



## PRODUCT CATEGORY RULES

CPC Class 3744  
CEMENT

PCR 2010:09  
VERSION 1.0  
2010-09-15

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## GENERAL INTRODUCTION

The international EPD<sup>®</sup> system is based on a hierarchic approach following the international standards:

- ISO 9001, Quality management systems
- ISO 14001, Environmental management systems
- ISO 14040, LCA - Principles and procedures
- ISO 14044, LCA - Requirements and guidelines
- ISO 14025, Type III environmental declarations
- ISO 21930, Environmental declaration of building products.

The General Programme Instructions are based on these standards, as well as instructions for developing Product Category Rules (PCR).

The documentation to the International EPD<sup>®</sup> system includes three separate parts ([www.environdec.com](http://www.environdec.com)):

- Introduction, intended uses and key programme elements
- General Programme Instructions
- Supporting annexes

This PCR-document specifies further and additional minimum requirements on EPDs of the product group defined below complementary to the above mentioned general requirement documents.

Principle programme elements concerning the Product Category Rules (PCR) included in International EPD<sup>®</sup> system are presented below.

Purpose	Element identification and principal approach
Complying with principles set in ISO 14025 on modularity and comparability	1. "Book-keeping LCA approach" 2. A Polluter-Pays (PP) allocation method
Simplifying work to develop Product Category Rules (PCR)	3. PCR Module Initiative (PMI) in order to structure PCR in modules according to international classification 4. PCR moderator for leadership and support of the PCR work
Secure international participation in PCR work	5. Global PCR Forum for open and transparent EPD stakeholder consultation
Facilitating, identification and collection of LCA-based information	6. Selective data quality approach for specific and generic data

Product Category Rules (PCR) are specified for specified information modules "gate-to-gate", so called core modules. The structure and aggregation level of the core modules is

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defined by the United Nation Statistics Division - Classification Registry CPC codes (<http://unstats.un.org>). The PCR also provides rules for which methodology and data to use in the full LCA, i.e. life cycle parts up-streams and down-streams the core module. The PCR also has requirements on the information given in the EPD, e.g. additional environmental information. A general requirement on the information in the EPD is that all information given in the EPD, mandatory and voluntary, shall be verifiable.

In the EPD, the environmental performance associated with each of the three life-cycle stages mentioned above are reported separately:

## 1 GENERAL INFORMATION

<b>Date and registration no:</b>	2010-09-15, PCR 2010:09
<b>This PCR was prepared by:</b>	CE.Si.S.P. (Centre for the Development of Product Sustainability) in co-operation with AITEC and Buzzi Unicem
<b>Appointed PCR moderator:</b>	Carlo Strazza, CE.Si.S.P., carlo.strazza@cesisp.unige.it
<b>Open consultation period:</b>	2010-01-22 - 2010-03-12
<b>Valid within the following geographical representativeness:</b>	Global
<b>Valid until:</b>	2015-09-15

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of UN CPC 3744 (cement) and the declaration of this performance by an EPD.

This PCR is based on the requirements and guidelines given in "PCR Basic Module, CPC Division 37: "Glass and glass products and other non-metallic products n.e.c.", version 0.5, dated 2009-08-10.

This PCR includes rules and guidelines to prepare a Sector EPD, based on average data for the whole product group, differentiated for a well-defined geographical area.

Any comments to this PCR document may be given on the Global PCR Forum or directly to the PCR moderator during the period of validity.

The PCR document is a living document. If relevant changes in the LCA methodology or in the technology for the product category occur, the document will be revised and any changes will be published on the international website: [www.environdec.com](http://www.environdec.com).

The EPD shall refer to a specific PCR version number. The production of new PCR versions does not affect the EPD certification period.

## 2 DEFINITION OF THE PRODUCT GROUP

### 2.1 SPECIFICATION OF MANUFACTURING COMPANY

The products included in the product group are: specific type of cement or average cement.

The product group and CPC code shall be specified in the EPD.

