SHOWER ENCLOSURES

PRODUCT CATEGORY CLASSIFICATION: UN CPC 37117

2017:03
VERSION 1.11

VALID UNTIL: 2021-06-16

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.

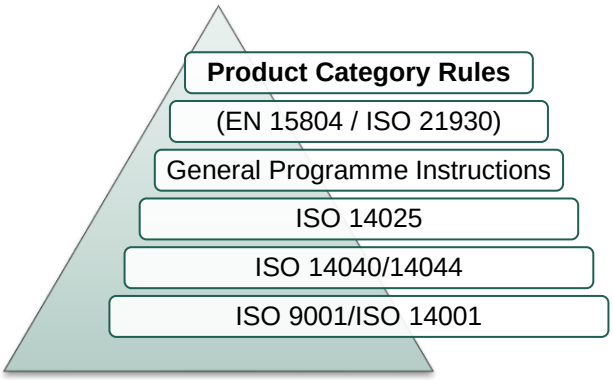

Figure 1 Illustration PCR in relation to the hierarchy of standards and other documents.

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:	Shower enclosures
Registration number and version:	2017:03, version 1.11
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:	*Currently no appointed PCR moderator*
PCR Committee:	Michele Paleari, independent LCA analyst, Assobagno - FederlegnoArredo
Date of publication and last revision:	2019-09-06 (Version 1.11)
Valid until:	2021-06-16
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 3.0, based on ISO 14025 and ISO 14040/14044 ▪ PCR Basic Module, CPC Division 37 Glass and glass products and other non-metallic products n.e.c., version 3.01, dated 2018-11-06 ▪ PCR for Construction Products and construction services, 2012:01, version 2.01
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 *Shower enclosures* and the declaration of this performance by an EPD. The product category corresponds to UN CPC 37117..

Shower enclosures are defined in the harmonized standard EN 14428 “Shower enclosures. Functional requirements and test methods” as the “arrangement of one or more panels and/or one or more doors, installed on or around a shower compartment with drainage, a shower tray or a bath, in combination with one or more walls of the structure of the main building, to provide an area of

water retention for the purposes of the shower". The product included in the product group is the shower enclosure composed by 1 to 4 sides with steel or aluminium profiles and glass or plastics transparent panels. The shower enclosure is intended as a complete system able to prevent the water leak outside the shower area. All the elements of the shower enclosure are included in the assessment; therefore panels, profiles, doors, handles and hinges shall be considered. Products not providing the purpose of water tightness, such as products for "wet environment", do not fall in the scope of this document. The products named as "walk-in" and "shower screen" are included.

The International EPD® System uses the UN CPC classification for its PCRs. The product group corresponds to two sub-sets of UN CPC 37117 *Paving blocks, bricks, tiles and other articles of pressed or moulded glass, of a kind used for building or construction purposes; leaded lights and the like; multicellular or foam glass in blocks, plates or similar forms* and UN CPC 36950 *Builders' ware of plastics n.e.c.*

- Section: 3 – Other transportable goods, except metal products, machinery and equipment;
  - Division: 37 – Glass and glass products and other non-metallic products n.e.c.;
    - Group: 371 – Glass and glass products;
      - Class: 3711 – Unworked glass, flat glass and pressed or moulded glass for construction; glass mirrors;
        - **Subclass: 37117 – Paving blocks, bricks, tiles and other articles of pressed or moulded glass, of a kind used for building or construction purposes; leaded lights and the like; multicellular or foam glass in blocks, plates or similar forms.**
- Section: 3 – Other transportable goods, except metal products, machinery and equipment;
  - Division: 36 – Rubber and plastics products;
    - Group: 369 – Other plastics products;
      - **Class: 36950 – Builders' ware of plastics n.e.c.**

The UN CPC 37117 and UN CPC 36950 are included in the UN CPC classification cited by the PCR for construction products and construction services (2012:01 Version 2.01), developed according to the European standard EN 15804:2012+A1:2013.

More information: http://unstats.un.org/unsd/cr/registry/regcs.asp?Cl=25&Lg=1&Co=37117

Only shower enclosures with glass or plastics panels are included in the scope.

The following products different from shower enclosures are out of the PCR scope:

- shower tray;
- shower curtains of plastic and/or textile materials;
- all the systems not able to guarantee the complete water retention, such as screens for wet environment;
- faucets and fittings.

2.2.2 GEOGRAPHICAL REGION

This PCR is applicable to be used globally.

The shower enclosures sold in the European Countries and compliant with the definition of "shower enclosure" of the standard EN 14428 are included in this PCR. On the contrary, the characteristics of the shower enclosures sold outside Europe are defined by the market because a standard with global validity does not exist. In any case, the principles set in point 1.2.1 are worldwide valid.

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 5.4.9.1,

- 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 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:	Barbara Nebel
Review dates:	2017-02-15 until 2017-04-25

3.2 OPEN CONSULTATION

3.2.1 VERSION 1.0

This PCR was available for open consultation from 2017-02-15 until 2017-04-25, 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 17 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.
- Institut Bauen und Umwelt e.V.,
- the PCR Library managed by the Japanese Environmental Association for Industry (JEMAI)
- the Environmental and Development Foundation (EDF) of Taiwan,
- The UK Carbon Trust..

No PCR about shower enclosures is available in the programmes mentioned above.

