PROFESSIONAL LAUNDRY AND CLEANING SERVICES OF ITEMS

PRODUCT CATEGORY CLASSIFICATION: UN CPC 853, 971

2020:02
VERSION 1.0 2020-02-27

VALID UNTIL: 2024-02-27

TABLE OF CONTENTS

1 INTRODUCTION

This document constitutes Product Category Rules (PCR) developed in the framework of the International EPD® System: a programme for type III environmental declarations[1] according to ISO 14025:2006. Environmental Product Declarations (EPD) are voluntary documents for a company or organisation to present transparent information about the life cycle environmental impact for their goods or services.

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

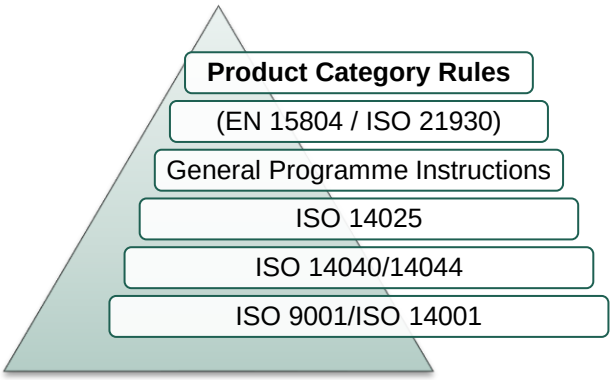

Figure 1 Illustration PCR in relation to the hierarchy of standards and other documents.

Within the present PCR, the following terminology is adopted:

- The term “shall” is used to indicate what is obligatory.
- The term “should” is used to indicate a recommendation, rather than a requirement.
- The term “may” or “can” is used to indicate an option that is permissible

For the definition of terms used in the document, see the normative standards.

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

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

The programme operator maintains the copyright of the document to ensure that it is possible to publish, update when necessary, and available to all organisations to develop and register EPDs. Stakeholders participating in PCR development should be acknowledged in the final document and on the website.

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

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Professional laundry and cleaning services of items
Registration number and version:	2020:02, Version 1.0
Programme:	The International EPD® System
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: info@environdec.com
PCR moderator:	Michela Gallo, Tetis Institute srl, gallo@tetisinstitute.it
PCR Committee:	- CE.Si.S.P. (Centre for the Development of Product Sustainability), www.cesisp.unige.it - TETIS Institute Srl, Spin Off of the University of Genoa, www.tetisinstitute.org - Servizi Italia S.p.A., www.si-servizitalia.com
Date of publication and last revision:	2020-02-27 (Version 1.0) A version history is available in Section 7.
Valid until:	2024-02-27
Schedule for renewal:	A PCR is valid for a pre-determined period of time to ensure that it is updated at regular intervals. When the PCR is about to expire the PCR moderator shall initiate a discussion with the Secretariat how to proceed with updating the document and renewing its validity. A PCR document may be revised during its period of validity provided significant and well-justified proposals for changes or amendments are presented. See www.environdec.com for up-to-date information and the latest version.
Standards conformance:	▪ General Programme Instructions of the International EPD® System, version 3.01, based on ISO 14025 and ISO 14040/14044 ▪ PCR Basic Module, CPC Division 85 Support services, version 3.01, dated 2018-11-06
PCR language(s):	This PCR was developed and is available in English. In case of translated versions, the English version takes precedence in case of any discrepancies.

2.2 SCOPE OF PCR

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of professional laundry and cleaning service. The product category corresponds to a subset of UN CPC 853 “cleaning services” and UN CPC 971 “washing, cleaning and dyeing services”

See http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=25 for additional information about the product category.

The services included in the product category definition are the laundry and cleaning services provided both by private and public sector for sanitary use (hospitals, home care and health residences etc.), industrial and civil activities (factories, schools, jails, etc.) and accommodation (hotels, restaurants, etc.). Main aspects defining a laundry services are:

- **type of cleaning system** used in terms of machinery and equipment used (e.g. washing and ironing machines) and type of process (washing, drying, ironing, sterilizing by using steam, gamma ray, EtO, etc…)
- **type of client** (hospital, accommodation, hotels, factories, restaurants, etc.)
- **type of item**. This PCR covers the following items:
  - textiles such as clothes, linen, workwear (PPE included) (except surgical drapes and gowns)
  - reusable cleanroom garments used in cleanroom areas in pharma, microelectronic and food industries
  - mattresses (standard and antidecubitus) and pillows
  - non-textile items, such as cutlery, dishes, personal protective equipment (PPE), surgical tools, etc.

Life cycle inventory (LCI) shall be created separately per type of item. In the specific data collection, the LCI can cover different types of clients for which the service is provided.

Environmental impact results related to different items shall be calculated and reported separately in the same or different EPDs.

Only environmental impact results of EPDs referring to same types of item can be compared.

This PCR refers to laundry and cleaning services of items. Surfaces and similar are not included in this PCR.

In case of:

- cleaning services for buildings, PCR 2011:03 shall be used;
- cleaning services for passenger trains, PCR 2017:02 shall be used;
- laundry service of sterilized reusable surgical drapes and gowns, PCR 2018:5 shall be used.