## 2.2    PRODUCT-SPECIFIC EPD

### 2.2.1    SPECIFICATION OF MANUFACTURING COMPANY

In the EPD, the following mandatory information on the manufacturing/producing company shall be declared:

- Company/companies
- Production site(s)
- Issuer/s and contacts

The following voluntary information may be included:

- Information on environmental management system
- Specific aspects regarding the production
- Environmental policy
- Manufacturers logotype

### 2.2.2    SPECIFICATION OF PRODUCT

The product category is defined under ISIC – CPC's classification:

- Section: 3 – Other transportable goods, except metal products, machinery and equipment
- Division: 37 – Glass and glass products and other non-metallic products
- Group: 374 – Plaster, lime and cement
- Class: 3744 – Portland cement, aluminous cement, slag cement and similar hydraulic cements, except in the form of clinkers

This PCR is applicable to the product "Cement" complying with the standard EN 197-1.

Point 4 of the standard defines cement as “a hydraulic binder, i.e. a finely ground inorganic material which, when mixed with water, forms a paste which sets and hardens by means of hydration reactions and which, after hardening, retains its strength and stability even under water”.

The composition must comply with the contents of Table 1 of the standard.

In particular, cements are composed of clinker, natural raw materials (limestone, gypsum, puzzolana<sup>1</sup>...) and alternative raw materials (blast furnace slag, fly ashes...).

Clinker production phase involves major environmental impacts compared to the production and supply of other cement constituents.

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<sup>1</sup> Pozzolanic materials are natural substances of siliceous or silico-aluminous composition or a combination thereof. Pozzolanic materials do not harden in themselves when mixed with water but, when finely ground and in the presence of water, they react at normal ambient temperature with dissolved calcium hydroxide (Ca(OH)<sub>2</sub>) to form strength-developing calcium silicate and calcium aluminate compounds.

Since the clinker content varies between the different types of cement and even cements of similar cement type can show a different clinker content, the difference among the impacts for different cement types can often not be neglected.

The organisation shall refer the EPD to a specific typology of cement. If specific information are not available, the organisation can refer to an 'average cement'. In that case, additional information concerning the production of the different cements that constitute the average shall be included. Besides, the environmental impacts must correspond to the weighted average of the different cements. In such a case it is optional to identify the impacts related to the specific cements that constitute the basis of the average cements. This identification may be achieved either graphically or numerically.

## 2.3 SECTOR EPD

### 2.3.1 SPECIFICATION OF MANUFACTURING COMPANY

In the Sector EPD, the following mandatory information on the organisation shall be declared:

- Organisation
- Issuer/s and contacts

### 2.3.2 SPECIFICATION OF PRODUCT

In the development in the declaration, all sections referring to product-specific details are replaced with the same type of information as average values for the sector under study.

The product description may only refer to the general framework for using the product with limited information on technical specifications.

The declaration must include appropriate considerations regarding representativeness and relevance of the sample selected for the analysis.

The elements influencing the selection of plants and products to be included in the study are:

- geographical position of plants and eventual company/group affiliation;
- plant productivity;
- process technology type (i.e. kiln type, abatement systems, etc.);
- fuels and raw materials use (also considering alternative fuels);
- product typology.

For example, some representativeness recommendations for a Sector EPD of cement production in the region under the study, are:

- the sample must present a production spectrum that is congruent with the cement typologies production distribution in the region under study;
- with regard to the plants productivity, the total cement production in the selected plants must be equal to at least 10% of the regional production;
- the energy consumptions data (fuel specific) of the selected plants must be comparable to the values of the average performance for the sector in the region under study.

### 3      **DECLARED UNIT**

The declared unit is 1,000 kg of finished product.

The environmental impact shall be given per declared unit.

#### 3.1    **ADDITIONAL SPECIFICATIONS FOR A “SECTOR EPD”**

The results must be referred to the production of 1,000 kg (i.e. 1 ton) of representative average cement, where “representative” is referred to the selection of the panel of typical cement plants, while “average” refers to data source.

For example, for every selected plant the analysis can yield the results related to average cement, that includes all the typologies there produced. Then, the average profile can be derived from the average values of the plants constituting the sample.

### 4      **CONTENT OF MATERIALS AND CHEMICAL SUBSTANCES**

The gross weight of material shall be declared in the EPD at a minimum of 99 % of one declared unit.