3.4 REASONING FOR DEVELOPMENT OF PCR

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

3.5 UNDERLYING STUDIES

No specific LCA study has been used to develop this PCR. The methodological choices are in compliance with the international standards about LCA and EPD. The technical aspects related to shower enclosures are in compliance with the EN 14428.

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/DECLARED UNIT

The declared of functional unit provides a reference by means of which the material flows of the information module of a construction product are normalized (in a mathematical sense) to produce data, expressed on a common basis.

The EPD shall either be based on a declared unit or a functional unit. In the case that a functional unit is used, conversion factors shall be included in the EPD so that environmental performance on A1-A3 may be recalculated to a declared unit supporting the modularity of the EDP as data provider for any construction works.

The declared unit is 1 m^2 of the surface of the shower enclosure packed at the gate of the producer, including all its components to ensure its perfect operation and the complete water retention. The full packaging of the product shall be included in the functional unit. The reference flow shall be defined at the customer gate, at the shelf of the retailer or at the market place.

The functional unit shall be stated and explained 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® and information shall also be provided in the EPD on how to convert the functional unit to the declared unit.

4.2 REFERENCE SERVICE LIFE (RSL)

See sections 5.4.5 and 5.4.7.

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. In the European standard EN 15804, a different nomenclature is used based on “information modules” A1-C4 and D.

The general system boundary for a construction product or service is defined by its intended use. The following scopes of the LCA for shower enclosures are available using this document as a PCR:

- a “cradle-to-gate” EPD: Modules A1 to A3;
- a “cradle-to-gate with options” EPD: Modules A1 to A3 plus other selected optional modules, e.g. end-of-life information modules C1 to C4;
- a “cradle-to-grave” EPD: all Modules A to C including scenarios for handling the usage and end of life stage in order to meet comparability within the specific application of the product group

In some cases certain modules may not be relevant to the environmental performance of the product. In such cases the irrelevant module shall be declared as “not relevant”. Such a declaration shall not be regarded as an indicator result of zero.

		Comparability basis:	Within the product group	Performance in a construction application
Life cycle stages in the International EPD® System	**Asset life cycle stages (EN 15804)**	**Information module (EN 15804)**	**EPD type**	
			Declared unit: Cradle-Gate, Cradle-Gate with options	**Functional unit: Cradle-Grave**
Upstream	A1) Raw material supply	A1-A3) Product stage	Mandatory	Mandatory
Core	A2) Transport			
	A3) Manufacturing			
Downstream	A4) Transport	A4-A5) Construction process stage	Optional	Mandatory
	A5) Construction installation			
	B1) Use	B1-B5) Use stage	Optional	Mandatory
	B2) Maintenance			
	B3) Repair			
	B4) Replacement			
	B5) Refurbishment			
	B6) Operational energy use			
	B7) Operational water use;			
	C1) Deconstruction, demolition	C1-C4) End of life stage	Optional	Mandatory
	C2) Transport			
	C3) Waste processing			
	C4) Disposal			
Other environmental information	D) Future, reuse, recycling or energy recovery potentials	D) Recovery stage*	Optional	Optional
Inclusion of reference service life (RSL)	—	—	Mandatory if any module in B is included	Mandatory

Table 1 The life cycle of a building product divided in three process modules according to the General Program Instructions and four information modules according to ISO 21930 and EN 15804 and supplemented by an optional information module on potential loads and benefits beyond the building life cycle.

4.3.1.1. Upstream processes

The following attributional processes are part of the product system and classified as upstream processes: *(CPC 37)*

A1 – Raw material supply:

- Extraction and processing of glass and plastics till the production of shower panels;
- Extraction and processing of aluminium and steel till the production of shower profiles; the processes of chromium plating, anodizing, brushing, polishing and painting are included; about steel profiles, the processes of laser and shears cutting are included;

- Extraction and processing of aluminium, steel, ZAMa and brass till the production of hinge parts, handles and screws;
- Extraction and processing of the auxiliary materials for surfaces treatments;
- Extraction and processing of the secondary constituent materials till the production of details;
- Extraction and processing of the packaging materials both for the semi-finished products and for shower enclosures (primary and secondary packaging);
- Transportation of raw materials and semi-finished products in the upstream stage;
- Recycling process of recycling materials used in the production of semi-finished elements, if relevant; those processes that are part of the waste processing in the previous product system are excluded, referring to the polluter pays principle;
- Generation of electricity, steam and heat from primary energy resources, also including their extraction, refining and transport; this also includes energy needed for raw material supply and energy for manufacturing in core process;
- Energy recovery and other recovery processes from secondary fuels, but not including those processes that are part of waste processing in the previous product system.
- Processing up to the end-of-waste state or disposal of final residues including any packaging not leaving the factory gate with the product.

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:

A2 – Transportation:

- Transportation of raw materials and semi-finished products to the core process;
- Transportation of semi-finished products within the core process.

A3 – Manufacturing:

- Panels transformation: cutting, grinding, drilling, serigraphy, tempering, surface treatments, other transformations; some of these processes may be carried out by subcontractors: they shall be evaluated and reported separately;
- Aluminium profiles transformation: extrusion, cutting, punching, rolling, painting, other transformations; some of these processes may be carried out by subcontractors: they shall be evaluated and reported separately;
- Steel profiles transformation: folding, punching, welding, polish, other transformations; some of these processes may be carried out by subcontractors: they shall be evaluated and reported separately;
- Transformation of hinges, screws and secondary materials, if inside the core process;
- Assembly;
- Packaging;
- Storing;
- Maintenance of plants and machines;
- Treatment of waste generated during manufacturing, up to the end-of-waste state or final disposal, including any packaging not leaving the factory gate with the product;
- Impacts due to the production of electricity and fuels used in the core module.

