PRODUCT CATEGORY RULES (PCR)
DATE 2025-05-05

UNCOOKED PASTA, NOT STUFFED OR OTHERWISE PREPARED

PRODUCT CATEGORY CLASSIFICATION: UN CPC 2371

PCR 2010:01
VERSION 4.0.5

VALID UNTIL: 2026-05-24

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1 INTRODUCTION

This document constitutes Product Category Rules (PCR) developed in the framework of the International EPD® System: a programme for 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.

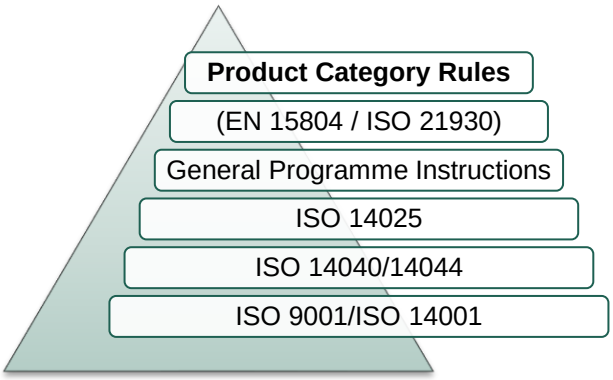

Figure 1 Illustration PCR in relation to the hierarchy of standards and other documents.

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:	Uncooked pasta, not stuffed or otherwise prepared
Registration number and version:	2010:01, version 4.0.5
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:	Martina Bellan, Life Cycle Engineering, bellan@studiolce.it
PCR Committee:	BARILLA & Life Cycle Engineering
Date of publication and last revision:	2025-05-04 (version 4.0.5) Version 1.0 was published 2010-01-18. A version history is available in Section 8.
Valid until:	2026-05-24
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 23 Grain mill products, starches and starch products; other food products, version 3.02
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 Uncooked pasta, not stuffed or otherwise prepared and the declaration of this performance by an EPD. The product category corresponds to UN CPC 2371.

The term “uncooked pasta, not stuffed or otherwise prepared” refers to the category of products made through the extrusion, lamination and drying of a mixture of raw materials and water. The maximum amount of moisture in the final product is 12.50%. Raw materials could include durum wheat semolina, soft wheat flour, legume flour and others that must be specified.

This PCR covers UN CPC 2371 (uncooked pasta, not stuffed or otherwise prepared). The UN CPC structure is as follows:

- Division: 23 - Grain mill products, starches and starch products; other food products
  - Group: 237 - Macaroni, noodles, couscous and similar farinaceous products
    - **Class: 2371 - Uncooked pasta, not stuffed or otherwise prepared**

For additional information on the UN CPC classification hierarchy:
https://unstats.un.org/unsd/classifications/unsdclassifications/cpcv21.pdf

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,
- errors in the declared information, or
- significant changes to the declared product 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 3.0

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:	Maurizio Fieschi
Review dates:	2016-10-14 until 2016-10-28

3.1.2 VERSION 4.0

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:	Filippo Sessa
Review dates:	2020-09-30 until 2020-10-20

3.2 OPEN CONSULTATION

3.2.1 VERSION 1.0

Version 1.0 was available for open consultation 2009-08-11 until 2009-09-20.

3.2.2 VERSION 2.0

Version 2.0 was available for open consultation 2013-04-16 until 2013-05-17.

3.2.3 VERSION 3.0

This PCR was available for open consultation from 2016-05-16 until 2016-07-30, 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 240 stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders. No stakeholders provided comments during the open consultation, and agreed to be listed as contributors to the PCR and at www.environdec.com.

3.2.4 VERSION 4.0

This PCR was available for open consultation from 2020-07-07 until 2020-09-06, 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.

Stakeholders were invited via e-mail or other means to take part in the open consultation, and were encouraged to forward the invitation to other relevant stakeholders. No stakeholders provided comments during the open consultation.

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.
- JEMAI EcoLeaf www.ecoleaf-jemai.jp/
- JEMAI CFP Program www.cfp-japan.jp/english/
- Product Environmental Footprint (PEF) www.ec.europa.eu/environment/eussd/smgp

The following existing PCRs weas been identified:

PCR NAME	PROGRAMME	REGISTRATION NUMBER	SCOPE
Product Environmental Footprint Category Rules for Dry pasta	Product Environmental Footprint (PEF)	n.a.	Dry pasta: Dry pasta is pasta whose humidity content does not generally exceed 13% on dry solids7. Pasta is any kind of shaped product obtained by extruding or forming a dough prepared with durum wheat semolina/flour or whole durum wheat semolina/flour, and water and/or eggs. Other cereal flours can be used; other ingredients (such as vegetables or spices) may be added to the dough.