The cement constituents have to be listed according to cement standard EN 197-1.

### 5      **UNITS AND QUANTITIES**

SI units shall be used.

Preferred power and energy units are:

- kW (MW) for power
- kWh (MWh) for electric energy
- MJ for fuels

### 6      **GENERAL SYSTEM BOUNDARIES**

The system boundaries are shown in the figure.



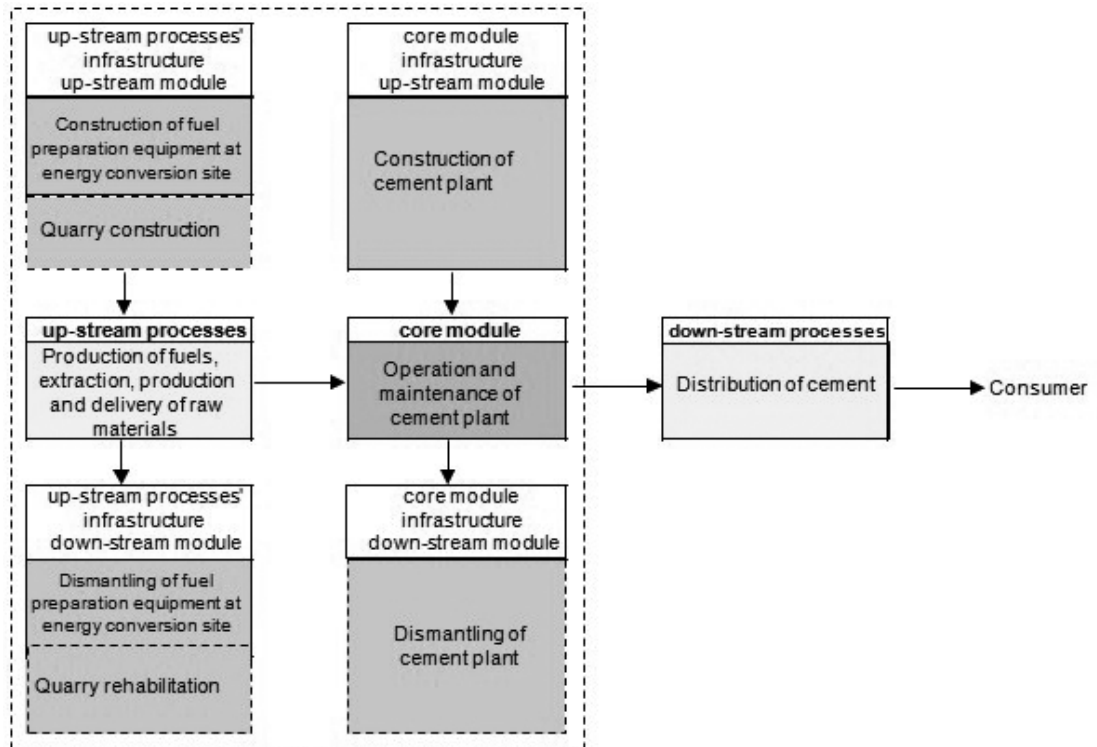


Figure 1 Illustration of the life cycle structure and rough system boundaries.

## 6.1 UPSTREAM PROCESSES

The upstream processes include the following inflow of raw materials and energy wares needed for the production of cement:

- extraction and production of raw material used in the production and packaging of the finished product
- transportation of raw material to the plant
- if relevant, recycling process of recycled material used in the product
- the production processes of energy wares used in raw material production

## 6.2 CORE PROCESSES

The upstream processes include the following inflow of raw materials and energy wares needed for the production of cement:

- extraction and production of raw material used in the production and packaging of the finished product
- transportation of raw material to the plant
- if relevant, recycling process of recycled material used in the product
- the production processes of energy wares used in raw material production

## 6.3    DOWNSTREAM PROCESSES

The downstream processes include:

- transportation from manufacturing to construction site or an average retailer/distribution platform
- recycling or handling of the packaging waste/materials of customer

Downstream processes are declared to be “optional”. since the LCA study shall in principle be a “cradle-to-gate” study.

