

PRODUCT CATEGORY RULES

SANITARY WARE [SANITARY FACILITIES AND KITCHENS]



VERSION 1.3/2022. EDITION JUNE 2022



Version 1.3.

Aveiro, June 2022

Developd versions

Versão	Comentários	Data de edição
1.0	First version of the Product Category Rules document for the DAPHabitat System	10.02.2014 – February 2014
1.1	Information update according to the new version of the PCR document: base model for construction products and services V.2.0.	20.12.2014 – December 2014
1.2	Extension of the document's validity period	18.11.2020 – November 2020
1.3	Update of the PCR document when updating the Standard EN 15804:2012+A2:2019	01.06.2022 – June 2022

Contact

Sistema DAPHabitat

Departamento de Engenharia Civil – Universidade de Aveiro

3810 – 198 Aveiro

Portugal

www.daphabitat.pt

deptecnico@centrohabitat.net

INDEX

1.1.	DAPHABITAT SYSTEM	1
1.2.	PROGRAM OPERATOR	1
1.3.	PRODUCT CATEGORY RULES	1
1.4.	PCR- BASIC MODULE SPECIFIC FOR CONSTRUCTION PRODUCTS AND SERVICES	2
2.	GENERAL INFORMATION	2
2.1.	SCOPE AND OBJECTIVE	2
2.2.	PCR DOCUMENT IDENTIFICATION	3
3.	PRODUCTS GROUP DEFINITION	5
3.1.	MAIN TYPES OF PRODUCTS FOR SANITARY WARE	5
3.1.1.	APPLICATION	6
4.	LCA CALCULATION RULES	7
4.1.	FUNCTIONAL UNIT	7
4.2.	DECLARED UNIT	8
4.3.	SYSTEM BOUNDARIES	8
4.3.1.	PRODUCT STAGE (MANDATORY)	9
4.3.2.	CONSTRUCTION PROCESS STAGE	9
4.3.3.	USE STAGE	9
4.3.3.1.	Modules step of using information for the construction of the components (B1-B5)	9
4.3.3.2.	Information modules of use stage concerning the exploitation of construction (B6-B7)	10
4.3.4.	END OF LIFE STAGE	10
4.3.5.	BENEFITS AND ENVIRONMENTAL LOADS BEYOND THE SYSTEM BOUNDARIES – D MODULE	10
5.	EDP CONTENT	11
6.	PROJECT REPORT	12
7.	UNITS	12
8.	REFERENCES	13

TABLE INDEX

TABLE 1: PCR DOCUMENT IDENTIFICATION 3

TABLE 2: CONSULTATION OF EXISTING PCR DOCUMENTS IN OTHER EDP REGISTRATION PROGRAMS 4

TABLE 3: SPECIFICATION OF THE MASS AND DIMENSIONS OF THE DECLARED PRODUCTS (EXAMPLE) 7

GENERAL INTRODUCTION

1.1. DAPHabitat System

The DAPHabitat System is a Portuguese registration program of Type III Environmental Product Declarations (EDP) for product from habitat field. The Habitat field includes all the products and services involved in building and construction works.

This national registration program allows any company or interested entity to development or approval of Product Category Rules (PCR) and the registration of EDP, independent from its home country.

website	www.daphabitat.pt
contact	geral@daphabitat.pt

1.2. Program Operator

The administration of the DAPHabitat system is a function of the Platform for Sustainable Construction. In this EDP registration system, the administrator is called the Program Operator.

Identification	Associação Plataforma para a Construção Sustentável
NIF	509 037 321
Localization	<u>Delegação:</u> Departamento de Engenharia Civil Universidade de Aveiro 3810-193 Aveiro Portugal
Contact	deptecnico@centrohabitat.net
website	www.centrohabitat.net

1.3. Product Category Rules

PCR are documents that contain the set of rules, requirements, and specific guidelines for the development of EDP, such as the parameters and categories of impact to declare, functional unit, system boundary, the life cycle stages to consider in the processes to be included, the biogenic carbon content, rules for the preparation of scenarios, rules for calculating the life cycle inventory and impact assessment, rules regarding additional environmental information, the conditions of comparability between construction products based on the information declared in the EDP, other

information to declare, issues related to the verification and registration of the EDP in the database of the registration program.

1.4. PCR- basic module specific for construction products and services

This document was developed based on the PCR-model base document specifically for construction products and services. This document was prepared according to EN 15804:2012+A2:2019 and represents a supplement to the standard and any specific PCR document.