3.4 REASONING FOR DEVELOPMENT OF PCR

This PCR was developed in order to enable publication of Environmental Product Declarations (EPD) for this product category based on ISO 14025, ISO 14040/14044 and other relevant standards to be used in different applications and target audiences.

This document is also a cross-cutting PCR document developed to ensure that the production of uncooked pasta, not stuffed or otherwise prepared is evaluated with the same methodology in all the PCRs in which uncooked pasta production is an upstream process. All these PCRs should refer to the PCR for Uncooked pasta, not stuffed or otherwise prepared when defining rules and requirements for the processes that are part of the core processes of this PCR.

3.5 UNDERLYING STUDIES

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

- Environmental Product Declarations published by Barilla company
- Barilla Methodological Report of the EPD® Process, latest version

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 DECLARED UNIT

The declared unit shall be defined as 1 kg of product and its packaging (the packaging is not included in the “1 kg”), as presented to the consumer. The reference flow in the Life Cycle Assessment shall be defined at the customer gate, at the shelf or the retailer or at the marketplace.

The declared unit shall be stated in the EPD. The environmental impact shall be given per declared unit. A description of the function of the product should be included in the EPD®, if relevant.

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 product system and classified as upstream processes:

- Agriculture. This includes e.g. air and water emissions and emissions from energy wares used in the agriculture as well as emissions of nitrous gases and fertilizers production if applied. The cradle for the agriculture is soil preparation and cultivation. The appropriate PCRs (arable crops, vegetables, etc.) available at www.environdec.com should be considered for the assessment of this phase.
- Production of plants, seeds or cuttings for the cultivation
- Production of electricity and fuels used in the upstream module
- Production of other ingredients, spices, additives used in the product. The appropriate PCRs (grain mill products, hen eggs, etc.) available at www.environdec.com should be considered for the assessment of this phase.
- Production of auxiliary products used such as detergents for cleaning, etc.
- Manufacturing of primary and secondary packaging

- 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.

4.3.1.2. Core processes

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

- External transportation to the core processes
- Manufacturing of the final product
- Maintenance (e.g. of the machines)
- Waste treatment of waste generated during manufacturing
- Production of electricity and fuels used in the core module
- Manufacturing processes not listed may also be included. The production of the raw materials used for production of all product parts shall be included. A minimum of 99% of the total weight of the declared product including packaging shall be included.

The technical system shall not include:

- Manufacturing of production equipment, buildings and other capital goods
- Business travel of personnel
- Travel to and from work by personnel
- Research and development activities.

4.3.1.3. Downstream processes

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

- Transportation from preparation to an average retailer/distribution platform
- End-of-life processes of any wasted part of the product over the distribution chain
- End-of-life processes of packaging waste over the distribution chain
- Cooking/heating of product, to be reported within the use stage.
- End-of-life processes of any wasted part of the product at consumer home (domestic food losses), to be reported within the use stage
- End-of-life processes of packaging waste at consumer home, to be reported within the use stage

The product utilization by the consumer is highly dependent on the consumer behaviour (in terms of habits, cooking/heating way and geography). For this reason, the environmental performances related to the use stage (cooking, domestic food losses, primary packaging end of life) shall be reported separately.

4.3.2 OTHER BOUNDARY SETTING

4.3.2.1. Boundary towards nature

Boundaries to nature are defined as where flows of material and energy resources leaves nature and enters the technical system, i.e. the part of the environment that is made or modified by humans. Emissions to air, water and soil cross the system boundary when they are emitted from 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