The scope of this PCR is to compare laundry and cleaning services to each other. However important issues, such as the level of hygienization and stain-removal are not taken into account in the definition of the functional unit. These issues are of great importance to the overall sustainability of laundry/cleaning services and should therefor always be considered in comparative analyses based on this PCR.

2.2.2 GEOGRAPHICAL REGION

This PCR is applicable to be used globally.

2.2.3 EPD VALIDITY

An EPD based on this PCR shall be valid from its registration and publication at www.environdec.com and for a five year period starting from the date of the verification report (“approval date”), or until the EPD has been de-registered from the International EPD® System.

An EPD shall be updated and re-verified during its validity if changes in technology or other circumstances have led to:

- an increase of 10% or more of any of the indicators listed in Section 5.4.5.1,
- errors in the declared information, or
- significant changes to the declared service information, content declaration, or additional environmental information.

If such changes have occurred, but the EPD is not updated, the EPD owner shall contact the Secretariat to de-register the EPD.

3 PCR REVIEW AND BACKGROUND INFORMATION

This PCR was developed in accordance with the process described in the General Programme Instructions of the International EPD® System, including PCR review and open consultation.

3.1 PCR REVIEW

3.1.1 VERSION 1.0

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com. Members of the Technical Committee were requested to state any potential conflict of interest with the PCR moderator or PCR committee, and were excused from the review.
Chair of the PCR review:	Paola Borla
Review dates:	2019-12-05 until 2020-01-31

3.2 OPEN CONSULTATION

3.2.1 VERSION 1.0

This PCR was available for open consultation from 2019-07-26 until 2019-09-26, during which any stakeholder was able to provide comments by posting on the PCR forum on www.environdec.com or by contacting the PCR moderator.

A total of xxx 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

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this PCR, existing PCRs were considered in order to avoid overlaps in scope. The existence of such documents was checked in the public PCR listings of the following programmes based on ISO 14025 or similar:

- International EPD® System. www.environdec.com.
- PEP ecopassport®. http://www.pep-ecopassport.org/create-a-pep/produce-a-lca/
- Japan Environmental Management Association for Industry (JEMAI). http://www.ecoleaf-jemai.jp/eng/pcr.html
- UL Environment. https://industries.ul.com/environment/transparency/product-category-rules-pcrs#uledev
- The European Commission Product Environmental Footprint (PEF) initiative http://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm#documents

In the International EPD® System PCR 2018:05 “Service of providing washed and sterilized reusable surgical drapes and gowns used for patients and clinical staff” partially overlaps with this document (see §2.2.1 for exclusion).

No other existing PCRs with overlapping scope were identified.

3.4 REASONING FOR DEVELOPMENT OF PCR

The motivation to develop the following PCR is based on the harmonization of calculation and system boundaries for the LCA study regarding the professional laundry and cleaning services and the declaration of this performance with an EPD.

3.5 UNDERLYING STUDIES

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

- Life-Cycle Assessment (LCA) applied to MICRORAPID cleaning system (June 2018)
- Life-cycle Assessment (LCA) applied to cleaning system MARKAS (rev.3 September 2015)
- Studio LCA pulizia Servizi Associati Ottobre 2018
- LCA and CFP report of Servizi Italia, March 2019

4 GOAL AND SCOPE, LIFE CYCLE INVENTORY AND LIFE CYCLE IMPACT ASSESSMENT

The goal of this section is to provide specific rules, requirements and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

4.1 FUNCTIONAL UNIT

The functional unit is 1 kg cleaned item (see Section 2.2.1 for items covered by the PCR). The definition of a cleaned item refers to the contractual agreement between the client and the laundry service supplier: for assuring cleanness, the services can be provided by different activities (washing, ironing, stain removal, sanitising, etc…), but the item is to be considered cleaned when returned to the client.

In the same EPD, the environmental impact shall be given per functional unit, separately per type of item. This means that there can be several functional units in the same EPD.

A description of the function of the service, one for each item typology, shall be included in the EPD®.

Professional laundry and cleaning services are provided for different types of items and different types of clients (as defined in Section 2.2.1). The results could be referred to a representative single client or to an average data source. Regarding the use of average data, the analysis can yield the results related to an “average” of different clients to which the service is provided and considered in the data collection. Then, the average profile can be derived from the average values of all the clients considered, but always separated per type of item.

4.2 REFERENCE SERVICE LIFE (RSL)

Not applicable for this product category.

4.3 SYSTEM BOUNDARY

The International EPD® System uses an approach where all attributional processes from “cradle to grave” should be included using the principle of “limited loss of information at the final product”. This is especially important in the case of business-to-consumer communication.

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

4.3.1 LIFE CYCLE STAGES

For the purpose of different data quality rules and for the presentation of results, the life cycle of products is divided into three different life cycle stages:

- Upstream processes (from cradle-to-gate)
- Core processes (from gate-to-gate)
- Downstream processes (from gate-to-grave)

In the EPD, the environmental performance associated with each of the three life-cycle stages above shall be reported separately. The processes included in the scope of the PCR and belonging to each life cycle stage are described in Sections 4.3.1.1 – 4.3.1.3.