This document, specific PCR for sanitary ware, within the scope of construction products and services, must define, at least, the reference service life and the relevant functional unit for the set of products it represents. This document was carried out following the procedure described in the General Instructions for the System, as well as with national and international standardization:

- NP ISO 14025:2009 – “Rótulos e declarações ambientais – Declarações ambientais Tipo III – Princípios e procedimentos”¹;
- ISO 21930:2007 – “Building Construction – Sustainability in building construction”;
- EN 15804:2012+A2:2019 – “Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products”;
- NP EN ISO 14044:2010 – “Gestão ambiental – Avaliação do ciclo de vida – Requisitos e linhas de orientação”²;
- NP EN ISO 14040:2008 – “Gestão ambiental - Avaliação do ciclo de vida - Princípios e enquadramento”³.

2. GENERAL INFORMATION

2.1. Scope and objective

The document was designed to enable organizations to prepare:

- EDP for sanitary ware, a designation that includes metallic, plastic, ceramic, glass, stone (natural and artificial) and wooden sanitary ware;
- Calculating the Life Cycle Assessment (LCA) of the product(s) or service(s) and creating the respective report.

Note

¹ ISO 14025:2009 – “Environmental labels and declarations – Type III environmental declarations – Principles and procedures”

² ISO 14044:2006 – “Environmental management – Life cycle assessment – Requirements and guidelines”

³ ISO 14040:2009 - “Environmental management – life cycle assessment – Principles and framework”

The main objective of this PCR document is to ensure that the set of rules for the development of reliable and verifiable information in a EDP is described for products belonging to the category of “sanitary ware”, based on the LCA. This document is intended for all manufacturers (and other interested parties) of sanitary ware.

2.2. PCR document identification

The PCR documents must identified according to the parameters shown in **Table 1**.

Table 1: PCR document identification

NAME	PCR – Sanitary Ware [Sanitary facilities and kitchens] – V.1.1 (2015)	
REGISTER DATE AND NUMBER	10/02/2014 PCR005	
VERSION	New <input type="checkbox"/>	Update x
PCR COORDINATORS	Cristina Rocha cristina.rocha@Ineg.pt Ana Paula Duarte paula.duarte@Ineg.pt	
AUTHOR(S):	Cristina Rocha cristina.rocha@Ineg.pt Ana Paula Duarte paula.duarte@Ineg.pt Marisa Almeida marisa@ctcv.pt	
SECTOR PANEL	RMC – Revestimentos de Mármore Compactos, S.A. Sanindusa – Indústria de Sanitários, S.A. Sanitana APICER – Associação Portuguesa da Indústria de Cerâmica	
CONSULTATION PERIOD	11/09/2013 to 30/11/2013	
VALID UNTIL	June 2027	




Comments on this document can be sent to the Construção Sustentável Platform or to the document's coordinators.

To establish a document that allows international comparison, the DAPHabitat System needed to harmonize the document PCR – Sanitary Ware [Sanitary facilities and kitchens] with other European registration programs. In this way, a study of other similar PCR documents was carried out. **Table 2** shows the PCR documents consulted and adopted for the realization of the PCR document for Sanitary Ware [Sanitary facilities and kitchens].

Table 2: Consultation of existing PCR documents in other EDP registration programs

International registration programs	PCR
<p>The International EPD System - Environdec</p>	<p>Product Category Rules (PCR) for <i>sanitary ware of iron, steel, copper or aluminium</i>. Version 1.1 – 2012:10</p>
	<p>Product Category Rules CPC Division 42 <i>“Vitreous enamel steel bathtubs, shower trays and wash basins”</i>. Version1.0 – Edition May 2012</p>
	<p>PCR Basic Module CPC Division 36 <i>“Rubber and Plastic products”</i>. Version1.0 – Dated 2010-11-26.</p>
	<p>Product Category Rules: Builders’ Joinery and Carpentry of Wood (including Cellular Wood Panels, Assembled Parquet Panels, Shingles and Shakes). PCR 2011:23, version 1.0, 19-12-2011.</p>
<p>IBU environmental product declarations (Alemanha)</p>	<p>PCR Guidance-Texts for Building-Related Products and Services. Part B: requirements on the EPD for Baths and showers made of steel enamel PCR Guidance-Texts for Building-Related Products and Services. Part B: requirements on the EPD for Sanitary ceramics</p>
<p>DAPHabitat System</p>	<p>PCR- basic module to construction products and services. Version 2.2.</p>

After analysing the documents in **Table 2**, the need to prepare the PCR document for sanitary ware was concluded for the following reasons:

-  The PCR documents analysed are made for specific products within the category of floor coverings, not including all products for floor covering considered in this document;
-  The PCR documents analysed include different specifications that may compromise the comparison between the EDP of similar products within the scope of floor coverings according to point 6.7.2. of NP EN 14025: 2009.
-  Some of the PCR documents are not yet in line with the principles of Standard EN 15804, which includes the basic rules for developing PCR for all construction products and services.