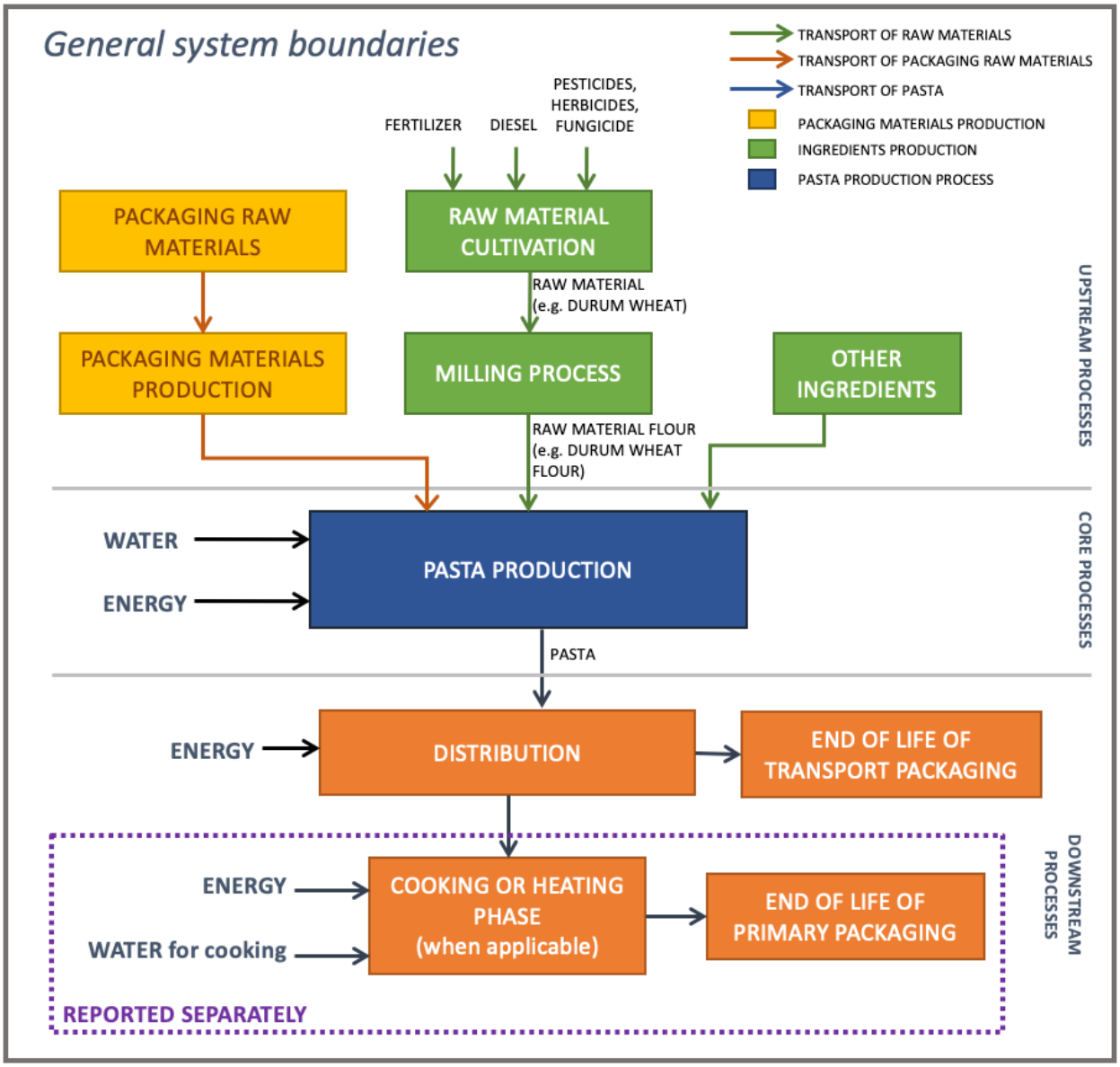

Figure 2 System diagram illustrating the processes that are included in the product system, divided into upstream, core and downstream processes. If any omissions of life cycle stages are made, it shall be clearly indicated in order to make the EPD cover the full cradle-to-grave perspective.

4.5 CUT-OFF RULES

Data for elementary flows to and from the product 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 product 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

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. Where physical relationships alone cannot be established or used as the basis for allocation (or they are too time consuming), Table 1 shall be consulted for key processes. For processes not listed the most suitable allocation procedure shall be used and documented.

