

# PRODUCT-CATEGORY RULES (PCR)

for preparing an environmental declaration  
(EPD) for Product Group

***Soccer pitch surface products and  
soccer pitches***

NPCR 16  
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## Content

Preface .....	5
1 General information .....	6
2 Terms and definitions.....	8
3 PCR for product specific EPD; soccer pitch surface <i>products</i> .....	9
3.1 Methodological requirements .....	9
3.1.1 Product category description .....	9
3.1.2 Functional and declared unit.....	9
3.1.3 General product system boundaries .....	10
3.1.4 System boundaries to nature .....	11
3.1.5 System boundaries for manufacturing equipment and for employees .....	11
3.1.6 Material recycling and technosphere system boundaries .....	11
3.1.7 Multi input/output process allocation procedures .....	12
3.2 Data quality requirements and calculation rules .....	12
3.3 Requirements of product content declaration.....	13
3.4 Environmental declaration reporting format.....	14
3.4.1 General structure .....	14
3.4.2 Specification concerning reporting the LCA results.....	14
4 PCR for soccer pitch specific EPD .....	16
4.1 Methodological requirements .....	16
4.1.1 Product category description .....	16
4.1.2 Functional unit .....	16
4.1.3 Description of life cycle stages and defined scenarios .....	17
4.1.4 System boundaries to nature .....	19
4.1.5 System boundaries for manufacturing equipment and employees .....	19
4.1.6 Material recycling and technosphere system boundaries .....	20
4.1.7 Multi input/output process allocation procedures .....	20
4.2 Data quality requirements and calculation rules .....	21
4.3 Requirements of product content declaration.....	22
4.4 Environmental declaration reporting format.....	22
4.4.1 General structure .....	22
4.4.2 Specification concerning reporting the LCA results.....	22
5 Period of validity of the document .....	25
6 References .....	26
Annex 1 – Checklist for influence on use stage for soccer pitch products .....	27

## Preface

This product category rule (PCR) is inspired by the PCR 2006:02 for *Building products* and is in accordance with ISO 14025: 2006 *Environmental labels and declarations – Type III environmental declarations – Principles and procedures* [1], ISO 14044: 2006 *Environmental management - Life cycle assessment - Requirements and guidelines* [2] and prEN 15804: 2008 *Sustainability of construction works – Environmental product declarations – core rules for the product category of construction products* [3]. The ‘Artificial grass handbook’ [4] and ‘Guideline for maintenance of artificial grass’ [5] by the Norwegian soccer association and the Norwegian Ministry of culture and church affairs has been used as tools throughout the work.

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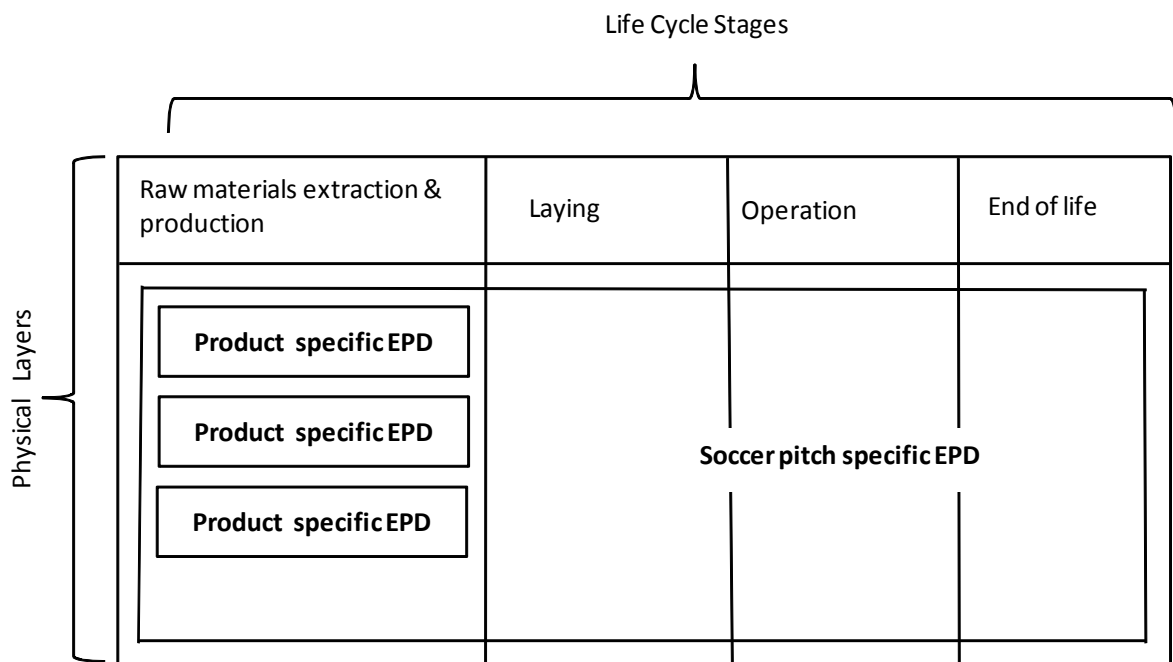
# 1 General information