Please note that this is a general description and that not all processes are relevant for every type of product included in this PCR. Manufacturing processes not listed may also be included. However, 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.

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 the elements beyond the system boundaries.

4.3.1.3. Downstream processes

The following processes are part of the product system and classified as downstream processes. They include the transport and may include the usage and end of life.

A4 – Transportation:

- Transportation from final manufacturer to an average retailer/distribution platform;
- Transportation from an average retailer/distribution platform to an average construction site;
- Storage of the product.

A5 – Construction:

- Installation of the product, including the production and transportation of the ancillary materials, energy and water required for installation;
- Transportation and waste processing of the waste generated from the construction site, up to the end-of-waste state or the final disposal.

The usage stage (B) is optional and it may include:

- B1 – Use;
- B2 – Maintenance;
- B3 – Repair;
- B4 – Replacement;
- B5 – Refurbishment;
- B6 – Energy use for cleaning;
- B7 – Water use for cleaning.

C1 – Deconstruction:

- Disinstallation of the product;
- Waste materials collection and separation.

C2 – Transportation:

- Transportation of the discarded product accounts for part of the waste processing, e.g. to a recycling site and transportation of waste e.g. to final sorting yard or disposal.

C3 – Waste processing:

- Waste processing includes collection of waste fractions from the deconstruction and waste processing of material flows intended for reuse, recycling and energy recovery. Materials for recycling or energy recovery processing shall be modelled as the elementary technosphere flows in the inventory and reported in the EPD. Materials for energy recovery are identified based on the efficiency of energy recovery with a rate higher than 60% without prejudice to existing legislation. Materials from which energy is recovered with an efficiency rate below 60% are not considered materials for energy recovery (but incineration). This definition means that every so called waste that is used as fuel in a combustion process higher than 60% has to be accounted for the downstream user, i.e. the electricity or heat from a co-generation plant etc. This follow the polluter pays principle.

C4 – Disposal:

- Waste disposal includes physical pre-treatment and management of the disposal site. Emission from waste disposal are considered part of the product system under study and therefore part of this module, according to the “polluter pays principle”.

The generally applied “polluter pays principle” means that processes of waste processing shall be assigned to the product system that generates the waste until a new user pays for it as a raw material.

4.3.1.4. Other environmental information

As one option for other environmental information it is possible to report on recyclability potentials.

D – Future reuse, recycling or energy recovery potentials. The information in “Module D” may contain technical information as well as LCA result from post-consumer recycling, i.e. environmental benefits or loads resulting from reusable products, recyclable materials and/or useful energy carriers leaving a product system e.g. as secondary materials or fuels. Avoided impacts from co-products from module A to C shall not be included in Module D.

4.3.2 OTHER BOUNDARY SETTING

4.3.2.1. Boundary towards nature

System boundaries to and from nature are jointly described by so-called elementary flows. The inclusion of resource flows from nature to the technosphere corresponds to resource use and, on the output side emissions, to resources consumption. In an ideal LCA, all studied flows shall be traceable to a natural recipient. A flow that cannot be traced back to a natural recipient is regulated by data quality requirements, reported in section 4.7. Waste to landfill are modelled to achieve elementary flows in a 100 year time perspective.

4.3.2.2. Geographical boundaries

The data for the core module shall be representative for the actual production processes and representative for the site/region where the respective process is taking place.

4.3.2.3. Time boundaries

The data for the core module shall be based on data that represent the current situation.

4.3.2.4. System boundaries for manufacturing of equipment and for employees

The following system boundaries are applied on manufacturing equipment and employees and the following elements are not accounted for in the LCI:

- Environmental impact from infrastructure, buildings, production equipment, tools and other capital goods that are not directly consumed in the production process;
- Personnel-related impacts, such as transportation to and from work and business travel;
- Research and development activities;
- Manufacturing of plants and equipment for the waste treatment;
- Emissions from the dismantling of the plant and site services are considered optional, since they are difficult to assess and due to the vast majority of the emissions from dismantling process are associated to capital goods which are not assessed in normal operation processes. Nevertheless, if the manufacturer believes that these emissions maybe relevant, they can be included in the LCA with a specific remark on this issue.

The system boundaries on manufacturing of equipment and for employees are not regarded as limiting the scope of the inventory or as an incomplete inventory (i.e. a cut-off).

4.3.2.5. Boundaries in the life cycle

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

4.3.2.6. Boundaries towards other technical systems

See Section 4.6.2.