PROCESS	MAIN PRODUCT AND CO-PRODUCTS	ALLOCATION INSTRUCTION
Cereals and vegetables cultivation	Grain, straw, vegetables and scrap	Refer to PCR 2013:05 for Arable crops, or PCR for Arable and vegetable crops (which replaces PCR 2013:15) when published
Egg production	Eggs, hens for slaughter and manure from hens	Refer to PCR 2011:15 for Hen eggs in shell, fresh
Milk and cream	Milk, other dairy products	Refer to PCR 2013:17 for Processed liquid milk
Butter, cheese	Dairy products	Refer to PCR 2013:18 for Yogurt, butter and cheese
Milling	Semolina/flour, bran, germ, midding	Refer to PCR 2013:04 for Grain mill products
Pasta production	Pasta products, scraps	Allocation of the environmental burden shall be done by mass allocation
Packaging production	Packaging	Refer to PCR 2019:13 for Packaging

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

Different cuts of pasta (i.e. long and short formats) shall be considered the same product.

Products that are not compliant to the quality requirements and are destined to other chains (such as animal feed or other recycling routes), even if by-products, must be considered as output flows. No environmental impact shall be allocated to these flows.

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 product-specific processes are carried out, and data from other parts of the life cycle traced to the specific product 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.,
- **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.

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 product 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/data sets 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 product 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.

4.8 RECOMMENDED DATABASES FOR GENERIC DATA

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. Table 2 lists suggestions on databases.

PROCESS	GEOGRAPHICAL SCOPE	RECOMMENDED DATASET	DATABASE
Raw materials	Several (including global)	Agrifootprint 5.0, Ecoinvent 3.5 (or later versions)	Agrifootprint 5.0, Ecoinvent 3.5 (or later versions)
Energy	Several (including global)	Ecoinvent 3.5 (or later versions)	Ecoinvent 3.5 (or later versions)
Plastic materials (packaging)	Several (including global)	Industry data/ Plastics Europe, Ecoinvent 3.5 (or later versions)	Industry data/ Plastics Europe, Ecoinvent 3.5 (or later versions)

Table 2 Recommended databases for generic data.

4.9 IMPACT CATEGORIES AND IMPACT ASSESSMENT

The EPD shall declare the default environmental performance indicators and their methods as described at the website (www.environdec.com/indicators), which includes both inventory indicators and indicators of potential environmental impact. In addition, the EPD shall declare a waste indicator reflecting the output flow to animal feed or similar (see Section 5.4.5.3).

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 should be 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.

- Field cultivation of raw materials: since cereals and legumes are the main raw material used in pasta production, field cultivation shall be assessed through data related to the geographical area in which they are cultivated. Should there be several sources of origin, an average field based on the quantity used should be defined. The PCR 2013:05 for arable crops, or

[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.

the PCR for Arable and vegetable crops (which replaces PCR 2013:15) when published, should be considered for the assessment of this p

- Milling process: PCR 2013:04 for Grain mill products should be considered for the assessment of this process.
- 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. The PCR 2019:13 for packaging should be considered for the assessment of this process.
- Other ingredients: if the production of pasta includes ingredients other than flour and water (such as eggs), environmental impacts could be assessed using selected generic data.

4.10.2 CORE PROCESSES

The following requirements apply to the core processes:

- Specific data shall be used for the manufacture of the main product 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 shall be documented in the EPD, where relevant.
- If several production plants are involved in the production chain, an average virtual plant shall be defined by accounting for the annual production (expressed in mass) as the weighting factor.
- Transport 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.
- Waste treatment processes of manufacturing waste should be based on specific data, if available.

4.10.3 DOWNSTREAM PROCESSES

The following requirements apply to the downstream processes:

- The transport of the product to the customer shall be described in the EPD which should reflect the actual situation to the best extent possible. The following priority should be used:
  1. Actual transportation distances and types.
  2. Calculated as the average distance of a product of that product type transported by different means of transport modes.
  3. Calculated by means of default data: 300 km transportation by truck from the distribution centre to the retailer.

  Energy consumption for the refrigeration of trucks shall be considered, if relevant.
- Default loss rates during distribution (due to broken product, not returning to the manufacturer) can be assumed to be 1%; the raw material input quantity in the manufacturing stage shall be increased considering this loss.
- Use stage: The product use is strictly correlated to consumer behaviour, for this reason all related impacts shall be reported separately. Data on the pollutant emissions from the use stage should be based on documented tests, verified studies in

[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.

conjunction with average or typical product use, or recommendations concerning suitable product use. Whenever applicable, test methods shall be internationally recognised.

