



PRODUCT CATEGORY RULES

CPC SUBCLASS 21537
VIRGIN OLIVE OIL AND ITS FRACTIONS

PCR 2010:07

VERSION 1.0

2010-04-27

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GENERAL INTRODUCTION

The international EPD® 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® system includes three separate parts (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® 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

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

Date and registration no:	2010-04-27, PCR 2010:07
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Open consultation period:	2010-01-20 until 2010-02-19
Valid within the following geographical representativeness:	This PCR document is valid irrespective of geographic production location. 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.
Valid until:	2013-12-31

This document provides Product Category Rules (PCR) for the assessment of the environmental performance of *UN CPC 21537*, Virgin Olive oil and its fractions, and the declaration of this performance by an EPD.

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.

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

The product category referred to the present PCR is: virgin olive oil and its fractions. In particular the ISIC–CPC 2.0

(http://unstats.un.org/unsd/cr/registry/docs/CPCv2_structure.pdf) classification is:

Division 21 - Meat, fish, fruit, vegetables, oils and fats

Group: 215 - Animal and vegetable oils and fats

Class: 2153 - Vegetable oils, crude

Subclass: 21537 - Olive oil, crude and more specifically: virgin olive oil and its fractions.

Neither lampante olive oil nor olive-residue oil crude are included.

2.1 SPECIFICATION OF MANUFACTURING COMPANY

The following mandatory and voluntary information of the producer shall be described:

Mandatory information	Examples of voluntary information
Name of the production company	
Primary production sites (geographic location of olive groves, total area number of trees and irrigation, if applicable).	Environmental policy, Specific aspects regarding the production, GLN
Manufacturing site for virgin olive oil extraction owned or subcontracted	Environmental policy, Specific aspects regarding the production, GLN
Manufacturing site for packing and site for storage owned or subcontracted	Environmental policy, Specific aspects regarding the production, GLN
Issuer and Contacts	
Information on environmental management system of the production company.	

2.2 SPECIFICATION OF THE PRODUCT

The product category includes packed “virgin olive oils” according to the Designations and Definitions of IOOC <http://www.internationaloliveoil.org/web/aa-ingles/oliveWorld/aceite.html> and for virgin olive oils produced in Europe all the regulations and directives for the common organisation of the market in oils and fats are applicable e.g. Reg. 1019/2002, Reg. 796/2002 etc for European Union.

All international, regional and national legal requirements on environment and food safety have to be respected.

For virgin olive oils with a protected denomination of origin and protected indication of origin the specific rules for each respective “Production Guidelines” shall be applicable e.g. Reg. 510/2006 for virgin olive oil produced in European Union, with specific emphasis on traceability. For organic virgin olive oil the respective standards and regulations apply, e.g. Reg. 534/2008 for European Union.

3 FUNCTIONAL UNIT

The functional unit i.e. **1 litre of virgin oil** shall be declared as one product unit including packaging¹, to be used by consumers as salad dressing and for cooking.

¹ End-of-life of the packaging should be addressed in product stages.

The functional unit shall be declared in the EPD. The environmental impact shall be given per functional unit.

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 product unit.

The following materials and substances shall be included in the EPD, subject to analysis for their presence:

1. Virgin olive oil and its constituents either beneficial or harmful to human health.
2. Traces of Plant Protection Products (PPPs) as potentially harmful to human health.
3. Traces of phthalates as potentially harmful to human health.

The list shall be compiled according to the concentration level contained in the functional unit.

Sampling and analytical methods for all the above materials shall be clearly specified.

In cases of packed product the following materials could be included: glass, metals, paper, laminated/coated paper, plastic, and paperboard.

5 UNITS AND QUANTITIES

SI units shall be used.

A maximum of three value numbers shall be used when reporting LCA results.

Power and energy units:

- kWh for electricity.
- MJ for fuels.

6 GENERAL SYSTEM BOUNDARIES

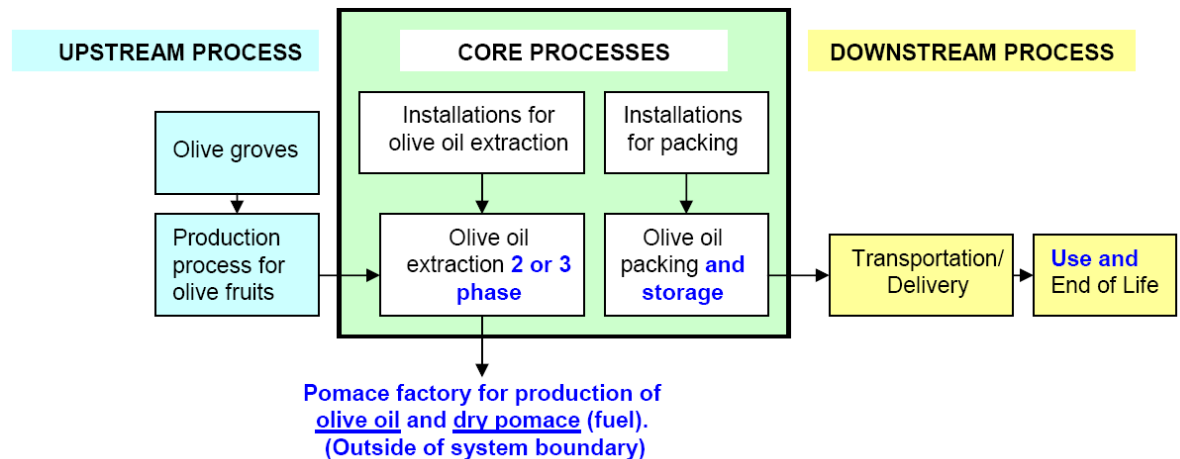


Figure 1. Presentation of Core Module and upstream and downstream processes.