This product category rule (PCR) describes methodology, reporting format and requirement for environmental data for soccer pitch surfaces.

The PCR is in accordance with ISO 14025 standard on environmental declarations and prEN 15804 for PCRs for construction products. This PCR has to be complimented by administrative rules that are relevant to a program operator and the *environmental declaration type III* program.

The rules are independent on type of soccer pitch surface and may be applied for different types of soccer pitch surface types, such as artificial grass, natural grass and gravel pitches. The rules comprises all layers of the soccer pitch surface, from basis and support layers to the surface the soccer players are playing on.

This PCR covers both *product specific environmental declaration* for soccer pitch surface products (presented in chapter 3) and *soccer pitch specific environmental declaration* for all physical layers, raw materials extraction and production, laying scenario !, operation and maintenance scenario and end of life scenario (presented in chapter 4). The life cycle inventory for *soccer pitch surface products* covers “cradle to gate”, while the *soccer pitch specific EPD* covers “cradle to grave”. This is illustrated in the figure below.



**Figure 1 Coverage of life cycle stages for product specific EPDs and soccer pitch specific EPDs.**

As shown in the figure, the product specific EPD (presented in chapter 3) covers a cradle to factory gate for one (or more) specific soccer pitch surface product, while the soccer pitch specific EPD

(presented in chapter 4) includes all products and physical layers for all life cycle stages for the specific declared soccer pitch. The product specific EPD for soccer pitch products is relevant for suppliers and manufactures of soccer pitch products. The soccer pitch specific EPD is relevant for soccer pitch owners or contractors for installing soccer pitches. The two types of declarations are described below:

### **Product specific EPD for soccer pitch surface products (described in chapter 3)**

Objective: To define a set of rules for developing EPD for soccer pitch surface products (all physical layers), enabling documentation of environmental impact of products for soccer pitch surfaces.

The product based EPDs developed from this PCR may be used to

- evaluate the environmental impact of one or several soccer pitch products and to improve their environmental performance
- compare the environmental performance of different soccer pitch products as a tool in the decision making process when planning the construction of a soccer pitch

The product based EPDs shall cover a “cradle to factory gate” life span, but is also required to describe any influence the products may have on the soccer pitch specific life cycle stage scenarios described in soccer pitch specific PCR.

The product based EPD may be developed by supplier or manufacturer of the product and requires specific production data.

### **Soccer pitch specific EPD for all physical layers of the soccer pitch and all life cycle stages: raw materials extraction and production, laying, operation and maintenance and end of life scenario (described in chapter 4)**

Objective: To define a set of rules for developing EPD for specific soccer pitches, to document all environmental impacts associated with all life cycle stages of a specific soccer pitch surface.

The soccer pitch specific EPD developed from this PCR may be used:

- To evaluate different alternatives and selection between products of technical solutions in the process of soccer pitch projecting
- As underlying documentation for environmental profile for example for applications for national funding.

The soccer pitch specific EPDs shall cover a “cradle to grave” perspective, and shall include production data from product based EPDs for included products as well as impact from soccer pitch specific activities and consumption, such as maintenance and repairment routines based on experience and relevant requirements.

The soccer pitch specific EPD may be developed by soccer pitch owners or contractors responsible for installing soccer pitches.