- Cooking: this process could be assessed using generic and qualitative information, such as indications/suggestions that are provided to consumers. The impacts related to the cooking phase could be estimated considering the following hypotheses[4]:
    - Boiling phase: 0.18 kWh per kg of water;
    - Cooking phase: 0.05 kWh per minute of cooking.
    - Cooking time: consider the cooking indications usually provided by the company on packaging.
    - Salt within the boiling water (if foreseen on the packaging): 10 grams every 100 grams of pasta (in absence of indications provided by the producer)

  The following example could help the interpretation of the rule.

  The cooking of 500 g of pasta requires 5 litres of water and 10 minutes. Energy requirements are:

    - Boiling phase: 0.18 * 5 = 0.90 kWh
    - Cooking phase: 0.05 * 10 = 0.50 kWh
    - Total: 1.40 kWh
- Cold storage: If the product needs a cold storage for preserving its shelf life, the environmental impacts related to this process shall be estimated. For the product conservation in the domestic refrigerator of the final user, the following hypothesis shall be used:
    - Annual energy consumption of the refrigerator (A class[5]): 300 kWh
    - Average annual mass of products stored in refrigerator: 10 kg
    - Estimated consumption of energy per kg of product according to the described hypothesis:

$$\frac{300\ kWh}{365\ days * 10\ kg} = 0.082 \frac{kWh}{day\ kg}$$

  Average permanence of the product in the refrigerator: half of the declared shelf life.

  Any deviation from these rules must be declared in the LCA and in the EPD.
- The use of electricity in the region/country where the product is used (as specified in the geographical scope of the EPD) shall be accounted for in the following priority:
    1. National residual electricity mix or residual mix on the market
    2. National electricity production mix or electricity mix on the market

  The mix of electricity used in the downstream processes shall be documented in the EPD, where relevant.
- Domestic food losses: if no specific data is available (e.g. country based), default pasta loss rates at consumer can be assumed to be 2% (since this is downstream to the declared unit defined at the gate of the retailer, production in upstream shall **not** be increased by 2% to compensate for this loss). The product loss at home is assumed to be 50% trashed (i.e., incinerated and landfilled), 25% composted and 25% methanised.

- 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.
- Recycling declaration and waste treatment: Impacts could be calculated taking into account a typical scenario of the area in which the products are mainly distributed.

[4] Supporting Technical Paper of Double Pyramid 04/09/2015 • Version: 3; www.barillacfn.com

[5] Directive 2010/30/EU of the European Parliament and of the Council of 19 May 2010 on the indication by labelling and standard product information of the consumption of energy and other resources by energy-related products". Europa (web portal). Retrieved 24 April 2011.

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 products.

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[6] 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.[7]
  - Contain no blank cells, hyphens, less than or greater than signs or letters (except “INA”).

[6] 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 $1.2*10^{-2}$.

[7] 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)
- Product 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)

5.4.1 COVER PAGE

- The cover page shall include:
- Product 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[8],
- *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*.”
- A statement of conformity with ISO 14025,

[8] 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.

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 product 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[9] and reference PCR in a table with the following format and contents:

Product category rules (PCR): *<name, registration number, version and UN CPC code(s)>*
PCR review was conducted by: *<name and organisation of the review chair, and information on how to contact the chair through the programme operator>*
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 PRODUCT INFORMATION

The product information section of the EPD shall include:

- Address and contact information to EPD owner,
- Description of the organisation. This may include information on products- 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),
- Name and location of production site,
- Product identification by name, and an unambiguous identification of the product by standards, concessions or other means,
- Identification of the product according to the UN CPC scheme system. Other relevant codes for product 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
  - Australian and New Zealand Standard Industrial Classification (ANZSIC),

[9] 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.

- Description of the product, its application/intended use and technical functions, e.g. expected service life time,
- Geographical scope of the EPD, i.e., for which geographical location(s) of use and end-of-life the product's performance has been calculated,
- Declared unit,
- Reference service life (RSL), if applicable,
- 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,
- Description if the EPD system boundary is "cradle-to-gate", "cradle-to-gate with options" or "cradle-to-grave",
- 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.

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.

5.4.4 CONTENT DECLARATION

The content declaration shall have the form of a list of materials and chemical substances including information on their environmental and hazardous properties. The gross weight of material shall be declared in the EPD at a minimum of 99 % of one unit of product.

Information on the hazardous properties of materials and chemical substances should follow the requirements given in the latest revision of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS)[10], issued by United Nations or national or regional applications of the GHS.