6.1 UPSTREAM PROCESSES

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

- Operations for the transformation of land use, if the olive grove life time is expected to be less than 25 years.
- Operations for the establishment of the olive grove including the irrigation system, if the olive grove life time is expected to be less than 25 years.
- The production of olive fruit (CPC 0145) used in the core process at the farms from the cradle, for which the following inflows shall be considered:
 - Production of inputs used, such as Fertilizers and Plant Protection Products.
 - Waste management
 - Wood use as by-product of renovation pruning or end of life of olive trees
 - External transportation of inputs to production region and sites.
 - Extraction and use of water.
 - Auxiliary materials for harvesting (nets, crates, detergents etc)
- Generation of energy wares (fuel and electricity) used in agriculture at the farm.
- External transportation of olive fruit to the extraction facility.

6.2 CORE PROCESSES

- Extraction of virgin olive oil from the olive fruit.
- Waste management

- Storage of virgin olive oil
- Transportation to the packing unit
- Packaging of virgin olive oil
- Production of packaging
- External transportation of raw materials and energy wares to the core process

6.3 DOWNSTREAM PROCESSES

The downstream processes include

- Transportation from final production/storage site to an average distribution platform if applicable
- Transportation to the retailer
- Waste management / recycling
- The customer or consumer use of the product
- Recycling or handling of packaging waste/materials after use

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

7 CORE MODULE

7.1 SYSTEM BOUNDARIES

7.1.1 TECHNICAL SYSTEM

The raw material and the processes listed below for the production of virgin olive oil including primary packaging shall be included.

Production processes which are mandatory to include:

Extraction phase

- Transportation, energy wares to extraction facility
- Washing of olive fruit, removal of leaves and foreign materials
- Extraction, i.e. crushing of olive fruit, malaxing and separation of virgin olive oil from solids and water soluble material, including the use of water (if applicable) and filtering (if applicable)
- Management of waste or by-products
- Storage of virgin olive oil

Packing phase

- Transportation of energy wares to packing unit

- Transportation of virgin olive oil to the packing unit
- Packaging of virgin olive oil
- Production of packaging
- Internal transportation
- Storage of packed product before dispatch
- External transportation of raw materials and energy wares to the core process.

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

Waste that is deposited in landfill shall not be included in the system boundaries.

Waste that is deposited in landfill shall be declared as kg of waste (and kg of hazardous waste).

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

Maintenance activities more frequent than every three years shall be included.

Business travel of personnel may 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

Data shall be representative for the year/time frame for which the EPD is valid. EPD validity may be extended to 3 years provided that underlying data keep supporting it (+/- 5%) for the second and third year.

7.1.4 BOUNDARIES TO NATURE

Boundaries to nature are defined as:

- flows of material water and energy resources from nature into the extraction facility and packing facility
- emissions to air, water and soil cross the system boundary when they are emitted from or leaving the extraction facility and the packing facility

7.1.5 BOUNDARIES TO OTHER PRODUCT LIFE CYCLES

If there is an inflow of recycled material to the production system in the production phase, 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 the recycling process shall be included. The material going to recycling is then an outflow from the production system.

7.2 CUT OFF RULES

Life Cycle Inventory data for a minimum of 99 % of total inflows to the core module shall be included. Inflows not included in the LCA shall be documented in the EPD.

7.3 ALLOCATION RULES

Allocation between different grades, such as organic/non organic or extra virgin/virgin olive oil, shall be based on product volume or mass. The same applies to the wood produced by pruning, tree renovation or end of trees life. Allocation for the co-product pomace, should be by value if it is destined for further process by a pomace factory for the production of pomace oil and dry pomace (fuel).

7.4 DATA QUALITY RULES

Specific data shall be documented for the Core Module. Data integrity shall be supported by quality procedures, such as documentation, document control and internal audits. It is preferable to have a suitable certification (e.g. BRC/IFS or equivalent) for the production facilities. Data records shall be available for verification.

Specific data are data gathered from the sites where specific processes are carried out (extraction facility, storage, packing facility) and shall be traceable to the volume of virgin olive oil corresponding to the EPD per year.

The requirement for specific data also include actual product weights, amounts of raw materials and any other inputs used and amounts of by-products and 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 country of manufacture. The mix of energy shall be documented.

8 UPSTREAM MODULE

8.1 SYSTEM BOUNDARIES

All elementary flows at resource extraction shall be included, except for the flows that fall under the general 1% (by applicable units in the inventory phase) cut-off rule. Production and transportation of all inputs shall be included.