4.4 SYSTEM DIAGRAM

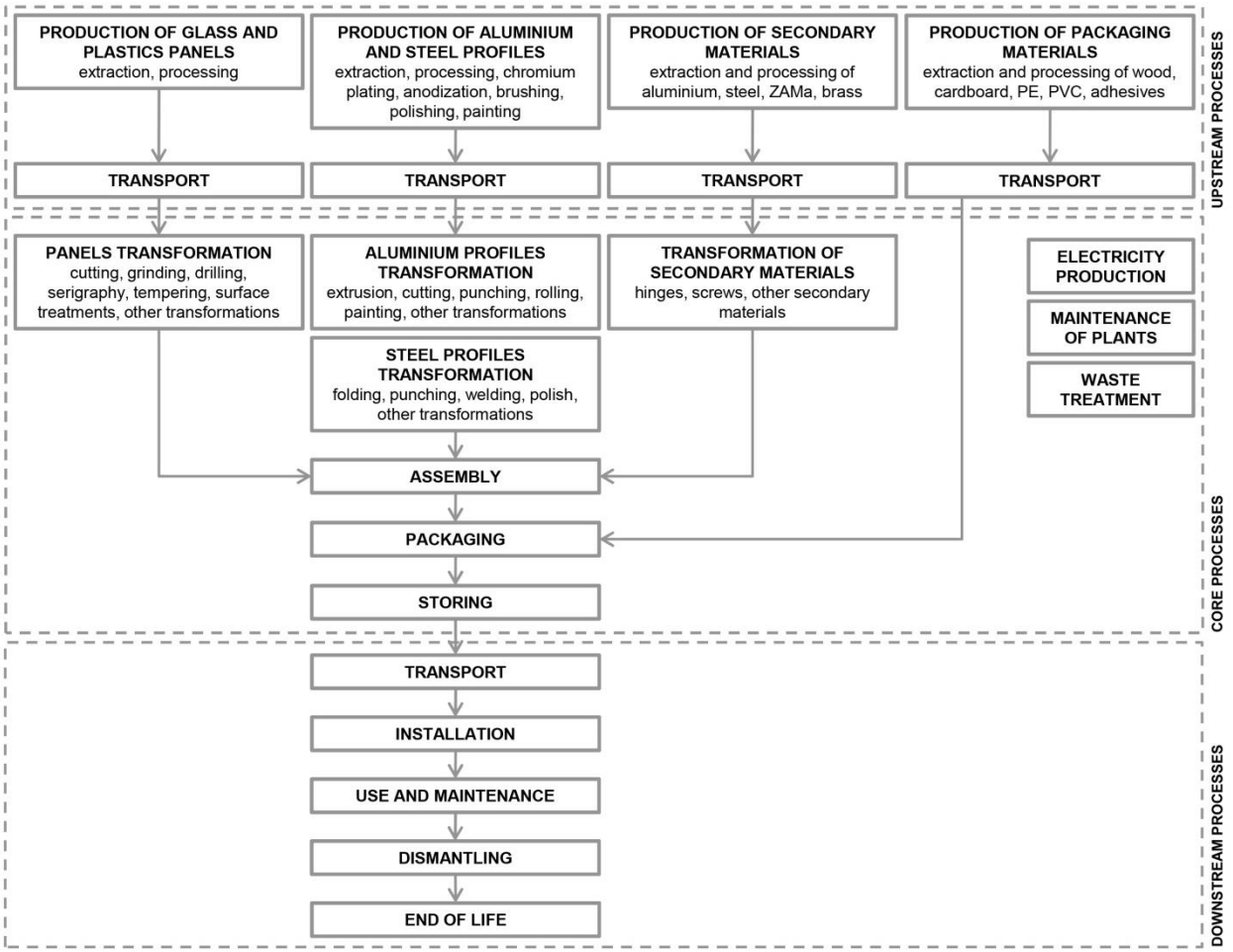

Figure 2 *System diagram illustrating the processes that are included in the product system, divided into upstream, core and downstream processes. It should be indicated if any omissions of life cycle stages are made in order to make the EPD® cover the full cradle-to-grave perspective.*

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).

Inflows not included in the LCA shall be documented in the EPD. Data gap with an assumed potential importance in the included modules shall be reported in the EPD including an evaluation of its significance.

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. According to the characteristics of a common shower enclosure, no allocation problems are foreseen in the product systems. Nevertheless, if multifunctional products and multiproduct processes are identified, the allocation problems shall be preferably solved by physical allocation. If this option is no possible, the economic values can be used, according to the selling prices of the products, set by the manufacturer; in this case, a sensitivity analysis has to be performed in the LCA report.

4.6.2 REUSE, RECYCLING, AND RECOVERY

Allocation of recycled material, also known as open loop recycling, is reported in the inventory as an input or output technosphere flow when such materials leave or enter the specific product system. Therefore, a system boundary between the product's systems in a material recycling cascade has to be defined between individual sub-processes.

When a product is discarded and its original function is lost, it can be processed further in a waste management system. Those parts of the initial product system that are utilised in a new product will be accounted for as material recycling in the LCI (as a flow to technosphere). The secondary user of recycled material will account for the use of recycled material (as a flow from technosphere).

The exact boundary settings between the first and the next product systems are defined by the willingness to pay for the recycled material. This implies that from the moment the user of a secondary material pays for the material, this (secondary) product system will also be responsible for the environmental burden from that point on. This principle is referred to in the International EPD® System as the polluter pays (PP) allocation method.

Consequently, if there is an inflow of recycled material to the production system, the recycling process and the transportation from the recycling process to where the material is used shall be included. If there is an outflow of material to recycling, the transportation of the material to a sorting facility/recycling process shall be included. The material intended for recycling is then an outflow from the production system.

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 shall be as current as possible. Data sets used for calculations shall have been updated within the last 10 years for generic data and within the last 5 years for producer specific data. Data sets shall be based on 1 year averaged data; deviations shall be justified.