As an example, the following regulations should be used for EPDs intended to be used in the European Union:

- Regulation (EC) No 1907/2006 of the European parliament and of the council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures

5.4.4.1. Information about recycled materials

Not relevant for this product category.

5.4.4.2. Information about packaging

As packaging is strongly connected with the product, the producer shall provide information about packaging in the EPD, when applicable. Packaging may be classified as:

- Distribution Packaging: packaging designed to contain one or more articles or packages, or bulk materials, for the purposes of transport, handling and/or distribution (ISO 21067-1:2016, Par. 2.2.6)
- Consumer Packaging: packaging constituting, with its content, a sales unit for the final user or consumer at the point of retail (ISO 21067-1:2016, Par. 2.2.7).

[10] The GHS document is available on www.unece.org.

Consumer packaging is generally the outcome of eco-design processes, or other activities, under direct control of the organisation. Many critical categories with strict legal requirements belong to consumer packaging category like food contact packaging and pharmaceutical packaging.

The type and function of packaging shall be reported in the EPD.

A statement of the source of the materials (pre-consumer or post-consumer) shall be presented in the EPD when the packaging is made in whole or in part by recycled materials.

5.4.5 ENVIRONMENTAL PERFORMANCE

5.4.5.1. Environmental impacts

The EPD shall declare the environmental impact indicators, per declared unit and per life cycle stage, using the default impact categories, characterisation models and factors available on www.environdec.com/indicators (except that the use stage shall be reported separately, and not be included in the declaration of the downstream or total results). 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.

5.4.5.2. Use of resources

The EPD shall declare the indicators for resource use listed at www.environdec.com/indicators per declared unit, per life-cycle stage and in aggregated form (except that the use stage shall be reported separately, and not be included in the declaration of the downstream or total results).

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 GPI. The EPD shall declare the indicators for waste production and output flows as listed at www.environdec.com/indicators, as well as an indicator for the output flow to animal feed or similar, per declared unit, per life-cycle stage and in aggregated form (except that the use stage shall be reported separately, and not be included in the declaration of the downstream or total results).

5.4.5.4. Other environmental indicators

The following indicators may be reported within the EPD document, if considered relevant for the analysed product.

MARINE WATER EUTROPHICATION

This indicator is measured in kg N eq. and represents the impact related to eutrophication due to nitrogen and phosphorus emissions in water. The method suggested for the indicator calculation is ReCiPe 2016[11].

AQUATIC ECOTOXICITY

This indicator is measured in Comparative Toxic Unit (CTU) and refers to the impact of toxic substances (chemical and physical agents) on aquatic ecosystems. The impact is obtained by three characterisation factors:

- the fate factor, representing the persistence of a chemical in the environment,
- the exposure factor, representing the bioavailability of a chemical (fraction of the chemical dissolved)
- the effect factor, reflecting the change in the potentially affected fraction of species due to change in concentration

[11] ReCiPe 2016 v1.1, A harmonized life cycle impact assessment method at midpoint and enpoint level Report I: Characterization. RIVM Report 2016-0104a, M.A.J. Huijbregts et al.: http://www.rivm.nl/en/Topics/L/Life_Cycle_Assessment_LCA/Downloads/Documents_ReCiPe2017/Report_ReCiPe_Update_2017

The method suggested for the calculation of the indicator is USEtox4 (http://www.usetox.org/).

5.4.6 ADDITIONAL INFORMATION

Under this heading information that is not part of the LCA but identified as important environmental aspects of the product or information asked for by customers and other stakeholders, may be declared. Any literature reference or methodology used to acquire and describe additional environmental information shall be openly accessible and made available to the verifier. The following issues may be addressed, if relevant and applicable:

Environmental improvement made at farm level or other parts of the production chain (e.g. some progresses made at the plant level to decrease environmental burdens).

If there are any particular environmentally relevant features of primary packaging (such as it is made from recycled material and/or renewable content), they can be stated as additional information. Moreover recommendations for the responsible and correct recycling of packaging materials could be addressed. The potential environmental impacts and benefits of recycling of primary packaging may be illustrated qualitatively.

Relevant Type I environmental labels awarded to the product;

Information about the use stage (e.g. cooking or heating) shall be included, such as time and typology.

- The ecological footprint may be included as additional information. It is to be expressed as “global m2” (square meter) per declared unit, including the following details: cropland, energy-land and forestland. Other land typologies (built-up, grazing and fishing) shall be not considered. Further information about the calculation procedure is available in Annex 1.