In the EPD, the environmental performance associated with each of the three life-cycle stages above reported separately.

## 7       CORE MODULE

### 7.1    SYSTEM BOUNDARIES

#### 7.1.1    TECHNICAL SYSTEM

The processes listed below for the production of the final products including primary packaging shall be included. The production processes for other product parts may be included. However, the raw material used for production of all product parts shall be included.

The processes which are mandatory to include regard plant operation (i.e. clinker production and cement production), in particular:

- Production of raw mix
- Burning of clinker
- Grinding of cement
- Storage of cement for dispatch

Plant dismantling is considered as optional.

A minimum of 99% of the total weight of the declared product including packaging shall be included.

The manufacturing of buildings and other capital goods with an expected lifetime over three years shall not be included.

Travel to and from work by personnel should not be included.

#### 7.1.2    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.

### 7.1.3 TIME BOUNDARIES

The data shall be representative for the year/time frame for which the EPD is valid (maximum three years).

### 7.1.4 BOUNDARIES TO NATURE

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

### 7.1.5 BOUNDARIES TO OTHER PRODUCT LIFE CYCLES

If there is an inflow of alternative material to the production system in the production/manufacturing phase, the recycling/treatment process and the transportation from the recycling/treatment 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 the recycling process shall be included. The material going to recycling is then an outflow from the production system (see supporting General Programme Instructions, Annex A).

### 7.1.6 BOUNDARIES TOWARDS RISK ASSESSMENT

Environmental impacts due to accidents and undesired events are not part of the LCA but part of the environmental risk assessment that may be reported under Additional environmental information.

Environmental burdens in conjunction with mishaps occurring more often than once in three years are considered to belong to normal operation and are part of the LCA. Burdens have to be allocated to the data of the year in which the mishaps occurs.

## 7.2 CUT OFF RULES

Life Cycle Inventory data for a minimum of 99 % of total inflows to the core module shall be included.

In particular, processes and activities that only constitute a trivial contribution to the data collection may be excluded using one of the following criteria:

- a) they together contribute to less than 1% of the total environmental impact for each impact category and/or
- b) they represent less than 1% of the mass input.

Inflows not included in the LCA shall be documented and justified in the EPD.

## 7.3 ALLOCATION RULES

The production process for cement is linear from the entrance of raw materials to the exit of entities.

The flow of materials and energy and also the associated release of substances and energy into the environment is therefore related exclusively to the cement produced.

Allocation between different products and co-products within the cement plant shall be based on mass allocation. It is excluded the possibility of applying economic allocation criteria because of its sensitivity to market specific conditions.

If production is divided among different lines, the process must be considered as “single line” and average figures employed.

## 7.4 DATA QUALITY RULES

Specific data (often called site specific data) shall be used for the Core Module.

Data shall be consistent with the following recommendations:

- 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;
- the technological coverage shall reflect the physical reality for the declared product or product group;
- generic data shall be checked for plausibility by the verifier;
- data sets shall be complete according to the criteria for the exclusion of inputs and outputs.

Specific data are gathered from the sites where specific processes are carried out.

The requirement for specific data also includes actual product weights, amounts of raw materials used and amounts of waste etc.

Specific data for the generation of electricity bought shall be used if possible. The data should be verifiable by invoice or similar.

If specific data are not available or if the electricity bought is not specified for parts of the Core Module, the electricity mix used in those parts shall be approximated as the official electricity mix in the region under study. The mix of energy shall be documented.

### 7.4.1 SPECIFICATIONS FOR A “SECTOR EPD”

As concerns Sector EPDs, the recommended use of generic data for a specific material may preferably be replaced with average values representing all the manufacturing sites for that specific material and the region under study, as appropriate.

The following particular rules do apply:

- data concerning clinker and cement composition, as well as data for energy consumption, must be provided by the producers;
- data concerning infrastructure can derive from selected database, with reference to the specific production volume for every plant;
- data concerning road transports for raw materials and fuels, atmospheric emissions (including dust) can be referred to clinker, firstly, and then normalised for the declared unit.