3. PRODUCTS GROUP DEFINITION

The product category “sanitary wares” includes all the equipment connected to the plumbing, with application in bathrooms and kitchens. Sanitary ware can have different dimensions, capacities, geometric shapes, and compositions, and, as in the case of cisterns, different modes of operation.

Ceramic sanitary wares are ceramic products manufactured mainly in glazed porcelain (semi-porcelain or “vitreous china”) or earthenware or stoneware.

Stone sanitary wares, usually dishwashers and countertops in kitchens and even washbasins and countertops in bathrooms, are made from natural stones such as marble, granite, and limestone, and artificial stones such as *Silestone, limestone, marmoglass, nanoglass, aglostone, quarella, technistone, etc.*











Metal sanitary ware is made of stainless steel and enamelled steel.

Still, within the scope of this product category, sanitary wares made of glass, plastic, and wood can be included.

3.1. Main types of products for sanitary ware

The category “sanitary wares - sanitary facilities and kitchens” includes the following types of products: wash basins (dishwashers), toilets, cisterns, shower trays, bathtubs, bidets, urinals, cisterns and drinking fountains, stalls for bathrooms and kitchens. This PCR document covers metallic, plastic, ceramic, glass, stone, and wooden products.

This product category includes all those who identify themselves with the functions described in the following standards (applying its latest edition):

-  NP EN 14516 – Bathtubs for household purposes;
-  NP EN 14527 – Shower trays for household purposes;
-  NP EN 14688 – Sanitary appliances - washbasins - functional requirements and test methods;
-  NP EN 14296 – Sanitary appliances - collective toilets;
-  EN 997 – Independent toilets and toilet bowls and cistern with built-in siphon;
-  NP EN 13310 – Sinks - Functional requirements and test methods;
-  EN 13407 – *Wall-hung urinals – functional requirements and test methods;*
-  EN 14055 – *WC and urinals flushing cisterns;*
-  NP EN 14528 – Bidets - functional requirements and test methods;
-  NP EN 15388 – Agglomerated stone. Plates and made-to-measure products for bathroom and kitchen countertops.

In the EDP, the product group and the respective NACE codes (Statistical Nomenclature of Economic Activities of the European Community) must be specified following Decree-Law No. 381/2007 of 14 November or more current version, taking into account the following examples of ratings:

For ceramic sanitary ware:

- Section C, class 2342 – Manufacture of ceramic articles for sanitary uses.

For sanitary ware made of natural stone:

- Section C, grupo 237 – Sawdust, cutting and finishing of ornamental stones and other construction stones.

For sanitary ware made of artificial stone:

- Section C, class 2361 – Manufacture of concrete products for construction

For plastic sanitary ware:

- Section C, class 2229 – Manufacture of other plastic products.

For glass sanitary ware:

- Section C, class 2312 – Molding and processing of flat glass.

For metallic sanitary ware:









- Section C, class 2529 – Manufacture of other metal tanks and containers.

For wooden sanitary ware:

- Section C, class 1623 – Manufacture of other building carpentry.

3.1.1. Application

The products belonging to the category of thermal insulation have a wide field of application in building and among other construction works, and can be applied in:

-  industrial buildings;
-  agricultural buildings;
-  accessory buildings and annexes and provisional facilities;
-  sports pavilions;
-  airports;
-  special large-span structures;
-  dwellings;
-  administrative and school buildings.

4. LCA CALCULATION RULES

4.1. Functional unit

The functional unit provides a reference for the quantification of the environmental performance of the product, being required for a cradle-to-grave EPD:

“1 t of sanitary ware (specify product and material) for a reference life of (X years), including packaging”

The mass and dimensions of each of the parts of the declared products must be indicated in text or table. In the case of declaring an average product, the product range must be presented in a disaggregated form.

The specification of the product and material must be precise and objective so that the product is identified unambiguously and unambiguously (for example, in the case of a cistern with a mechanism, indicate the capacity and type of discharge - double or single).