4.3.1.1. Upstream processes

The following attributional processes are part of the service system and classified as upstream processes:

- Extraction and production of raw materials and products (consumables), such as chemicals and packaging (films, boxes, etc.) used in supplying the laundry and cleaning service.
- Extraction of raw materials needed for the production of all the machineries, equipment and any other support (capital goods).

- If property of the EPD owner, the extraction and production of the items replaced in supplying the laundry and cleaning service during the reference period considered in the LCA study (i.e. 1 year).
- Impacts due to the production of electricity and fuels used in the upstream module

Any equipment with an expected lifetime over three years is considered as capital goods, otherwise shall be considered as consumable. Upstream processes 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 upstream processes shall include raw materials needed for the production of all the machineries, equipment and any other support.

Production of machinery/equipment (e.g. washing machine, dishwasher, etc.) and their transport to the site (the laundry and/or the client site) can be included, if relevant and only if specific or selected generic data are available.

4.3.1.2. Core processes

The following attributional processes are part of the service system and classified as core processes. All the following processes related to the service shall be included, even if provided in utilities external to the laundry itself (consortium, external utilities, etc.):

- External transportation to the core processes (such as new packaging and items, chemicals, consumables, etc.);
- Operation of the service: use of the machineries, equipment and any other support involved in the service;
- Maintenance of machinery and equipment more frequent than every three years;
- Travel to and from work by personnel, if relevant (see Section 4.5);
- Transportation of items and their packaging to the laundry sites and from the laundry sites to the clients, if applicable;
- Waste, including the dismantled items, and external and/or internal wastewater treatment, generated in the core processes;
- Electricity production according the proper energy mix hypotheses.

Core Processes 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 technical system shall not include:

- Manufacturing of buildings and structures where the service is supplied
- Research and development activities
- Business travel of personnel

The following further rules apply:

Transportation of items (to and from the client) should consider transported mass of items, the length of the routes and the type of vehicles

Waste products from extraordinary maintenance operations may be excluded.

4.3.1.3. Downstream processes

The following attributional processes are part of the service system and classified as Downstream processes:

- If property of the EPD owner, end of life of packaging at client sites shall be included

In this PCR the gate is the site/sites where the laundry and cleaning service is supplied.

The downstream processes may include qualitative or quantitative information, such as the recycling or handling (end of life) of capital goods (e.g. machineries and equipment). The use of qualitative or quantitative information shall be clearly declared in the EPD.

4.3.2 OTHER BOUNDARY SETTING

4.3.2.1. Boundary towards nature

Boundaries to nature are defined as flows of material and energy resources from nature into the system. Emissions to air, water and soil cross the system boundary when they are emitted from or leaving the product system.

4.3.2.2. Boundaries in the life cycle

See Section 4.3.1. The EPD may present the information divided into additional sub-divisions.

4.3.2.3. Boundaries towards other technical systems

See Section 4.6.2.

4.4 SYSTEM DIAGRAM

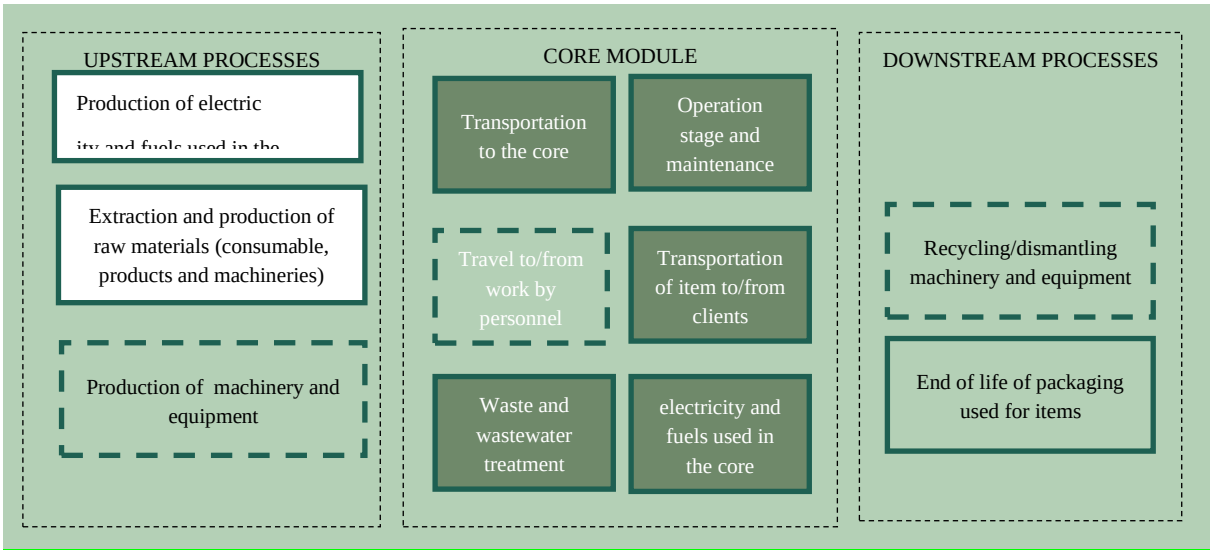

Figure 2 *System diagram illustrating the processes that are included in the service system, divided into upstream, core and downstream processes.* "If a cradle-to-grave scope is not achieved, processes not included shall be declared". *Dashed line processes (- - - - - -) are optional.*

4.5 CUT-OFF RULES

Data for elementary flows to and from the service system contributing to a minimum of 99% of the declared environmental impacts shall be included (not including processes that are explicitly outside the system boundary as described in Section 4.3).