## 7.5 OTHER CALCULATION RULES

The following calculation rules do apply:

### Raw Materials

The quantities (in kg) of individual natural raw materials (lime, marl, shale, chalk, etc) must be specified.

The total of alternative raw materials (alumina, muds, etc.) must be counted.

Other incoming materials must be specified separately (filter sleeves, sacks, explosives, grinding aids, etc).

### Water

If water consumption is attributable to a single process (evaporation), it must be attributed to that single phase, otherwise it is attributed to the entire process.

### Transport

All incoming transport is counted in terms of the capacity of the vehicles (trucks, trains, ships) and the length of the routes travelled.

### Consumption of electricity and fuels

All energy consumption is considered for all process phases, both thermal and electrical for all types of use (production and services).

All alternative fuels (recycled waste) must be counted.

### Atmospheric emissions

Regarding the kiln process line the values must be reported on an annual average basis. This refers to emissions of NO<sub>x</sub>, SO<sub>2</sub>, HCl, HF, CO, dust and TOC. If additional emissions need to be determined in order to calculate potential environmental impacts this may be done by typical measurements.

Direct emissions of carbon dioxide resulting from decarbonation and combustion in pyroprocessing phase (clinker production) are recommended to be counted in compliance with "CO<sub>2</sub> Emissions Monitoring and Reporting Protocol for Cement Industry", prepared in March 2005 by Working Group Cement of World Business Council for Sustainable Development.

Emissions resulting from transport can be calculated from secondary data banks.

### Waste products

Individual waste products are counted for each process phase.

Waste products from extraordinary maintenance operations may be excluded.

## 8    UPSTREAM MODULE

### 8.1    SYSTEM BOUNDARIES

All elementary flows at resource extraction shall be included, except for the flows that falls under the general 1% cut off rule (see section 7.2).

### 8.2    DATA QUALITY RULES

Selected generic data shall be used if specific data are unavailable, e.g. data from commonly available data sources such as commercial databases and free databases, describing specific raw materials or processes usually referring to the system under study or to other systems equivalent from a technical point of view.

For allowing the use of selected generic data, a number of pre-set characteristics must be fulfilled and demonstrated:

- Representativeness of the geographical area should adhere to “Data deriving from areas with the same legislative framework and the same energetic 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”, and
- Boundaries towards technical systems adhere to “The boundaries of the considered life cycle stage shall be equivalent”.

The following databases could be used for Europe as sources of selected generic data, paying attention to the year of reference (i.e. the year for which the data is valid):

Material	Database
Steel	IISI (International Iron and Steel Institute) <a href="http://www.worldsteel.org">www.worldsteel.org</a>
Primary copper	ICA (International Copper Association) <a href="http://www.copperinfo.com">www.copperinfo.com</a>
Copper products	ECI (European Copper Institute – Life Cycle Center) <a href="http://www.copper-life-cycle.org">www.copper-life-cycle.org</a>
Electricity	Data combined with IEA (International Energy Agency) statistics on electricity generation mixes for nations, regions etc. <a href="http://www.iea.org/Textbase/stats/index.asp">www.iea.org/Textbase/stats/index.asp</a> European Reference Life Cycle Data System" (ELCD) <a href="http://lca.jrc.ec.europa.eu/">http://lca.jrc.ec.europa.eu/</a>
Fuels	European Reference Life Cycle Data System" (ELCD) <a href="http://lca.jrc.ec.europa.eu/">http://lca.jrc.ec.europa.eu/</a>
Aluminium	EAA (European Aluminium Association) <a href="http://www.aluminium.org">www.aluminium.org</a>

