life treatment facility.
- Separation and dismantling of the product.
- Disposal of material and components.

4.3.5 INFRASTRUCTURE AND CAPITAL GOODS

See PCR 2024:06.

4.4 PROCESS FLOW DIAGRAM

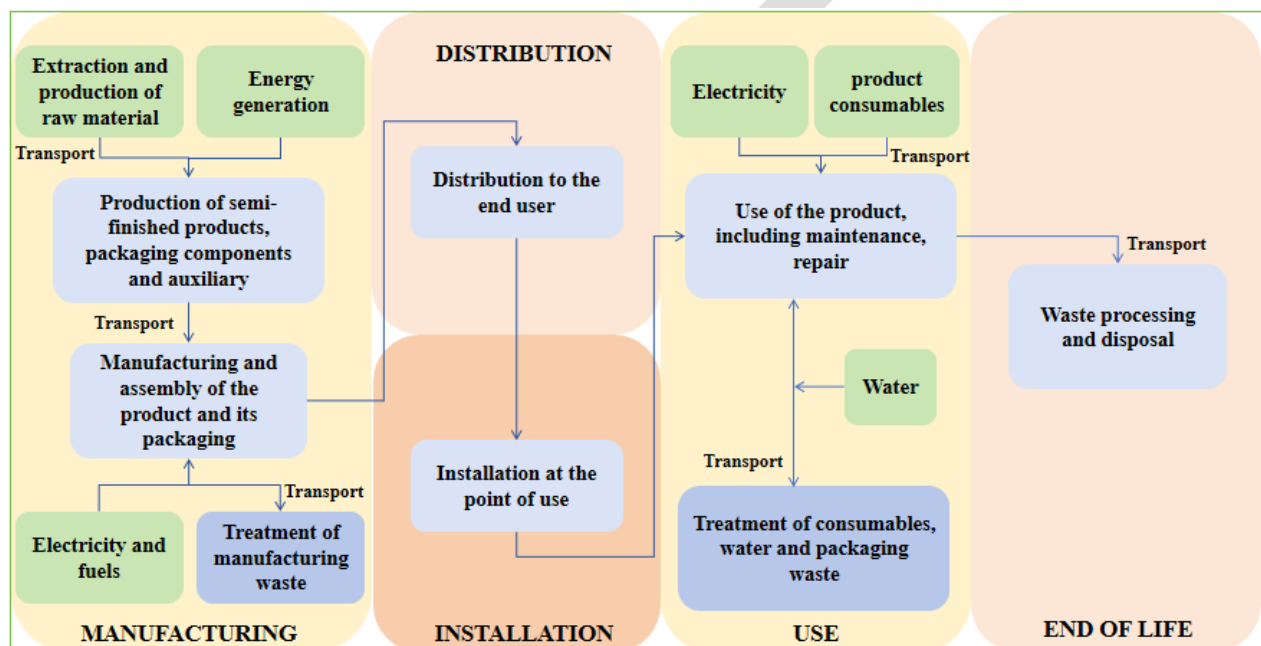


Figure 3 System diagram illustrating the processes that shall be included in the product system. The illustration of processes to include may not be exhaustive.

4.5 CUT-OFF RULES

See PCR 2024:06.

The cut-off rule does not apply to the following components when integrated into the product (i.e., these components shall always be included in the LCA model):

- batteries and accumulators,
- printed circuit board assembly (PCBA),
- electronic displays (including LED, LCD, OLED display technologies), regardless of their size, and
- the following materials and components:
 - ◆ silver
 - ◆ copper and alloys
 - ◆ antimony trioxide (additive used in plastics)
 - ◆ coolants
 - ◆ rare earths: indium, molybdenum, neodymium

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- ◆ microprocessors
- ◆ magnesium anode
- ◆ tantalum capacitor

4.6 ALLOCATION RULES

See PCR 2024:06.

4.7 DATA CATEGORIES AND DATA QUALITY RULES

See PCR 2024:06.

4.8 OTHER LCA RULES

See PCR 2024:06.