## 2 Terms and definitions

For the purpose of this document the following terms and definitions apply

### 2.1

#### **product specific EPD**

EPD for soccer pitch surfaces (layers) from cradle to gate

*NOTE* May take into account the influence the product will have on other life cycle stages

### 2.2

#### **Soccer pitch specific EPD**

EPD for all physical layers of soccer pitch and all life cycle stages

### 2.3

#### **EPD**

Environmental Product Declaration

### 2.4

#### **LCA**

Life Cycle Assessment

### 2.5

#### **LCI**

Life Cycle Inventory

### 2.6

#### **PCR**

Product Category Rule

## **3 PCR for product specific EPD; soccer pitch surface products**

This PCR covers soccer pitch products such as artificial grass/natural grass, padding, base layers, defrosting products etc.

### **3.1 Methodological requirements**

The EPD shall be based on life cycle assessment (LCA) in accordance with ISO 14044 and 14025.

#### **3.1.1 Product category description**

This set of PCR rules are valid for soccer pitch surface products from basis layer to the surface the soccer players are playing on. The PCR may also be applied for defrosting products and roofing/superstructures of soccer pitches. For making an EPD the rules described in this chaptershall be applied independent of type of product.

The EPD may cover a combination of products as well as one single product. This information is to be applied in the soccer pitch specific EPD (described in chapter 3).

#### **3.1.2 Functional and declared unit**

The functional unit is related to 1 Soccer pitch operated in 40 years.

The dimension of the soccer pitch is 7400 m<sup>2</sup> if not defined otherwise in the EPD

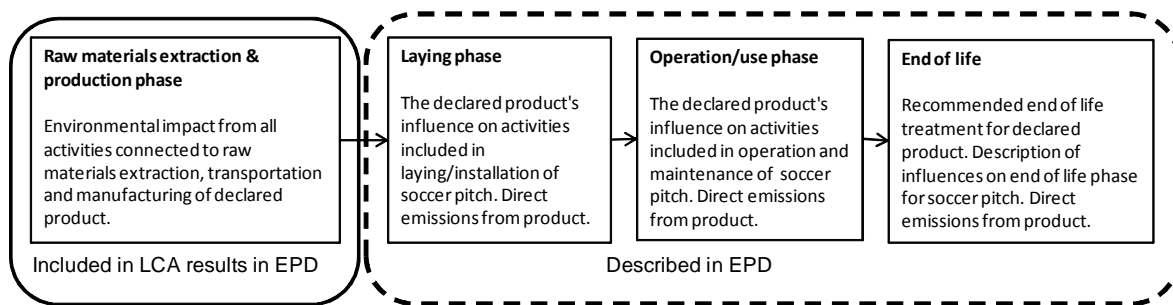
If the life span of the product is less than 40 years, the EPD has to account for chngement of the materials, including related activities.

The relation between the specific function of the declared product and the functional unit of the entire soccer pitch has to be well described in the EPD.

Product specific EPDs shall cover a “cradle to factory gate” life span, but it is also required to describe any influence the products may have on the scenarios for each life cycle stage for soccer pitch specific EPD, described in chapter 4.

### 3.1.3 General product system boundaries

The figure below illustrates the life cycle stages of a soccer pitch surface product and requirements for reporting environmental impact from each life cycle stage.



**Figure 2** Life cycle stages for soccer pitch surface product.

The product specific EPD shall cover a 'cradle to factory gate' LCA that includes extraction of all raw materials included in the product, transportation of raw materials and components and manufacturing. For natural grass agriculture of the grass and fertilizers must be included. It must be clearly stated in the EPD that the results does not cover and entire cradle to grave analysis.

The product's influence on the other life cycle stages (laying phase, operation/use phase and end of life) shall be declared. For this purpose a check list is shown in Annex 2 and description of life cycle stage scenarios in chapter 4.1.3. This information is to be applied in the soccer pitch specific EPD (described in chapter 4). Leaching of substances during the use phase of the soccer pitch must be stated according to relevant standards.

Direct emissions from the declared product during the laying stage, use stage and end of life, shall be described and quantified. E.g. for a defrosting product emissions to soil and water shall be declared per kg or other relevant defined unit.

The generic life cycle of a soccer pitch surface is divided in four life cycle stages. Table 1 gives an overview of the life cycle stages and how each life cycle stage must be declared in the EPD.