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.
- representativeness of the geographical area should adhere to "Data deriving from areas with the same legislative framework and the same energy mix";
- technological equivalence adhere to "Data deriving from the same chemical and physical processes or at least the same technology coverage (nature of the technology mix, e.g. weighted average of the actual process mix, best available technology or worst operating unit)";
- boundaries towards nature adhere to "Data shall report all the quantitative information (resources, solid, liquid, gaseous emissions; etc.) necessary for the EPD";
- boundaries towards technical systems adhere to "The boundaries of the considered life cycle stage shall be equivalent".

Section **Error! Reference source not found.** 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.

Modules	**A1-A3**		**A4 and A5**	**B1-B7**	**C1-C4**
	Production of commodities, raw materials	Product manufacture	Installation processes	Use processes	End-of-life processes
Process type	Upstream processes	Processes the manufacturer has influence over	Downstream processes		
Data type	Generic data	Manufacturer's average or specific data	Generic data		

Table 2 Application of generic and specific data.

4.8 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.

4.9 OTHER CALCULATION RULES AND SCENARIOS

4.9.1 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.

4.9.2 CORE PROCESSES

The following requirements apply to the core processes:

- Specific data shall be used for the assembly of the product and for the manufacture of main parts 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.

[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.

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

- 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.

4.9.3 DOWNSTREAM PROCESSES

The following requirements apply to the downstream processes:

- Data for the use stage are usually based on scenarios, but specific data should be used when available and relevant.
- Data on the pollutant emissions from the use stage should be based on documented tests, verified studies in conjunction with average or typical product use, or recommendations concerning suitable product use. Whenever applicable, test methods shall be internationally recognised.
- 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.
- The transport of the product to the customer shall be described in the reference PCR, 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 as a fixed long transport, such as 1 000 km transport by lorry or 10 000 km by airplane, according to product type.
- 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 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[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)
- Product information (see Section 5.4.3)
- Content declaration (see Section 5.4.4)
- Environmental performance (see Section 5.4.7)
- Additional environmental information (see Section 5.4.10)
- References (see Section 5.4.13)

The following information shall be included, when applicable:

- Information related to Sector EPDs (see Section 5.4.11)
- Differences versus previous versions (see Section 5.4.12)
- Executive summary in English (see Section 5.4.14)

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

Product category rules (PCR): PCR Shower enclosures, Version 1.1, UN CPC 37117.
PCR review was conducted by: The Technical Committee of the International EPD® System. Review chair: Barbara Nebel. 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 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),

[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.

- Classification of Products by Activity (NACE/CPA) or
- Australian and New Zealand Standard Industrial Classification (ANZSIC),

- Description of the product, its application/intended use and technical functions, e.g. expected service life time,
- A description of the main product components and or materials;
- 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,
- Functional unit or 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,
- A statement that the EPD only covers the Cradle to Gate stage, or the Cradle to Gate plus construction stage, because other stages are very dependent on particular scenarios and are better developed for specific building or construction works;
- 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.
- A statement that EPD of construction products may not be comparable if they do not comply with EN 15804.
- In the case where an EPD is declared as an average environmental performance for a number of products a statement to that effect shall be included in the declaration if the span is more than +/-10% for any impact category together with a description of the range/variability of the LCIA results if significant.
- Manufacturer's logotype;
- Issuer and contacts.
- Characteristics of the product:
  - Shape: round, edge, niche or other shapes;
  - Dimensions;
  - Type of frame: integral frame, partial frame, without frame;
  - Number of sides;
  - Number of fixed panels;
  - Type of opening: hinged opening, sliding opening, other types of opening;
  - Number of doors;
  - Material of panels: according to EN 14428;
  - Type of surface finishes;
  - Material of profiles.
- The description of the construction product's use and the declared unit of the construction product to which the data relates;
- Construction product identification by name (including any product code) and optionally, a simple visual representation of the construction product to which the data relates
- A description of the main product components and or materials (this description is intended to enable the user to the EPD to understand the composition of the product represented in the EPD as delivered and also support safe and effective installation, use and disposal of the product);
- Compliance with standard regulation at EU and national level of the product;
- Information about raw materials, components and semi-finished products;
- Information about relevant auxiliary materials;

- A simple visual representation or image of the product,

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.
- Specific aspects regarding the production;
- Environmental policy and management system.

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.

The main constituent materials of the shower enclosures that shall be declared are:

- Materials of panels: tempered glass, plastic;
- Materials of profiles: aluminium, stainless steel;
- Materials of hinge parts, handles and screws: aluminium, steel, ZAMa, brass, plastic;
- Materials for surfaces treatments: chromium plating, nickel plating, painting, anodizing.

The secondary constituent materials of the shower enclosures shall be declared separately:

- Materials for details: aluminium, steel, ZAMa, brass, PA, PA(GF), PC, ABS, PP, PE, Teflon, PVC, PVC+magnetite, POM and others;
- Adhesives and sealants.

The packaging materials shall be declared separately:

- Main packaging materials: corrugated cardboard, wood, EPS, XPS, cartene and PVC films, PE bags;
- Auxiliary packaging materials: adhesives, steel, aluminium.

The EPD shall include a content declaration with a list of materials and chemical substances including information on their hazardous properties.