4.9 SPECIFIC RULES PER LIFE-CYCLE STAGE

4.9.1 MANUFACTURING STAGE, A1-A3

- Data referring to processes and activities in a supply chain over which the EPD owner has direct management control shall be specific and collected on site.
- Data referring to contractors that supply main parts, packaging, or main auxiliaries should be requested from the contractor as specific data, when available.
- Data on transport of main parts and components along the supply chain to a distribution point (e.g., a stockroom or warehouse) where the final delivery to the manufacturer can take place, should be specific and based on the actual transportation mode, distance from the supplier, type of fuel (e.g., gasoline, diesel, etc.) and vehicle load.
- In case specific data is lacking, selected generic data may be used. If this is also lacking, proxy data may be used.
- For processes modelled with specific data, generation of electricity used shall be accounted for in this priority:
 1. Specific electricity mix as generated, or purchased, from an electricity supplier, demonstrated by a Guarantee of Origin (or similar, where reliability, traceability, and the avoidance of double-counting are ensured) as provided by the electricity supplier. If no specific mix is purchased, the residual electricity mix from the electricity supplier shall be used.
 2. Residual electricity mix or residual electricity mix on the market.
 3. Electricity production mix or electricity mix on the market.
- Packaging: specific data shall be used for the consumer packaging production if it is under the direct control of the organization or if the environmental impact related to the consumer packaging production is more than 10% of the total product environmental indicators. In other cases, generic data may be used. When consumer packaging shows the organization's logo, the LCA report should report the exerted/non exerted direct control on the production of consumer packaging by the organization.
- Transport from the final delivery point of raw materials, chemicals, main parts, and components to the manufacturing plant/place of service provision should be based on the actual transportation mode, distance from the supplier, fuel and vehicle load, if available.
- Waste treatment processes of manufacturing waste should be based on specific data, if available. (For example, the quantity and disposal methods of waste materials such as scrap metal, waste plastics, waste mineral oil, as well as pollutants such as volatile organic compounds (VOCs), non-methane total hydrocarbons, and wastewater.)
- The transport of the product to the customer shall be described in the EPD, where relevant, and be accounted for in this priority:
 1. Actual transportation modes and distances to specific a customer or market, representing the geographical scope of the EPD. Use of specific data is of particular importance if air freight is used.

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2. A weighted average of transportation modes and distances, based on transportation to several customers or markets, representing the geographical scope of the EPD.

4.9.2 DISTRIBUTION AND INSTALLATION STAGE: MODULES A4-A5

The data collected during the distribution stage include:

- Transportation-related data: Distribution volume (the total amount of products transported to the destination within the target product data collection timeframe), sales regions/sales locations and transportation proportions (the percentage of transportation volume corresponding to each transportation mode), transportation modes and means (including energy type, load capacity, emission standards, etc.), and transportation distance. Whenever feasible, data on energy consumption should also be collected.
- Data related to activities during warehousing and sales processes, such as energy consumption in typical warehouses and sales stores.

4.9.3 USE STAGE , MODULES B1-B7

- Specific data, representing the actual use of the product, shall be used when available. In the absence of specific data, data representing the use set by default by the manufacturer should be used.
- Data on the emissions from the use stage should be based on documented tests, verified studies in conjunction with average or typical product use, or recommendations concerning suitable product use. Whenever applicable, test methods shall be internationally recognized.
- Energy and other resources consumed during the use stage of the equipment shall be representative of the configuration in which the equipment is delivered to the end user (i.e., default settings). The use of electricity in the region/country where the product is used (as specified in the geographical scope of the EPD) shall be modelled using the electricity consumption mix on the market.
- The total energy consumption along the product lifetime shall be calculated by the following formula:
 1. The electricity consumption of the product:

$$E_{total} = (E_w + E_d) \times N \times RSL$$

where,

E_{total} —Electricity consumption of the product during the lifetime, measured in kWh ;

E_w —Electricity consumption of the product during washing clothes or linen, measured in kWh ;

E_d —Electricity consumption of the product during drying clothes or linen, measured in kWh ;

N —The annual usage frequency of the product ;

RSL —The reference service life of the products, measured in years. This standard stipulates that the reference service life of the products is 10 years. When an enterprise explicitly states a longer service life than the reference service life specified in this standard, the service life explicitly stated by the enterprise shall be used.