Generic process steps	Life cycle stage	Covered in product EPD as
Extraction of resources	Raw materials and production stage	Included in the LCA results, reported in the EPD
Transport of resources		
Raw material production		
Transport of refined resources		
Manufacturing of product		
Excavation on location	Laying stage	Qualitative and quantitative



Transport of excavated masses from location		information
Filling of masses		
Transport of products to soccer pitch location		
Installation of product(s)		
Maintenance activities	Use stage	Qualitative and quantitative information
Heating, snow removal, defrosting etc.		
Replacement of materials		
Waste handling of replaced masses		
Transport to waste handling	End of life	Qualitative and quantitative information
Waste management		

**Table 1 Generic life cycle of a soccer pitch and how the environmental impact is reported**

### 3.1.4 System boundaries to 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 explorative impact, and on the output side emissions and resource consumption. In an ideal LCA, all flows studied shall be traceable to a natural recipient. A flow that cannot be traced back to a natural recipient shall be reported.

### 3.1.5 System boundaries for manufacturing equipment and for employees

The following system boundaries applies:

- Environmental impact from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process are not accounted for in the LCI.
- Impact from infrastructure for energy and heat used shall be included. This is in correspondence with the PCR for electricity, steam, hot and cold water, generation and distribution (PCR, 2007) [7].
- Personnel related impacts such as transportation to and from work, are not accounted for in the LCI.
- Installations and activities outside of the soccer pitch related to visitors and players may be excluded from the LCA.

### 3.1.6 Material recycling and technosphere system boundaries

When a product reaches its end of life it may be sent to landfill or energy recovery, or its materials may be reprocessed and utilised in a new product (open loop recycling).

The recycling processes shall be treated as closed loop recycling, as long as no changes occur in the inherent properties of the recycled material. In such cases, the need for allocation is avoided since the

use of secondary material displaces the use of virgin (primary) materials. Recycled materials that are used in the fabrication of the product shall have no environmental impact on the new product. The environmental impacts from recycling are regarded as output to the next life cycle.

The recyclability of the product shall be stated in the EPD (weight percentage of materials in product that are recyclable).

### 3.1.7 Multi input/output process allocation procedures

In a production process where more than one type of product is generated, it may be necessary to allocate the environmental impacts (inputs and outputs) from the process to the different products in order to get product-based inventory data. In principle allocation rules should reflect the goal of the production process.

For soccer pitch products the primary allocation rule is that allocation shall be carried out according to mass.

Raw material energy shall be allocated to material resources (kg), while process energy shall be allocated to energy resources (MJ).

Allocation associated with transport should as a main rule be based on weight. Where volume is the constraining parameter, allocation should be based on volume. This shall be documented and justified.

When allocation is used, the economic reality and other relevant aspects shall be considered to determine if other allocation criteria would be more appropriate or lead to deviating results. A sensitivity analysis should be initiated if a deviation of > 25% is foreseen. Different data sets shall be documented and reported, if different allocation options are relevant.

## 3.2 Data quality requirements and calculation rules

The calculation procedures for the contribution to the impact categories shall follow the instructions in the ISO 14040-standards, and the results shall be clearly documented in the LCA-technical report

To enable comparison between the different EPDs the LCA data shall have the same quality and follow the same methodology. An environmental product comparison between products from different suppliers requires that the LCA is based on product specific data.

The year of the data and data quality shall be documented in the EPD report.

- *Cut-off rules:* Materials or components that contribute to less than 1% of the total environmental impact may be excluded from the study. The exclusion shall be documented. Hazardous materials may never be excluded from the analysis. The sum of excluded impacts shall not exceed 5%.

- *Technology and geographical coverage:* The geographical and technological representation shall be documented in the EPD-report.
- *Boundaries in time:* Data should be collected in such a way that it represents the yearly environmental impact. Specific production data for declared product should not be older than two years. Production data older than two years should be documented and the reason should be stated.
- *Electricity mix:* The electricity mix applied should be in correspondence with the electricity grid of the relevant region (such as Nordel, Centrel, UCTE).

The LCA should as far as possible be based on specific data. Where specific data is impossible to obtain, generic data may be applied as shown in Table 2. The database data must represent the most recent available data.