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,
- a description of how the selection of the sites/products has been done and how the average has been determined, and
- a statement that the document covers average values for an entire or partial product category (specifying the percentage of representativeness) and, hence, the declared product 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;
- a revision date on the cover page

5.4.9 REFERENCES

A reference section shall include a list of references, including for example references to:

- underlying LCA studies,
- the name, CPC code and version number of the used PCR,
- the General Programme Instructions of the International EPD® System, including version number,
- other documents that verify and complement the EPD,
- instruction for recycling, if relevant, and
- the source and version of the characterisation models and the factors used shall be reported in the EPD.

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, product, environmental performance, additional information, information related to sector EPDs, references and differences versus previous versions.

6 GLOSSARY

°C	degree Celsius
CEN	European Committee for Standardisation
CO_2	Carbon dioxide
CPC	Central product classification
EPD	Environmental product declaration
g	grams
GHG	Greenhouse gases
GWP	Global Warming Potential
INA	Indicator Not Assessed
ISO	International Organization for Standardization
J	Joule
kg	kilogram
kWh	kilowatt hour
LCA	Life cycle assessment
LCI	Life cycle inventory
m	metres
m^2	square metres
m^3	cubic metres
MJ	Megajoule
PCR	Product Category Rules
SI	The International System of Units
SO_2	Sulphur dioxide
UN	United Nations
WSF	Water Scarcity Footprint

7 REFERENCES

BP X30-323-0. General principles for an environmental communication on mass market products (AFNOR, 2011)

CEN (2013), EN 15804:2012+A1:2013, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

EPD International (2019) General Programme Instructions for the International EPD® System. Version 3.01, dated 2019-09-18. www.environdec.com

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

ISO (2017), ISO 21930:2017, Sustainability in buildings and civil engineering works -- Core rules for environmental product declarations of construction products and services

IPCC, 2006. Guidelines for National Greenhouse Gas Inventories

PAS 2050:2011. Specification for the assessment of the life cycle greenhouse gas emissions of goods and services (BSI, 2011).

Product Environmental Footprint Category Rules for Dry pasta

8 VERSION HISTORY OF PCR

VERSION 1.0, 2010-01-18

Original version published.

VERSION 2.0, 2013-07-22

Sustainability indicators added

Compliance with General Programme Instructions 2.0

Correct PCR template used

VERSION 2.01, 2015-01-27

Editorial changes by the Secretariat, e.g. update of the General introduction and added information in the General Information.

VERSION 3.0, 2016-10-31

Compliance with to the General Programme Instructions, Version 2.5.

Major editorial changes and use of updated PCR BASIC MODULE template

Non-environmental sustainability indicators (covering economic and social issues) have been removed due to lack of interest among involved stakeholders. None of the EDPs published so far referred to these indicators.

VERSION 3.1, 2019-04-04

Updated in accordance with GPI 3.0 and new PCR basic module, including PCR format, EPD validity, EPD contents, etc.

Indicator for virtual water content deleted

Allocation further specified

VERSION 3.11, 2019-09-06

Clarified terms of use

Editorial changes

VERSION 4.0, 2020-11-24

Compliance with to the General Programme Instructions, Version 3.01

Indicator POCP substituted with POFP

Output flow to animal feed included as output flow

Legume flour included as possible raw material

Editorial changes

VERSION 4.01, 2021-09-20

- Change of PCR Moderator

VERSION 4.0.2, 2022-04-13

- Editorial changes in Sections 5.4.5.1 to 5.4.5.3, to clarify the indicator list at www.environdec.com applies also for the indicators of resource use, waste production and other output flows.

VERSION 4.0.3, 2022-12-21

- Added a mandatory indicator for output flows to animal feed or similar. This was a mandatory indicator in version 4.01 of the PCR and was mistakenly removed in version 4.0.2.

VERSION 4.0.4, 2024-06-24

- The validity period of the PCR was extended by 6 months, until 2025-05-24, due to the new PCR development for food and beverage products.
- Editorial changes

VERSION 4.0.5, 2025-05-05

- The validity period of the PCR was extended by 12 months, until 2026-05-24, due to the delay of the PCR development for food and beverage products.

ANNEX 1 – ECOLOGICAL FOOTPRINT

The "Ecological Footprint" (EF) is a measure of the quantity of biologically productive land and water any individual, population or activity requires to produce all the resources it consumes and to absorb the waste it generates using prevailing technology and resource management practices.