The reference service life⁴ must be determined according to the indications in point 5.4.1. of the PCR document - basic model specific for construction products and services.

Example of a functional unit (see also Table 3): 1 t of sanitary ware (glazed ceramic washbasin and bidet) with a reference life of 50 years, including packaging.

Table 3: Specification of the mass and dimensions of the declared products (example)

Product group	Average mass (kg/piece)	Dimensions		
		Width (mm)	Length (mm)	Height (mm)
Washbasin	14,0	380-720	245-540	135-275
Bidet	19,0	360	525-560	270-310

⁴ See also the reference service life (RSL) of the document PCR - base model for construction products and services

4.2. Declared unit

The declared unit is defined for a EDP from cradle to gate or from cradle to gate with options.

Declared unit can be:

“1 t of sanitary ware produced (specify product and material), with the fact of converting x (kg/m²), including packaging”.

The mass and dimensions of each of the parts of the declared products must be indicated in text or table. In the case of declaring an average product, the product range must be presented in a disaggregated form.

Note that for the declared unit, another unit can be defined, in addition to this one, provided that data are provided for the conversion.

4.3. System boundaries

The system boundaries determine which information modules and unit processes that should be include in the LCA that underlies EDP.

Examples of unitary processes to consider in module A3 of the product stage, in a cradle-to-gate EDP:

Enamelled steel shower tray:

- Reception of raw materials;
- Cut;
- Stamping;
- Special finishes;
- Surface treatment;
- Enamels production;
- Enamels application;
- Glazing;
- Packaging and storage.

Ceramic sink:

- Preparation of ceramic bodies;
- Moulding in slip;
- Trim and embellishment;
- Drying;
- Glaze
- Cooking;
- Selection;
- Packaging and storage.

As part of the definition of the system boundaries, a description must be made for each module included in the product's life cycle stages, as well as the establishment of a flow chart.

4.3.1. Product Stage (mandatory)

The product stage is composed by information modules related to the extraction and processing of raw materials, its transport until the production site and the product production. The document PCR- base model describes some of the processes that should be considered in each sub-module A1, A2 and A3.

4.3.2. Construction Process Stage

The construction stage is an optional stage and includes the information modules about the transport of products to the construction site and its installation in the building or in other construction works, including all materials supply and energy, as well the waste processing by the end of waste status or their final disposal. The document PCR- base model describes some of the processes that should be considered in each sub-module A4 and A5.

4.3.3. Use Stage

The use stage is an optional step and is constituted by information modules covering the period from the delivery of the building or construction works as completed to its deconstruction or demolition. The duration of the use stage relative to the product may be different from the required lifetime of the building or construction work (for which the construction was designed).

The document PCR: basic model describes some of the processes that should be considered in each sub-module B1, B2, B3, B4, B5, B6 and B7, however, in this document some characteristic examples of the product category “Sanitary Ware”.

4.3.3.1. Modules step of using information for the construction of the components (B1-B5)

B1) Use of the installed product:

Example: in the case of wooden sanitary ware, release of substances from the coating into the air, soil or water may occur.

B2) Maintenance:

Example 1: Accounting for the use of resources associated with cleaning sanitary wares and their impacts.

Example 2: Accounting for the use of waxes on wooden benches and their impacts.

Example 3: Accounting for the use of chemicals to eliminate tartar in sanitary wares and their impacts.

B3) Repair:

Example: Accounting for the consumption of a specific paint for painting a steel shower tray, whose enamel is damaged, and its impacts.

4.3.3.2. Information modules of use stage concerning the exploitation of construction (B6-B7)**B6) Energy consumption by the integrated technical systems in the building operational stage:**

Example 1: Energy needed to heat water for a jacuzzi bathtub.

Example 2: Electricity needed to run a hot tub or jacuzzi.

B7) Water consumption by the integrated technical systems in the building operational stage:

Example: Consumption of flushing water from a toilet flush.

4.3.4. End of life stage













The “end of life” stage of the thermal insulation begins when it is replaced, disassembled, or deconstructed from the building or other construction works and has no other functionality. This can also start at the end of the building's life, depending on the choice of the product's end-of-life scenario. The document PCR- basic model describes some of the processes that must be considered in each sub-module C1, C2, C3, and C4.

4.3.5. Benefits and environmental loads beyond the system boundaries – D module

The information module “D” regard to the benefits or to the loads for environmental created by reused products, recycled materials and/or energy transfer to the outside of the product system (as secondary materials or fuels). The document PCR- basic model describes some of the processes that must be considered in this module.