The check for cut-off rules in a satisfactory way is through the combination of expert judgment based on experience of similar service systems and a sensitivity analysis in which it is possible to understand how the un-investigated input or output could affect the final results.

4.6 ALLOCATION RULES

4.6.1 CO-PRODUCT ALLOCATION

Data collection shall be separated per type of item.

The following step-wise procedure shall be applied for multifunctional products and multiproduct processes:

1. Allocation shall be avoided, if possible, by dividing the unit process into two or more sub-processes and collecting the environmental data related to these sub-processes.
2. If allocation cannot be avoided, the inputs and outputs of the system shall be partitioned between its different products or functions in a way that reflects the underlying physical relationships between them; i.e. they should reflect the way in which the inputs and outputs are changed by quantitative changes in the products or functions delivered by the system.
3. If not possible, allocation shall be generally based on mass (for example for waste and wastewater treatment) or on the number of cleaned items. Allocation for energy consumption can be based on the technical features (e.g. power capacity) of the machineries used for laundry service.

Any deviation from these allocation rules must be documented and justified

4.6.2 REUSE, RECYCLING, AND RECOVERY

In the framework of the International EPD® System, the methodological choices for allocation for reuse, recycling and recovery have been set according to the polluter pays principle (PPP). This means that the generator of the waste shall carry the full environmental impact until the point in the product's life cycle at which the waste is transported to a scrapyard or the gate of a waste processing plant (collection site). The subsequent user of the waste shall carry the environmental impact from the processing and refinement of the waste but not the environmental impact caused in the "earlier" life cycles. See General Programme Instruction for further information and examples.

4.7 DATA QUALITY REQUIREMENTS

An LCA calculation requires two different kinds of information:

- data related to the **environmental aspects** of the considered system (such materials or energy flows that enter the production system). These data usually come from the company that is performing the LCA calculation.
- data related to the **life cycle impacts** of the material or energy flows that enter the production system. These data usually come from databases.

Data on environmental aspects shall be as specific as possible and shall be representative of the studied process.

Data on the life cycle of materials or energy inputs are classified into three categories – specific data, selected generic data, and proxy data, defined as follows:

- **specific data** (also referred to as "primary data" or "site-specific data") – data gathered from the actual manufacturing plant where service-specific processes are carried out, and data from other parts of the life cycle traced to the specific service system under study, e.g. materials or electricity provided by a contracted supplier that is able to provide data for the actual delivered services, transportation that takes place based on actual fuel consumption, and related emissions, etc. Specific data shall be gathered from the site/sites where the professional laundry service is carried out. Beside an average profile can also be derived from the average values of more clients to which the service is provided.
- **generic data** (sometimes referred to as "secondary data"), divided into**:**
  - **selected generic data** – data from commonly available data sources (e.g. commercial databases and free databases) that fulfil prescribed data quality characteristics for precision, completeness, and,
  - **proxy data** – data from commonly available data sources (e.g. commercial databases and free databases) that do not fulfil all of the data quality characteristics of "selected generic data".

As a general rule, specific data shall always be used, if available, after performing a data quality assessment. It is mandatory to use specific data for the core processes as defined above. For the upstream processes, downstream processes, and infrastructure, generic data may also be used if specific data are not available.

Any data used should preferably represent average values for a specific reference year. However, the way these data are generated could vary, e.g. over time, and in such cases they should have the form of a representative annual average value for a specified reference period. Such deviations should be declared.

A list of all the clients involved in the data collection, comprehensive of the characteristics of the services (washing, ironing, stain removal, sanitising etc.) involved in data collection, shall be provided in the LCA

Specific data are gathered from the service supplier and from the clients to which the professional laundry service is carried out. Then, the average profile can be derived from the average values of the sites of the supplier and the clients considered.

The average profile shall be created separately per type of item.

A list of all the sites, comprehensive of the characteristics of the services (washing, ironing, stain removal, sanitising etc.) and client(s) involved in data collection shall be provided in the EPD. The declaration must include appropriate considerations regarding representativeness and relevance of the selected sites (i.e. type machinery and equipment used, type of laundry activity) and client(s) for the analysis. Any cherry picking mechanism must be avoided, paying particular attention to energy consumption.

Data collection shall be consistent with the following rules:

- Site/sites specific data shall be used at least for:
  - use of chemicals and materials (consumables) in supplying the laundry and cleaning service,
  - use of the machineries, equipment and any other support involved in the laundry service,
  - waste and wastewater generated in supplying the service,
  - maintenance, and
  - transport of items from/to clients.