According to EN15804 declaration of material content of the product shall list as a minimum substances contained in the product that are listed in the “Candidate List of Substances of Very High Concern (SVHC) for authorisation” when their content exceeds 0.1 % of the weight of the product. SVHC are listed by European Chemicals Agency and includes the Candidate List of SVHC.

An optional detailed list of the product’s substances, including CAS number, environmental class and health class, may be included in the product content declaration. It is also recommended to include substances’ functions in the product (e.g., pigment, preservative, etc.). No specific format is given for the content declaration but an optional detailed list is illustrated in Table 3 as example.

All materials/ components, [1]	Substances	Weight % [2]	CAS number	Environ-mental class	Health class
Pigment	*Titanium dioxide* *Iron oxides fume*	*6 +/-3* *2*	*13463-67-7* *1309-37-1*	*no* *Data lacking*	*R 37* *Data lacking*
Preservative	—[3]	*3*	—	*no*	*R 46*
etc.					
…					
Other, non-allergenic, health-sensitive or environmentally-sensitive substances		*<1%*	—	*no*	*No*
Total		**100**			

1) Substance(s) do not need to be included if they may affect patent or company secrets.

2) Figures can alternative be given in e.g. g/kg.

3) The substance name is not given above for confidentiality reason.

Table 3 An example of an illustrative detailed product content declaration

The general recommendation is that the declaration of contents shall also report all substances' inherent properties that are regarded as hazardous. These hazardous substances may be reported with the applicable risk classification, as per the regulations for those markets where the product will be used (see Table 3). The following natural substances' inherent properties (i.e. risk classification) do not need to be specified in the content declaration for:

- metals including alloys that are fixed in the construction product during its utilisation in the construction, and that the composition (i.e. the entire product) are not classified as dangerous.
- minerals, ores, or other naturally-occurring substances and raw materials, provided that they have not been chemically modified under production, and that they are not classified as dangerous under the EU directive 67/548/EEG.

The content declaration does not apply to proprietary materials and substances such as those covered by exclusive legal rights including patent and trademarks.

5.4.4.1. Information about recycled materials

When a product is made in whole or in part with recycled materials, the provenience of the materials (pre-consumer or post-consumer) shall be presented in the EPD as part of the content declaration.

To avoid any misunderstanding about which material may be considered "recycled material", the guidance given in ISO 14021 shall be taken into account. In brief, the standard states that:

- only pre-consumer or post-consumer materials (scraps) shall be considered in the accounting of the recycled materials, and
- materials coming from scrap reutilisation (such as rework, regrind, or scrap generated in a process and capable of being reclaimed within the same process that generated it) shall not be considered as recycled content.

5.4.5 FLOW DIAGRAM

The Table 4 below or likewise shall be included in the EPD to describe the scope of the inventory performed in the LCA (see 7.2.1 in EN15804). This flow diagram may be complemented or combined with a more detailed process chart or figure typically covering A1 to A3, as in section 4.4.

Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
Raw materials	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D

Table 4 To illustrate the product system studied, the EPD shall contain a simple flow diagram of the processes included in the LCA. They shall be sub-divided at least into the life cycle stages of the product: production, and if applicable construction, use and end-of-life. The stages may be further sub-divided.

The following alternatives are valid:

- When a module is accounted for the box in the last row is then marked with an “X“;
- When a module is not accounted for the box in the last row is then market with “MND“, not declared;
- In some cases, certain modules may not be relevant to the environmental performance of a product, meaning that its environmental contribution is assumed negligible. In such cases the irrelevant module shall be declared as “NR”, not relevant. Such a declaration shall not be regarded as an indicator result of zero. “NR” is only used when a functional unit is declared and a full life cycle is supposed to be accounted for.

The EPD shall specify which EPD-type is declared (see Table 1):

- A “Cradle-to gate” EPD
- A “Cradle-to-gate with options” EPD
- A “Cradle-to-grave” EPD.

For a “Cradle-to-gate with options” EPD the declaration of the RSL is possible only if all scenarios for the modules A1- A3 and B1-B5 are given. For a “Cradle to Grave” EPD that is covering all modules in the stages A to C, a declaration of the RSL is required.

5.4.6 TECHNICAL INFORMATION

Is the EPD includes also the life cycle stage A4 to C the information listed below shall be provided in the background LCA report, according to the specification in the paragraph 8.1.5 of the PCR for Construction products and construction services:

- Transport to the construction site
- Installation of the product
- Maintenance
- Repair
- Replacement
- Refurbishment
- Use of energy and of water
- End of life

The description of the reference service life (see also Annex A of the PCR for Construction products end construction services for more details) may be based on data collected as average data or at the beginning or end of the service life. The reference conditions for achieving the declared technical and functional performance and the declared reference service life shall include the reference service life data as described in Table 4, where relevant:

Parameter	Unit
Reference Service Life	Years
Declared product properties (at the gate) and finishes, etc.	Units as appropriate
Design application parameters (if instructed by the manufacturer), including the references to the appropriate practices and application codes	Units as appropriate
An assumed quality of work, when installed in accordance with the manufacturer's instructions	Units as appropriate
Outdoor environment, (for outdoor applications), e.g. weathering, pollutants, UV and wind exposure, building orientation, shading, temperature	Units as appropriate
Indoor environment (for indoor applications), e.g. temperature, moisture, chemical exposure	Units as appropriate
Usage conditions, e.g. frequency of use, mechanical exposure	Units as appropriate
Maintenance e.g. required frequency, type and quality and replacement of components	Units as appropriate