The *Global Footprint Network*[12] has developed the "**Ecological Footprint Accounting**" (EFA)[13] method. It is usually measured in global hectares (gha): by conversions and equivalence factors for different land use (*Energy up take land, Crop land, Grazing land, Forest, Built-up land, Fishing ground*) translated into a single unit.

Therefore, the life cycle assessment of the product could be integrated with a calculation of the ecological footprint that was based on the same system boundaries considered for the LCA. In order to have an EF estimation aligned to LCA results as much as possible, the environmental aspects used for the EF calculation must originate from the same sources used for the LCA inventory.

While LCA data usually refers to a physical unit (such as mass of products), the EF indicator refers to a specific period. In other words, the EF indicates the quantity of land used for one year (the one considered for the raw material modelling) by the system under analysis.

Total EF is calculated as the sum of the single EFi contributors (of every raw material), using the following formula:

$$EF_{tot} = \sum EF_i$$

Therefore, the formula of the Ecological Footprint of every ingredient becomes:

$$EF_i = P_i * \frac{1}{Yn_i} * YF_i * EQF_i$$

Where

Pi is the amount of a raw material harvested or waste emitted to fulfil the declared unit,

Yni is the national average yield for Pi,

YFi is the yield factor for the country and land in question. This factor represents the ratio of national-to world-average yields. It is calculated as the annual availability of usable products and varies by country and year. Yield factors account for differences in productivity of a given land use type between a country and the global average in this area type. A hectare of grazing land in New Zealand, for example, produces more grass on average than a world average grazing land hectare. Inversely, a hectare of grazing land in Jordan produces less. Hence, the New Zealand hectare is potentially capable of supporting more meat production than the global average hectare of grazing land. These differences are driven by natural factors, such as precipitation or soil quality, as well as by management practices. To account for these differences, the yield factor compares the production of a specific land use type in a country to a world average hectare of the same land use type. Each country and each year has its own set of yield factors. Yield factors are available, upon request, through the Global Footprint Network[14].

EQFi is the equivalence factor for the land use type in question. It translates the area supplied or demanded of a specific land use type (e.g. world average cropland, grazing land, etc.) into units of world average biologically

Table A1.1. Equivalence Factors used for the calculation – Source: Global Footprint Network[14]

Component	Unit	Equivalence factor
Carbon up take land (energy land)	gha/ha	1.26
Cropland	gha/ha	2.51
Grazing Land	gha/ha	0.46

[12] www.footprintnetwork.org

[13] Methodology available at: https://www.footprintnetwork.org/content/images/uploads/Ecological_Footprint_Atlas_2010.pdf, and Borucke, 2013 et al http://ise.usj.edu.mo/wp-content/uploads/2019/03/Borucke_et_al_2013.pdf

[14] Free public data set: https://www.footprintnetwork.org/licenses/public-data-package-free/

Forest	gha/ha	1.26
Built-up land	gha/ha	2.51
Fishing Ground	gha/ha	0.37

Please note that for the fruit juice system grazing land and fishing ground are not applicable. Built-up land could be negligible.

Forest must be considered for the production of primary and secondary packaging from virgin wood.

In details, for each kind of land, the following hypotheses have been considered.

A1.1 CARBON UPTAKE LAND (ENERGY LAND)

Carbon uptake land represents the land needed to sequestrate the CO_2 (not CO_2 equivalent) generated by the system. The methodology does not take into account the emissions of other greenhouse gases because only CO_2 undergoes a natural process of forest sequestration.

These figures shall be calculated by multiplying the specific CO_2 emissions related to each environmental aspect of the considered system by the EF conversion factors, which is .,208 global hectares (per year) per t of CO_2, by the energy land equivalence factor.

A1.2 CROP LAND

This component shall be calculated by multiplying the inverses of specific yields considered for the cultivation of ingredients by the EF equivalence factor of cropland. Source of this information could be the FAOSTAT web site (http://faostat.fao.org/).

A1.3 FOREST LAND

The forestland refers to the wood used for the production of primary cardboard for packaging. The calculation must account for the forest conversion factor multiplied by the forest equivalence factor.

UNCOOKED PASTA, NOT STUFFED OR OTHERWISE PREPARED
PRODUCT CATEGORY CLASSIFICATION: UN CPC 2371