4.7.1 RULES FOR USING GENERIC DATA

The attributional LCA approach in the International EPD® System forms the basic prerequisites for selecting generic data. To allow the classification of generic data as “selected generic data”, they shall fulfil selected prescribed characteristics for precision, completeness, and representativeness (temporal, geographical, and technological), such as:

- the reference year must be as current as possible and preferably assessed to be representative for at least the validity period of the EPD,
- the cut-off criteria to be met on the level of the modelled service system are the qualitative coverage of at least 99% of energy, mass, and overall environmental relevance of the flows,
- completeness in which the inventory data set should, in principle, cover all elementary flows that contribute to a relevant degree of the impact categories, and
- the representativeness of the resulting inventory in the given temporal, technological, and geographical reference should, as a general principle, be better than ±5% of the environmental impact of fully representative data.

Section 4.8 provides a list of recommended databases to be used for generic data.

If selected generic data that meets the requirements of the International EPD® System are not available as the necessary input data, proxy data may be used and documented. The environmental impacts associated with proxy data shall not exceed 10% of the overall environmental impact from the service system.

The EPD may include a data quality declaration to demonstrate the share of specific data, selected generic data and proxy data for the environmental impacts.

The EPD shall include a reference to the unit processes/database(s) used to model the energy mix and environmental impact from electricity production in the core process, when used, including a declaration of the energy mixed applied (% of environmental impact from different sources) and its key environmental impact per kWh for transparency to the reader of the EPD.

4.8 RECOMMENDED DATABASES FOR GENERIC DATA

Commercial or publicly available databases that meet the data quality requirements may be used. An incomplete list includes the Ecoinvent and Gabi databases, and the U.S. Life Cycle Inventory Database. Please note that this listing does not imply that other data that fulfil the data quality requirements may not be used and that data quality assessment shall also be performed for the datasets in the recommended database by an LCA practitioner. See also Section 4.7.1.

4.9 IMPACT CATEGORIES AND IMPACT ASSESSMENT

The EPD shall declare the default impact categories as described in the General Programme Instructions. The characterisation models and factors to use for the default impact categories are available on www.environdec.com and shall be updated on a regular basis based on the latest developments in LCA methodology and ensuring the market stability of EPDs. The source and version of the

characterisation models and the factors used shall be reported in the EPD. Alternative regional life cycle impact assessment methods and characterisation factors are allowed to be calculated and displayed in addition to the default list. If so, the EPD shall contain an explanation of the difference between the different sets of indicators, as they may appear to the reader to display duplicate information.

4.10 OTHER CALCULATION RULES AND SCENARIOS

4.10.1 UPSTREAM PROCESSES

The following requirements apply to the upstream processes:

- Data referring to processes and activities upstream in a supply chain over which an organisation 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, as well as infrastructure, where relevant.
- The 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 based on the actual transportation mode, distance from the supplier, 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 the electricity used in the upstream processes, electricity production impacts shall be accounted for in this priority when specific data are used in the upstream processes:

    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]
    2. National residual electricity mix or residual electricity mix on the market
    3. National electricity production mix or electricity mix on the market.

    The mix of electricity used in upstream processes shall be documented in the EPD, where relevant.

4.10.2 CORE PROCESSES

The following requirements apply to the core processes:

- Specific data shall be used for the operation of laundry/cleaning site(s) as well as for on-site generation of steam, heat, electricity, etc., where relevant.
- For the electricity used in the core processes, electricity production impacts 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.[3]
    2. National residual electricity mix or residual electricity mix on the market.
    3. National electricity production mix or electricity mix on the market.

    The mix of electricity used in the core processes, source of data and the emission factor (kg of CO_2/kWh) shall be stated in the EPD. See Section 4.7.1

- Transport (external transportation to the core) from the final delivery point of raw materials, chemicals, main parts, and components (see above regarding upstream processes) to the manufacturing plant/place of service provision should be based on the actual transportation mode, distance from the supplier, and vehicle load, if available.

[2] The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total production mix of the electricity supplier.

[3] The residual electricity mix is the mix when all contract-specific electricity that has been sold to other customers has been subtracted from the total production mix of the electricity supplier.

- Transport of items from/to client should be based on specific data.
- Waste treatment processes of manufacturing waste should be based on specific data, if available.
- Packaging: specific data shall be used for the consumer packaging production if it is under the direct control (item own packed) of the organization or if the environmental impact related to the consumer (the client) 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. This PCR refers to general laundry and cleaning services, it can thus include also services provided to citizens. In this case requirement for data quality of packaging, if any, are not applicable.

4.10.3 DOWNSTREAM PROCESSES

The following requirements apply to the downstream processes:

- 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. Key assumptions regarding the end-of-life stage scenario shall be documented.

5 CONTENT AND FORMAT OF EPD

EPDs based on this PCR shall contain the information described in this section. Flexibility is allowed in the formatting and layout provided that the EPD still includes the prescribed information. A generic template for EPDs is available via www.environdec.com

As a general rule the EPD content:

- shall be in line with the requirements and guidelines in ISO 14020 (Environmental labels and declarations - General principles),
- shall be verifiable, accurate, relevant and not misleading, and
- shall not include rating, judgements or direct comparison with other services.

An EPD should be made with a reasonable number of pages for the intended audience and use.

5.1 EPD LANGUAGES

EPDs should be published in English, but may also be published in additional languages. If the EPD is not available in English, it shall contain an executive summary in English including the main content of the EPD. This summary is part of the EPD and thus subject to the same verification procedure.