5. EDP CONTENT

The DAPHabitat System requires an EDP to include certain general information regarding the registration program and the applicant organization. For the preparation of the EDP, at least the following content should be considered:

-  Name and address of the manufacturer(s);
-  Description of the use of the construction product/ product class and the functional unit or declared to which the data relates;
-  Identification of the construction product/product class by its name (including any product code) and a simple visual representation of the construction product/product class to which the data relates;
-  Description of the main components and/or product materials;
-  Name of the program used as well the name and address of the program operator and, when relevant, the logo and web page;
-  Issue date of the declaration and validity period up to 5 years;
-  information indicating the stages are not considered, if the statement is not based on an LCA covering all stages of the life cycle;
-  mention indicating that the construction product EPD may not be comparable if they are not in accordance with EN 15804 and this PCR document;
-  in the case where an EDP is declared as an average environmental performance for a number of products, a mention of this must be included in the declaration, accompanied by a description of the range/variability of the results of the LCIA, if this is significant;
-  the location(s), the producer or group of producers or their representatives for whom EDP is representative;
-  declaration of the content in materials of the product should at least enumerate the substances contained in the product that are in the " List of substances of very high concern candidates for authorization" (under REACH) when the content exceeds the limits for registration by the European Chemicals Agency;
-  Information indicating where the explanatory elements can be obtained.

This information should be declared according to the requirements indicated in the General Instruction for DAPHabitat System and with the EPD **template** at www.daphabitat.pt for formatting and presentation of content in the EPD.

More specific information about the content of an EDP is presented in the document PCR- basic model, with no specificity for the category of “sanitary ware”.




6. PROJECT REPORT

The project report should be systematic and complete to support the verification procedure of an EPD. The project report must register the LCA and additional information, as stated in the EPD, according to EN 15804. This must be made available to the certification body recognized by DAPHabitat System respecting the confidentiality requirements specified in EN ISO 14025.














The elements of the Project Report should follow the requirements of the EN 15804 as well as the indications described in the document General Instructions of DAPHabitat System, available at www.daphabitat.pt.

7. UNITS

The SI units should be used. The basic units to be used are meter (m), kilogram (kg), molecular weight (mole). All resources must be expressed in kg with the exception:

-  of energy resources must be used kWh or MJ;
-  the temperature should be expressed in Celsius degrees;
-  time should be expressed as a rating scale: minutes, hours, days, or years.

8. REFERENCES

-  NP ISO 14025:2009 – “Rótulos e declarações ambientais – Declarações ambientais Tipo III – Princípios e procedimentos”;
-  ISO 21930:2007 – “*Building Construction – Sustainability in building construction*”;
-  EN 15804:2012+A2:2019 – “*Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*”;
-  NP EN ISO 14044:2010 – “Gestão ambiental – Avaliação do ciclo de vida – Requisitos e linhas de orientação”;
-  NP EN ISO 14040:2008 – “Gestão ambiental - Avaliação do ciclo de vida - Princípios e enquadramento”;
-  General Instructions for the DAPHabitat Sysrem. Version 2.0, June 2022;
-  PCR – Product Category Rules. Basic module construction products and services. Sistema DAPHabitat. Version 2.2 June 2022
-  The International EPD System – Environdec. Product Category Rules (PCR) for *sanitary ware of iron, steel, copper or aluminium*. Version 1.1 – 2012:10.
-  The International EPD System – Environdec. Product Category Rules CPC Division 42 “*Vitreous enamel steel bathtubs, shower trays and wash basins*”. Version1.0 – Edition May 2012.
-  The International EPD System – Environdec. PCR Basic Module CPC Division 36 “*Rubber and Plastic products*”. Version1.0 – Dated 2010-11-26.
-  The International EPD System – Environdec. Product Category Rules: Builders’ Joinery and Carpentry of Wood (including Cellular Wood Panels, Assembled Parquet Panels, Shingles and Shakes). PCR 2011:23, version 1.0, 19-12-2011.
-  Institut Bauen und Umwelt e.V. (IBU). PCR Guidance-Texts for Building-Related Products and Services. *Part B: requirements on the EPD for Baths and showers made of steel enamel. Versions 1.0 and 1.1, 2012*
-  Institut Bauen und Umwelt e.V. (IBU). PCR Guidance-Texts for Building-Related Products and Services. *Part B: requirements on the EPD for Sanitary ceramics. Versions 1.0 and 1.1, 2012.*