Material	Database
Plastics	PE Plastics Europe (former APME Association of Plastics Manufacturers in Europe) <a href="http://www.plasticseurope.org">www.plasticseurope.org</a>
Chemicals	PE Plastics Europe (former APME Association of Plastics Manufacturers in Europe) <a href="http://www.plasticseurope.org">www.plasticseurope.org</a>
Transports	NTM (Network for Transport and Environment) or regional alternatives <a href="http://www.ntm.a.se/eng-index.asp">www.ntm.a.se/eng-index.asp</a> European Reference Life Cycle Data System" (ELCD) <a href="http://lca.jrc.ec.europa.eu/">http://lca.jrc.ec.europa.eu/</a>
Building materials and products	BEES (Building for Environmental and Economic Sustainability) <a href="http://www.bfrl.nist.gov/oa/software/bees.html">www.bfrl.nist.gov/oa/software/bees.html</a>
Raw Materials Extraction	European Reference Life Cycle Data System" (ELCD) <a href="http://lca.jrc.ec.europa.eu/">http://lca.jrc.ec.europa.eu/</a>
Waste management	European Reference Life Cycle Data System" (ELCD) <a href="http://lca.jrc.ec.europa.eu/">http://lca.jrc.ec.europa.eu/</a>

In other parts of the world other databases may be more appropriate.

### 8.3 RULES FOR GENERIC DATA

If these data sources do not supply the necessary data, other generic data may be used and documented. The environmental impact of the processes where the other generic data are used must not exceed 10% of the overall environmental impact from the product system.

## 9 DOWNSTREAM MODULE

The inclusion of downstream module is optional.

Specific distribution (e.g. a weighted average distribution mode and route) shall be included.

Also, an average retailer shall be included.

### 9.1 RULES FOR GENERIC DATA

If these data sources do not supply the necessary data, other generic data may be used and documented. The environmental impact of the processes where the other generic data are used must not exceed 10% of the overall environmental impact from the product system.

## 10 ENVIRONMENTAL PERFORMANCE RELATED INFORMATION

### 10.1 USE OF RESOURCES

The consumption of natural resources and resources per declared unit shall be reported in the EPD, divided into core, upstream and downstream module.

Input parameters, extracted resources:

- Non-renewable resources
  - Material resources
  - Energy resources (used for energy conversion purposes)
- Renewable resources
  - Material resources
  - Energy resources (used for energy conversion purposes)
- Water use
- Electricity (electricity consumption during manufacturing).

Resources which contribute for 5% or more of the total shall be listed and detailed for each category (renewable and non renewable, with and without energy content).

Parameters for resource consumption shall not be aggregated but reported separately and expressed in g (or its multiples for a better understanding).

Energy resources shall be expressed in MJ.

Water use may be expressed in litres.

### 10.2 POTENTIAL ENVIRONMENTAL IMPACT

The environmental impact per declared unit for the following environmental impact categories shall be reported in the EPD, divided into core, upstream and, if relevant, downstream module:

The emissions of greenhouse gases (expressed in global warming potential, GWP, in 100 year perspective).

- Emission of ozone-depleting gases (expressed as the sum of ozone-depleting potential in CFC 11-equivalents, 20 years).
- Emission of acidification gases (expressed as the sum of acidification potential expressed in SO<sub>2</sub>- equivalents).
- Emissions of gases that contribute to the creation of ground level ozone (expressed as the sum of ozone-creating potential, ethene-equivalents).
- Emission of substances to water contributing to oxygen depletion (expressed as PO<sub>4</sub><sup>3-</sup>-equivalents).

The tables from General Programme Instructions, Annex B shall be used.



### 10.3 OTHER INDICATORS

The following indicators shall be reported in the EPD, also per declared unit and divided into two or the three modules:

- Caloric substitution of primary fuels by secondary (alternative) fuels, MJ
- Use of recycled raw materials, kg
- Hazardous waste, kg (as defined by the Hazardous Waste Directive EN 1991L0689-22/07/1994 – Article 1, Annex I, II and III)
- Other waste, kg
- Dust, kg (total dust and PM<sub>10</sub>)
- Land use, m<sup>2</sup>a (for land occupation)
  - Square meters used of specified land category (e.g. according to Corine Land Cover Classes, level one at a minimum - 5 classes- <http://terrestrial.eionet.europa.eu/CLC2000/classes>)
  - Number of years that the areas are occupied
- Toxic emissions, if relevant
  - LCI emission data for waste incineration plant: micro-pollutants (Polychlorodibenzodioxins (PCDD), Polychlorodibenzofurans (PCDF) expressed in terms of Equivalent toxicity (ET) and Polycyclic Aromatic Hydrocarbons (IPA))

### 10.4 ADDITIONAL ENVIRONMENTAL INFORMATION

Information about biogenic CO<sub>2</sub> emissions is not necessary. If reported the biogenic CO<sub>2</sub> emissions shall be separated from the other greenhouse gases (expressed in global warming potential, GWP, in 100 year perspective).