8.2 DATA QUALITY RULES

For production of olive fruit specific data for the operations at the olive groves shall be documented, traceable up to the volume of virgin olive oil corresponding to the EPD per year. Data integrity shall be supported by quality procedures, such as documentation, document control and internal audits. It is preferable to have an ISO 14001 certification or equivalent, for the olive fruit production system. Data records shall be available for verification.

The requirement for specific data shall include amounts of each input used and amounts of each output including pruned wood, cut trees, weed biomass removed from the fields, waste as well as actual olive fruit weight.

Selected generic data shall be used for other parts of the LCI, such as the life-cycles of Plant Protection Products and fertilizers, i.e. data from commonly available data sources such as commercial databases and free databases, describing specific inputs or processes used in olive growing or in other crops 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”.

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

- Transportation: Distances of product distribution should be calculated by an average of the covered distances by each mode and route. Distribution data to the point of retail shall be subdivided by mode:
 - Sea transport
 - Air freight
 - Transport by rail
 - Transport by truck/lorry
- Wholesale / Retail storage
- Waste management

Transport from the retailer to the household should be excluded from the assessment.

9.1 USE PHASE SCENARIO

Use phase (consumption) emissions are not included. No refrigeration is required.

9.2 RECYCLING DECLARATION AND WASTE TREATMENT

Recommendation should be given for packaging material to be treated according to the local recycling / waste treatment schemes.

The potential environmental impact and benefit of recycling and waste treatment shall be presented in the EPD.

10 ENVIRONMENTAL PERFORMANCE RELATED INFORMATION

10.1 USE OF RESOURCES

The consumption of natural resources and resources shall be reported in the EPD divided in upstream (per hectare of olive groves and per functional unit) core and downstream (per functional unit).

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 consumption during the entire life cycle of the product.

10.2 POTENTIAL ENVIRONMENTAL IMPACT

The following environmental impact categories shall be reported in the EPD divided in upstream (per hectare of olive groves and per functional unit) core and downstream (per functional unit):

- 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 SO₂-eq.).
- 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 PO₄⁻ eq or as the sum of oxygen consumption potential in kg O₂)

- Depletion of abiotic resources (expressed as Kg Sb-eq),
- Emissions linked to Ecotoxicity (expressed as Kg 1,4-DCB-eq),
- Emissions linked to Human toxicity (expressed as Kg 1,4-DCB-eq)
- Land use (expressed as m²*yr)

10.3 OTHER INDICATORS

The following indicators shall be reported in the EPD:

- Material subject for recycling or other use
- Hazardous and environmentally active waste, kg (as defined by regional directives)
- Other waste, kg
- Renewable energy, if applicable
- Toxic emissions: if applicable

10.4 ADDITIONAL ENVIRONMENTAL INFORMATION

It is recommended to add information enabling the possibility to make comparisons with vegetable oils of origin other than olive trees, as well as different agricultural / manufacturing practices preferably based on the concept of functional/declared unit, which is useful for scaling the environmental impacts of activities, inputs or services.

Also, a more detailed description of an organisation's overall environmental work (than indicated above under Chapter 3.2 Product related information), such as:

- the existence of a quality or environmental management system or any other type of organised environmental activity,
- the aesthetic contribution of olive groves to natural environment,
- The contribution of olive groves to biodiversity,
- any activity related to supply chain management, social responsibility (SR) etc., and
- information on where interested parties may find more details about the organisation's environmental work.

Information about biogenic CO₂ emissions is not necessary. If reported, the biogenic CO₂ emissions shall be separated from the other greenhouse gases (expressed in global warming potential, GWP, in 100 year perspective).

11 CONTENT OF THE EPD (CPC 34)

11.1 PROGRAMME RELATED INFORMATION

The programme related part of the EPD shall include:

- Name of the programme and the 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 – for more information

11.2 PRODUCT RELATED INFORMATION

Specification of the production company (See 2.1) and total volume of virgin olive oil produced yearly, corresponding to the EPD.

11.2.1 SPECIFICATION OF THE PRODUCTION COMPANY

See 2.1.

11.2.2 SPECIFICATION OF THE PRODUCT

See 2.2.

11.2.3 FUNCTIONAL 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 temporal 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 FUNCTIONAL UNIT

Upstream module, Core module and downstream module shall be reported separately.

11.3.2 USE OF RESOURCES

In this category the consumption of natural resources and resources shall be reported.

See 10.1.

11.4 POTENTIAL ENVIRONMENTAL IMPACT

In this category the potential environmental impacts shall be reported.

See 10.2.

11.4.1 OTHER INDICATORS

In this category relevant indicators shall be reported

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:	<i>Name and organization of the chair, and information on how to contact the chair through the programme operator</i>
Independent verification of the declaration and data, according to ISO 14025:	<i>Internal (EPD process certificate) or external, if external name of the third party verifier</i>
Accredited or approved by (if relevant):	<i>Name of the organisation</i>

11.7 REFERENCES

The EPD shall -if relevant- refer to:

- the underlying LCA
- the PCRs used
- other documents that verify and complement the EPD
- instruction for recycling
- 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