5.2 UNITS AND QUANTITIES

The following requirements apply for units and quantities:

- The International System of Units (SI units) shall be used, e.g., kilograms (kg), Joules (J) and metres (m). Reasonable multiples of SI units may be decided in the PCR to improve readability, e.g., grams (g) or megajoules (MJ). The following exceptions apply:
  - Resources used for energy input (primary energy) should be expressed as kilowatt-hours (kWh) or megajoules (MJ), including renewable energy sources, e.g., hydropower, wind power and geothermal power.
  - Water use should be expressed in cubic metres (m^3)
  - Temperature should be expressed in degrees Celsius (°C),
  - Time should be expressed in the units most practical, e.g., seconds, minutes, hours, days or years.
- Three significant figures[4] should be adopted for all results, The number of significant digits shall be appropriate and consistent.
- The thousand separator and decimal mark in the EPD shall follow one of the following styles (a number with six significant figures shown for illustration):
  - SI style (French version): 1 234,56
  - SI style (English version): 1 234.56

  In case of potential confusion or intended use of the EPD in markets where different symbols are used, the EPD shall state what symbols are used for thousand separator and decimal mark.
- Dates and times presented in the EPD should follow the format in ISO 8601. For years, the prescribed format is YYYY-MM-DD, e.g., 2017-03-26 for March 26th, 2017.
- The result tables shall:
  - Only contain values or the letters “INA” (Indicator Not Assessed). It is not possible to specify INA for mandatory indicators. INA shall only be used for voluntary parameters that are not quantified because no data is available.[5]
  - Contain no blank cells, hyphens, less than or greater than signs or letters (except “INA”).

[4] Significant figures are those digits that carry meaning contributing to its precision. For example with two significant digits, the result of 123.45 shall be displayed as 120, and 0.12345 shall be displayed as 0.12. In scientific notation, these two examples would be displayed as $1.2*10^2$ and $1.2*10^{-2}$.

[5] This requirement does not intend to give guidance on what indicators are mandated (“shall”) or voluntary.

- Use the value 0 only for parameters that have been calculated to be zero.
- Footnotes shall be used to explain any limitation to the result value.

5.3 USE OF IMAGES IN EPD

Images used in the EPD, especially pictures featured on the cover page, may in themselves be interpreted as an environmental claim. Images such as trees, mountains, wildlife that are not related to the declared product should therefore be used with caution and in compliance with national legislation and best available practices in the markets in which the EPD is intended to be used.

5.4 EPD REPORTING FORMAT

The reporting format of the EPD shall include the following sections:

- Cover page (see Section 5.4.1)
- Programme information (see Section 5.4.2)
- Service-related information (see Section 5.4.3)
- Content declaration (see Section 5.4.4)
- Environmental performance (see Section 5.4.5)
- Additional environmental information (see Section 5.4.6)
- References (see Section 5.4.9)

The following information shall be included, when applicable:

- Information related to Sector EPDs (see Section 5.4.7)
- Differences versus previous versions (see Section 5.4.8)
- Executive summary in English (see Section 5.4.10)
- The functional unit, the type of item(s) and the type of client(s) shall be stated in the EPD.

5.4.1 COVER PAGE

The cover page shall include:

- Service name and image,
- Name and logotype of EPD owner,
- The text “Environmental Product Declaration” and/or “EPD”
- *Programme: The International EPD® System, www.environdec.com,*
- *Programme operator: EPD International AB*
- Logotype of the International EPD® System,
- EPD registration number as issued by the programme operator[6],
- *Date of publication (issue): 20XX-YY-ZZ,*
- *Date of revision: 20XX-YY-ZZ*, when applicable,
- *Date of validity; 20XX-YY-ZZ*
- A note that “*An EPD should provide current information, and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com*.”

[6] The EPD shall not include a “registration number” if such is provided by the certification body, as this may be confused with the registration number issued by the programme operator.

- A statement of conformity with ISO 14025,

5.4.2 PROGRAMME INFORMATION

The programme information section of the EPD shall include:

- Address of programme operator: *EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden, E-mail: info@environdec.com*
- The following mandatory statement from ISO 14025: "*EPDs within the same service category but from different programmes may not be comparable*."
- A statement that the EPD owner has the sole ownership, liability and responsibility of the EPD
- Information about verification[7] and reference PCR in a table with the following format and contents:

Product category rules (PCR): PCR 2019:xx Professional laundry services, version 1.0 UN CPC 853.
PCR review was conducted by: *The Technical Committee of the International EPD® System. Review chair: Contact via info@environdec.com.*
Independent third-party verification of the declaration and data, according to ISO 14025:2006: ☐ EPD process certification ☐ EPD verification
Third party verifier: *<name, organisation and signature of the third party verifier>* *In case of certification bodies:* Accredited by: *<name of the accreditation body and accreditation number, if applicable>.* *In case of individual verifiers:* Approved by: The International EPD® System Technical Committee, supported by the Secretariat
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☐ No

5.4.3 SERVICE-RELATED INFORMATION

The service-related information section of the EPD shall include:

- Address and contact information to EPD owner.
- Description of the organisation. This may include information on service- or management system-related certifications (e.g. ISO 14024 Type I environmental labels, ISO 9001- and 14001-certificates and EMAS-registrations) and other relevant work the organisation wants to communicate (e.g. SA 8000, supply-chain management and social responsibility).
- Service identification by name, and an unambiguous identification of the service by standards, concessions or other means.
- Identification of the service according to the UN CPC scheme system. Other relevant codes for classification may also be included, e.g.
  - Common Procurement Vocabulary (CPV),
  - United Nations Standard Products and Services Code® (UNSPSC),
  - Classification of Products by Activity (NACE/CPA) or

[7] If the EPD has been verified by an approved individual verifier who has received contractual assistance from a certification body that is not accredited, this certification body shall not be included in this table.