Table 5 B-RCL – Reference Service Life

5.4.7 RULES FOR DECLARING INFORMATION PER MODULE DERIVED FROM LCA

In order to support the application of the modular information of an EPD in an environmental building assessment, it is necessary to provide information in a modular way. The EPD shall include a simplified picture describing the scope of the reported LCA including the mandatory modular structure and naming. The EPD shall specify which EPD-type is declared (see Table 1):

- "Cradle to Gate" EPD, i.e. a declaration of the RSL is not possible. The RSL shall be declared as: "not specified";
- "Cradle to Gate with Options" EPD, i.e. a declaration of the RSL is possible only if all scenarios for the modules A1-A3 and B1-B5 are given;
- "Cradle to Grave" EPD, i.e. a declaration covering all modules in the stages A to C and reported in relation to a functional unit and a declaration of the RSL is required.

Module D may be addressed in any type of EPD and shall be reported under the EPD heading 'Module D - Recyclability potentials' as a sub-heading in "Other environmental information".

If it is found that there is no contribution to one or several impact categories or life cycle inventory indicator result, this is indicated with a zero "0" in the tables given below. However, it there is a small contribution this has to be reported with an exponent X.X E-X or <0,001 etc.

In some cases certain modules may not be relevant to the environmental performance of a product. In such cases the irrelevant module shall be declared as "not relevant" or impossible to include if not construction context is given. Such a declaration shall not be regarded as an indicator result of zero.

5.4.8 AGGREGATION OF INFORMATION MODULES

The indicators declared in the individual information modules of a product life cycle A1 to A5, B1 to B7, C1 to C4 and module D as described in Table 1Table 1 shall not be added up in any combination of the individual information modules into a total or sub-total of the life cycle stages A, B, C or D. As an exception information modules A1, A2, and A3 may be aggregated. In conclusion according to EN 15804 all life cycle stages modules shall be reported separately as information modules. i.e. except module A1-3, that may be aggregated. However, as supplement information it is acceptable to give a figure for the total impact across all phases.

5.4.9 ENVIRONMENTAL PERFORMANCE

5.4.9.1. Environmental impacts

The indicators related to potential environmental impact listed in Table 5 shall be declared per functional unit or declared unit, and divided into the stages A to C and D, if relevant according to EN 15804.

PARAMETER		UNIT	UPSTREAM	CORE	DOWNSTREAM	TOTAL
Global warming potential (GWP)	Fossil	kg CO_2 eq.				
	Biogenic	kg CO_2 eq.				
	Land use and land transformation	kg CO_2 eq.				
	TOTAL	kg CO_2 eq.				
Ozone depletion (ODP)		CFC-11 eq				
Acidification potential (AP)		kg SO_2 eq.				
Eutrophication potential (EP)		kg PO_4^{3-} eq.				
Formation potential of tropospheric ozone (POCP)		kg C_2H_4 eq.				
Abiotic depletion potential – Elements		kg Sb eq.				
Abiotic depletion potential – Fossil fuels		MJ, net calorific value				
Water scarcity potential		m^3 eq.				

Table 5 Indicators describing potential environmental impacts[8].

Always check for latest amendment to EN 15804 to be sure that you use the correct characterisation factors. The impact categories shall be calculated using characterisation factors recommended in regionally accepted impact assessment methods. In Europe, the characterisation factors outlined in EN 15804 (CML baseline) shall be used, or improves ones if these factors are updated in a forthcoming revision of EN 15804. The characterisation factors for ADP-fossil fuels are the net calorific values at the point of extraction of the fossil fuels. Abiotic depletion of elements includes all non-renewable, abiotic material resources (i.e. excepting fossil resources). CML characterisation factors can be downloaded at http://cml.leiden.edu/software/data-cmlia.html or are available in many commercial LCA softwares.

The characterisation models and factors to use for the default impact categories are available on the website www.environdec.com and are updated on a regular basis based on the latest development in LCA methodology and ensuring market stability of EPDs. The source and version of the characterisation models and factors used shall be reported in the EPD.

Alternative regional LCIA methods with other characterization factors are allowed to be calculated and displayed in addition to the default characterisation factors. The EPD® shall contain a clear explanation to what the difference is between the different sets of indicators, as they may appear to a non-expert to display duplicate information regarding the same environmental impact category. The EPD® or its supplementary materials may provide information about the different environmental impact categories displayed in the EPD, including their global/regional characteristics.

When biogenic carbon stored in products is accounted for the principles specified in the General Programme Instructions shall be used. If biogenic carbon is reported in stage A it is then also mandatory to account for the biogenic carbon in module C. It is here not allowed to sum up the stored products CO_2 eq. with GHG (reported in kg CO_2 eq. with characterisation factors origin from IPCC), i.e. to be in line with ISO 14067. GHG from land use is reported as CO_2 eq. as specified in General Programme Instructions.

Notes:

[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.

- 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.

5.4.9.2. Use of resources

The indicators for resource use based on the life cycle inventory (LCI) listed in Table 6 shall be declared per functional unit or declared unit, and stages A to C and D if relevant according to EN 15804 as follows.

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				
Net use of fresh water		m^3				

Table 6 Indicators describing use of primary and secondary resources.

Notes:

- EN 15804 accepts that only one figure is given for each parameter given in the table above.
- 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
  - 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.