2. The water consumption of the product:

$$W = w \times N \times RSL$$

where,

W —Water consumption of the product during its lifetime, measured in kg ;

w —Water consumption during the operation period of the product, measured in kg ;

N —The annual usage frequency of the product ;

RSL —The reference service life of the product, measured in years.

- Data on the consumption of materials during the repair and maintenance of products can be obtained through user surveys, or industry-standard estimates or product design data can be used.

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

Scenarios for the end-of-life stage shall be technically and economically practicable. The end-of-life scenario shall be compliant with current regulations in the relevant geographical region based on the geographical scope of the EPD, meaning that it shall not contradict the minimum collection rates, recycling rates or landfilling prohibitions (when applicable) imposed on the relevant actors (i.e., manufacturers or members states in the European Union). Key assumptions regarding the end-of-life stage scenario shall be documented in the LCA report and in the EPD. The relevant data for this stage includes transportation information for waste products, data related to the disassembly and sorting processes of the products, as well as the corresponding weights of components, materials, combustibles used for energy recovery and landfilled waste. If specific data is not available, generic data may be used; if still unavailable, the use of proxy data is permitted.

4.10 ENVIRONMENTAL PERFORMANCE INDICATORS

See PCR 2024:06.

4.11 SPECIFIC RULES PER EPD TYPE

See PCR 2024:06.

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5 CONTENT OF THE LCA REPORT

See PCR 2024:06.

5.1 LAYOUT OF THE PRESENTATION

See PCR 2024:06.

5.2 DESCRIPTION OF THE LCA MODELLING

See PCR 2024:06.

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6 CONTENT AND FORMAT OF EPD

See PCR 2024:06.

6.1 EPD LANGUAGES

See PCR 2024:06.

6.2 UNITS AND QUANTITIES

See PCR 2024:06.

6.3 USE OF IMAGES IN EPD

See PCR 2024:06.

6.4 SECTIONS OF THE EPD

See PCR 2024:06.

6.4.1 COVER PAGE

See PCR 2024:06.

6.4.2 GENERAL INFORMATION

See PCR 2024:06.

6.4.3 INFORMATION ABOUT EPD OWNER

See PCR 2024:06.

6.4.4 PRODUCT INFORMATION

See PCR 2024:06.

6.4.5 CONTENT DECLARATION

See PCR 2024:06.

6.4.6 LCA INFORMATION

See PCR 2024:06.

6.4.7 ENVIRONMENTAL PERFORMANCE

See PCR 2024:06.

6.4.8 ADDITIONAL ENVIRONMENTAL INFORMATION

See PCR 2024:06.

The following additional environmental information shall be reported in the EPD:

- E_w —Electricity consumption during the operation period of the washing machine, measured in kWh ;

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- E_d —Electricity consumption during the operation period of the drying machine, measured in kWh ;
- N —The annual usage frequency of the products ;
- w —Water consumption during the operation period of the product, measured in kg ;
- Instruction on disassembling, reuse, recycling and disposal of each component.

6.4.9 ADDITIONAL SOCIAL AND ECONOMIC INFORMATION

See PCR 2024:06.

6.4.10 INFORMATION RELATED TO SECTOR EPDS

See PCR 2024:06.

6.4.11 VERSION HISTORY

See PCR 2024:06.

6.4.12 ABBREVIATIONS

See PCR 2024:06.

6.4.13 REFERENCES

See PCR 2024:06.

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7 LIST OF ABBREVIATIONS

In addition to abbreviations listed in PCR 2024:06:

CO ₂	Carbon dioxide
PBBs	Polybrominated Biphenyls
PBDEs	Polybrominated Diphenyl Ethers
VOCs	Volatile Organic Compounds

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CLOTHES OR LINES WASHING MACHINES
PRODUCT GROUP CLASSIFICATION: UN CPC 44812

9 VERSION HISTORY OF C-PCR

VERSION 20XX-YY-ZZ

Original version of the PCR.

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