- Australian and New Zealand Standard Industrial Classification (ANZSIC).

- Description of the service, its application/intended use and technical functions.
- Geographical scope of the EPD, i.e., for which geographical location(s) of use and end-of-life the service´s performance has been calculated.
- Functional unit.
- Declaration of the year(s) covered by the data used for the LCA calculation and other relevant reference years.
- Reference to the main database(s) for generic data and LCA software used, if relevant.
- System diagram of the processes included in the LCA, divided into the life cycle stages.
- Information on which life cycle stages are not considered (if any), with a justification of the omission.
- Relevant websites for more information or explanatory materials.
- Type of equipment used, their total power capacity (in KW) and their life time.
- Type of client (restaurant, hospital, school, etc.).
- Description of any type of item considered in the LCI.
- Service identification by name, trade name and service code (if applicable).
- A simple visual representation or image of the service.

This section may also include:

- Name and contact information of organisation carrying out the underlying LCA study.
- Additional information about the underlying LCA-based information, such as assumptions, cut-off rules, data quality and allocation.
- Description of the intended use of the service.
- Specific characteristics improving the usefulness of the service with regard to good environmental performance.
- Manufacturers logotype.
- Other types of relevant information such as specific beneficial from the environmental point of view, percentage recycled material, water and energy saving, etc.

Any claims made about the service must be verifiable.

5.4.4 CONTENT DECLARATION

Not relevant (PCR of service).

5.4.5 ENVIRONMENTAL PERFORMANCE

Environmental impact results related to different types of items shall be reported separately in the same EPD (see Section 2.2.1).

Only environmental impact results referring to same types of item, with identical functional units, can be compared.

5.4.5.1. Environmental impacts

The indicators related to potential environmental impact listed in Table 1 shall be declared per functional unit (possible several, see section 4.1) and per life cycle stage.

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Global warming	Fossil	kg CO_2 eq.				
	Biogenic	kg CO_2 eq.				

potential (GWP)	Land use and land transformation	kg CO_2 eq.				
	TOTAL	kg CO_2 eq.				
Acidification potential (AP)		kg SO_2 eq.				
Eutrophication potential (EP)		kg PO_4^{3-} eq.				
Formation potential of tropospheric ozone (POCP)		kg NMVOC eq.				
Abiotic depletion potential – Elements		kg Sb eq.				
Abiotic depletion potential – Fossil fuels		MJ, net calorific value				
Water scarcity potential		m^3 eq.				

Table 1 Indicators describing potential environmental impacts[8].

Notes:

- Abiotic depletion potential is calculated and displayed as two separate indicators. ADP-fossil fuels include all fossil resources, while ADP-elements include all non-renewable material resources.
- Please check www.environdec.com for the latest list of default impact categories, units and characterisation factors as they may have been updated compared to this table.

5.4.5.2. Use of resources

The indicators for resource use based on the life cycle inventory (LCI) listed in Table 2 shall be declared per functional unit, per type of item and per life cycle stage.

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value				
	Used as raw materials	MJ, net calorific value				
	TOTAL	MJ, net calorific value				
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value				
	Used as raw materials	MJ, net calorific value				
	TOTAL	MJ, net calorific value				
Secondary material		kg				
Renewable secondary fuels		MJ, net calorific value				
Non-renewable secondary fuels		MJ, net calorific value				

[8] Please check www.environdec.com for the latest list of default impact categories, units and characterisation factors as they may have been updated compared to this table.

Net use of fresh water	m^3				

Table 2 Indicators describing use of primary and secondary resources.

Notes:

- In order to identify the primary energy used as an energy carrier (and not used as raw materials), the parameter may be calculated as the difference between the total input of primary energy and the input of energy resources used as raw materials.
- Energy content of biomass used for feed or food purposes shall not be considered.
- The net use of fresh water does not constitute a "water footprint" as potential environmental impacts due to the water use in different geographical locations is not captured. For this indicator:
  - Evaporation, transpiration, product integration, release into different drainage basins or the sea, displacement of water from one water resource type to another water resource type within a drainage basin (e.g. from groundwater to surface water) is included.
  - In-stream water use is not included.
  - For water used in closed loop processes (such as cooling system) and in power generation only the net water consumption (such as reintegration of water losses) should be considered.
  - Seawater shall not be included[9].
  - Tap water or treated water (e.g. from a water treatment plant), or wastewater that is not directly released in the environment (e.g. sent to a wastewater treatment plant) are not elementary water flows, but intermediate flows from a process within the technosphere.
  - Additional transparency in terms of geographical location, type of water resource (e.g. groundwater, surface water), water quality and temporal aspects may be included as additional information.