Some information such as the presence of heavy metals and Polycyclic Aromatic Hydrocarbon (PAH), chemical products classified as carcinogenic, toxic to reproduction or causing inheritable damage (in accordance with regulations regarding the classification and labelling of hazardous chemicals in EU classification system 1999/45/EC, with amendments), shall be introduced by the organisation.

## 11 CONTENT OF THE EPD

### 11.1 PROGRAMME RELATED INFORMATION

The programme related part of the EPD shall include:

- Name of the programme and programme operator
- The reference PCR document
- Registration number
- Date of publication and validity
- Geographical scope of application of EPD

- Information about the year or reference period of the underlying data to the EPD
- Reference to the homepage – [www.environdec.com](http://www.environdec.com) – for more information.

## 11.2 PRODUCT RELATED INFORMATION

### 11.2.1 SPECIFICATION OF THE PRODUCTION COMPANY

See 2.1.

### 11.2.2 SPECIFICATION OF THE PRODUCT

See 2.2.

### 11.2.3 DECLARED UNIT

See 3.

### 11.2.4 CONTENT OF MATERIALS AND CHEMICAL SUBSTANCES

See 4.

### 11.2.5 COMPARISONS OF EPDS WITHIN THIS PRODUCT CATEGORY

To be able to compare EPDs within this product category, they have to be based on this particular PCR. The user of the EPD information should be made aware of this by the inclusion of this statement in the EPD:

“EPDs from different programmes may not be comparable”

### 11.2.6 VALIDITY OF THE EPD

The validity of the EPD shall be reported in the EPD.

## 11.3 ENVIRONMENTAL PERFORMANCE-RELATED INFORMATION

### 11.3.1 ENVIRONMENTAL PERFORMANCE DECLARATION - MINIMUM SET OF PARAMETERS FROM THE LCA STUDY, REPORTED PER DECLARED UNIT

Upstream module, core module and downstream module shall be reported separately for the resource use, potential environmental impact and other indicators such as waste.

### 11.3.2 USE OF RESOURCES

In this category the consumption of material and energy resources per declared unit shall be reported.

See 10.1.

## 11.4 POTENTIAL ENVIRONMENTAL IMPACT

In this category the potential environmental impact per declared unit shall be reported.

See 10.2.

#### 11.4.1 OTHER INDICATORS

In this category relevant indicators shall be reported per declared unit.

See 10.3.

#### 11.4.2 ADDITIONAL ENVIRONMENTAL INFORMATION

See 10.4.

### 11.5 DIFFERENCES VERSUS PREVIOUS VERSIONS OF THE EPD

The main causes for changes in environmental performance in comparison with previous EPD versions shall be described shortly.

### 11.6 VERIFICATION

The EPD shall give the following information about the verification process:

PCR review conducted by:	Name and organization of the chair, and information on how to contact the chair through the programme operator
Independent verification of the declaration and data, according to ISO 14025:	EPD process certificate or EPD-verification, name of the third party verifier
Accredited or approved by (if relevant):	Name of the organisation

#### 11.6.1 ADDITIONAL SPECIFICATIONS FOR A "SECTOR EPD"

As stated in the General Programme Instructions (par. 4.6.4), the verification procedure shall be based on sample tests in order to assure the full inclusion of all operations and manufacturing sites.

In addition, a responsible person must be appointed for reporting all significant changes in the underlying material relevant for the Sector EPD.

### 11.7 REFERENCES

The EPD shall, if relevant, refer to:

- The underlying LCA
- The PCRs used
- Other documents that verify and complement the EPD
- Programme instructions
- Sources of additional information

## 12 VALIDITY OF THE EPD

If changes in any of the environmental impacts are larger than  $\pm 5\%$  the EPD shall be adjusted. Regardless, the EPD shall be reviewed every three years.

## 13 CHANGES IN THIS DOCUMENT

VERSION 1.0

Original document