5.4.9.3. 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 7 and Table 8 shall be reported per functional unit or declared unit, and functional/declared unit divided into the stages A to C and D if relevant according to EN 15804.

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

Table 7 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 8 Indicators describing output flows.

Notes:

- EN 15804 accepts that one figure is given for each parameter given in the table above.
- The parameters are calculated on the gross amounts leaving the system boundary of the product 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.
- In case there are never any flows of these types leaving the system boundary for a product category, the indicators may be removed by the PCR.

5.4.9.4. Other environmental indicators

The reference PCR may add other environmental indicators to include for the product category from the inventory or impact assessment. Such indicators should be based on international standards or similar methodologies developed in a transparent procedure. Reference to the chosen indictors and methodologies shall be reported.

Release of dangerous substances during the use stage

Information shall be provided for products release of dangerous substances to indoor air, soil and water during the use stage according to standards on measurement of release of regulated dangerous substances from construction products using harmonised testing methods (e.g. according to the provisions of the respective Technical Committees for European product standards, when available). If such standards on measurement of release of regulated dangerous substances are not available, the EPD can lack this information. In the case that the product is subject for classification of emission realise this information and classification result should also be given see B1 under section 4.3.1.3.

5.4.10 ADDITIONAL INFORMATION

Result from life cycle stages beyond the initial product's LCA i.e. reuse, recycle or recovery shall, if it is included in the EPD, be reported under the sub-heading 'Module D - Recyclability potentials'. Supplementary information that describes scenarios etc. shall be given in the EPD.

An EPD may include additional environmental information not derived from the LCA-based calculations. In general, this part of the EPD describing additional environmental information may include various issues e.g. on specific information about the use and end-of-life, which has a special value covering e.g.:

- Instruction for a proper use of the product, e.g. to minimise the energy or water consumption or to improve the durability of the product;
- Instructions for a proper maintenance and service of the product;
- Information on key parts of the product determining its durability;
- Information on recycling including e.g. suitable procedures for recycling the entire product or selected parts and the potential environmental benefits gained;
- Information on a suitable method of reuse of the product (or parts of the products) and procedures for disposal as waste at the end of its life cycle;
- Information regarding disposal of the product or inherent materials, and any other information considered necessary to minimise the product's end-of-life impacts.

Additional environmental information can also include a more detailed description of an organisation´s overall environmental work such as:

- The existence of a quality or environmental management system or any type of organised environmental activity;
- Any activity related to supply chain management, social responsibility (SR) etc.;
- Information on where interested parties may find more details about the organisation´s environmental work.

5.4.11 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.

5.4.12 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

5.4.13 REFERENCES

This section shall include a list of references, including the General Programme Instructions (including version number), standards and PCR (registration number, name and version). The source and version of the characterisation models and the factors used shall be reported in the EPD.

- The underlying LCA
- The name, CPC code and version number of the PCR used
- Other documents that verify and complement the EPD®

- Instruction for recycling, if relevant
- Sources of additional information
- The General Programme instructions of the International EPD® System

5.4.14 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 SPECIAL REQUIREMENTS COMPARED TO EN 15804

The following requirement is not found in EN 15804:

- An EPD based on a functional unit require an sub-oriented (streamlined PCR) that at least define the functional unit;
- EPD shall specify UN CPC classification code (if it exist);
- Data quality requirements on grouping of several similar products and or if EPD is found on data from more than one manufacturing site;
- Increased information in the EPD if the electricity accounts for more than 30% of the total energy in stage A1 to A3. The energy sources behind the electricity grid shall then be documented in the EPD and given in g CO_2e/MJ; this requirement is in line with Eco Platform review protocol (part b §3.5).
- Updated text on Accepted variance when grouping manufacturing sites and/or a products group is harder to meet compared to EN15804, since quantitative information on span larger than 10% is required here;
- Biogenic carbon stored in products may if included reported as an additional indicator in the LCIA result where appropriate, and reported as complement to greenhouse gases according to IPCC in order to be in line with ISO14067.

7 GLOSSARY

CO_2	Carbon dioxide
CPC	Central product classification
EPD	Environmental product declaration
ISO	International Organization for Standardization
kg	kilogram
LCA	Life cycle assessment
PCR	Product Category Rules
SI	The International System of Units
SO_2	Sulphur dioxide
UN	United Nations
ZAMa	(formerly trademarked as ZAMAK or Zamac) is a family of alloys with a base metal of zinc and alloying elements of aluminium, magnesium, and copper. The name zamak is an acronym of the german names for the metals of which the alloys are composed: Zink (zinc), Aluminium, Magnesium and Kupfer (copper). Zamak can be electroplated, wet painted, and chromate conversion coated.

8 REFERENCES

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

EN14428:2008 – Shower Panels – Functional requirements and testing methods

EPD International (2017) General Programme Instructions for the International EPD® System. Version 3.0, dated 2017-12-11. 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 (2007), ISO 21930:2007, Sustainability in building construction -- Environmental declaration of building products

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

9 VERSION HISTORY OF PCR

VERSION 1.0, 2017-06-16

Original version of this PCR.

VERSION 1.1, 2019-04-26

Updated in accordance with GPI 3.0 and new PCR basic module.

PCR moderator removed

VERSION 1.11, 2019-09-06

- Clarified terms of use
- Editorial changes