5.4.5.3. Waste production and output flows

Waste generated along the whole life cycle production chains shall be treated following the technical specifications described in the General Programme Instructions. When the amount of waste or the output flows is from the life cycle inventory (LCI) are declared, the indicators in Table 3 and Table 4 shall be reported per functional unit, per type of item and per life cycle stage.

PARAMETER	UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Hazardous waste disposed	kg				
Non-hazardous waste disposed	kg				
Radioactive waste disposed	kg				

Table 3 Indicators describing waste production.

PARAMETER	UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Components for reuse	kg				
Material for recycling	kg				
Materials for energy recovery	kg				
Exported energy, electricity	MJ				
Exported energy, thermal	MJ				

Table 4 Indicators describing output flows.

[9] It may be relevant to include seawater if it is used to obtain energy from it, or it is the only source of water in a definite site. This may be displayed separately, e.g. as "seawater for desalinization".

Notes:

- The parameters are calculated on the gross amounts leaving the system boundary of the service system in the LCI. If e.g. there is no gross amount of “exported energy, electricity” leaving the system boundary, this indicator is set to zero,
- The parameter “Materials for energy recovery” does not include materials for waste incineration. Waste incineration is a method of waste processing, when R1<60% (European Guideline on R1 energy interpretation), and is allocated within the system boundary.

5.4.5.4. Other environmental indicators

The following indicators per functional unit shall be reported in the EPD, divided into core, upstream and downstream module:

- direct use of toxic substances in the core process, in kg, and
- direct use of electrical energy in the core processes and the emission factor (in kg of CO_{2eq}/kwh) related to the energy mix used.

5.4.6 ADDITIONAL INFORMATION

Information such as the presence of heavy metals and Polycyclic Aromatic Hydrocarbon (PAH), chemical products classified as carcinogenic, toxic to reproduction or causing inheritable damage shall be provided by the organisation. The classification shall be in accordance with the applicable laws where the service is provided (e.g. in Europe regulations regarding the classification and labelling of hazardous chemicals in EU classification system 1999/45/EC, with amendments).

5.4.7 INFORMATION RELATED TO SECTOR EPDS

For sector EPDs, the following information shall also be included:

- a list of the contributing manufacturers that the Sector EPD covers, and
- a statement that the document covers average values for an entire or partial service category (specifying the percentage of representativeness) and, hence, the declared service is an average that is not available for purchase on the market.

5.4.8 DIFFERENCES VERSUS PREVIOUS VERSIONS

For EPDs that have been updated, the following information shall also be included:

- a description of the differences versus previously published versions, e.g. a description of the percentage change in results and the main reason for the change, and
- a revision date on the cover page.

5.4.9 REFERENCES

A list of references shall be included, including references to e.g. the General Programme Instructions of the International EPD® System (including version number); standards used; the name, CPC code and version number of the PCR used; the underlying LCA report; other documents that verify and complement the EPD®; and instruction for recycling, if relevant.

5.4.10 EXECUTIVE SUMMARY IN ENGLISH

For EPDs published in another language than English, an executive summary in English shall be included.

The executive summary should contain relevant summarised information related to the programme, service, environmental performance, additional information, information related to sector EPDs, references and differences versus previous versions.

6 GLOSSARY

CO_2	Carbon dioxide
CPC	Central product classification
EPD	Environmental product declaration
EtO	Ethilene Oxide
ISO	International Organization for Standardization
kg	kilogram
LCA	Life cycle assessment
LCI	Life Cycle Inventory
PCR	Product Category Rules
PPE	Personal Protective Equipment
SI	The International System of Units
SO_2	Sulphur dioxide
UN	United Nations

7 REFERENCES

EPD International (2017) General Programme Instructions for the International EPD® System. Version 3.0, dated 2017-12-11. www.environdec.com

Guidance for Product Category Rule Development (2013), Ingwersen, W., Subramanian, V., editors. Product Category Rule Guidance Development Initiative. Version 1.0. http://www.pcrguidance.org

ISO (2000), ISO 14020:2000, Environmental labels and declarations – General principles

ISO (2004), ISO 8601:2004 Data elements and interchange formats – Information interchange – Representation of dates and times

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 (2013), ISO/TS 14067:2013, Greenhouse gases – Carbon footprint of products – Requirements and guidelines for quantification and communication

ISO (2014), ISO 14046:2014, Environmental management – Water footprint – Principles, requirements and guidelines

Life-Cycle Assessment (LCA) applied to MICRORAPID cleaning system (June 2018). Not public.

Life-cycle Assessment (LCA) applied to cleaning system MARKAS (rev.3 September 2015). Not public.

Studio LCA pulizia Servizi Associati Ottobre 2018. Not Public.

LCA and CFP report of Servizi Italia, March 2019. Not Public.

8 VERSION HISTORY OF PCR

VERSION 1.0, 2020-02-27

Original version of this PCR

PROFESSIONAL LAUNDRY AND CLEANING SERVICES OF ITEMS
PRODUCT CATEGORY CLASSIFICATION: UN CPC 853, 971