Material	Database
Steel	IISI (International Iron and Steel Institute) <a href="http://worldsteel.org">http://worldsteel.org</a>
Copper	ICA (International Copper Association)
Aluminium	EAA (European Aluminium Association) <a href="http://www.eaa.org/">http://www.eaa.org/</a>
Plastics	Plastics Europe (Association of Plastics Manufacturers Europe) <a href="http://www.plasticseurope.org/">http://www.plasticseurope.org/</a>
Chemicals	Plastics Europe (Association of Plastics Manufacturers Europe) <a href="http://www.plasticseurope.org/">http://www.plasticseurope.org/</a>

**Table 2** Database data that may be applied if specific data cannot be obtained

All data sources has to be specified and it shall include the database and year of publication. Sources of data for transport models (including transport method, distances and quantities to be transported) and thermal energy production shall be documented.

Where EPD exist for a purchased product (or a similar product), data from the EPD must be applied. Where specific data cannot be obtained, the sources in Table 2 may be applied for the European market.

### 3.3 Requirements of product content declaration

A list of the products substances shall be included in the product content declaration. The contents shall be declared in weight %. In cases where a complete declaration of contents could affect patent or company secrets, a list of components and their functions is sufficient.

## 3.4 Environmental declaration reporting format

### 3.4.1 General structure

The recommended length of the EPD is 4 pages. The mandatory structure of the EPD is listed below:

Heading of the EPD and environmental declaration specification and PCR identification

Company information

Location of manufacturing of the product(s)

Product information

Includes product content declaration

Functionality of product

Functional and/or declared unit

Environmental performance declaration

LCA results total and distributed on materials extraction, production and transport

Other significant environmental aspects

The product's influence on installation/laying stage scenario for soccer pitch

The product's influence on use stage scenario for soccer pitch

Recommended waste handling

Recyclability

Other information

References

Information from programme operator and certification body

The EPD document shall include an explanation of the limitations of a 'cradle to gate'-LCA. For information about mandatory content in EPD, see ISO 14025 section, 7.2.1.

### 3.4.2 Specification concerning reporting the LCA results

The following information shall be included in the EPD:

Functional and/or declared unit

Model assumptions

Technological, geographical and time related coverage

The table below shows impact categories to be included in the LCA:

<b>Impact category</b>	<b>Unit /declared unit</b>	<b>Source</b>
Climate change (GWP)	[kg CO <sub>2</sub> equiv]	Latest version of IPCC
Depletion of potential of the stratospheric ozone (OPD)	[kg CFC 11 equiv]	CML 2001 or latest version
Acidification (AP)	[kg SO <sub>2</sub> equiv]	CML 2001 or latest version

Eutrophication (NP)	[kg (PO <sub>4</sub> ) <sup>-3</sup> equiv]	CML 2001 or latest version
Photochemical Ozone Creation Potential (POCP)	[kg C <sub>2</sub> H <sub>4</sub> equiv]	CML 2001 or latest version
Cumulative energy demand	[MJ] divided on the categories: <ul style="list-style-type: none"> <li>- Renewable energy resources, primary energy</li> <li>- Non renewable energy resources, primary energy</li> <li>- Renewable secondary fuels</li> </ul>	Sources shall be specified
Resource use	[kg] divided on the categories: <ul style="list-style-type: none"> <li>- Input of renewable material resources other than primary energy</li> <li>- Input of non renewable material resources other than primary energy</li> </ul>	Sources shall be specified

**Table 3 Impact categories to be included**

CML may in the future be replaced by ELCD Handbook recommendations.

In addition the following topics shall be addressed:

- Input of net fresh water (m<sup>3</sup>)
- Any toxic (for human health or eco systems) substances or materials included in the product shall be listed
- The recyclability of the product shall be stated

All environmental impact shall be presented in total for the product, as well as distributed on raw materials extraction, production and transport.

Hazardous waste (kg), if applicable, according to EU directive 91/689/EEC (see also regulation of June 1, 2004 no. 930 of recycling and treatment of waste with amendment by the Ministry of the Environment (Avfallsforskriften)).

#### Units

The following units shall be used:

- SI units
- Preferred power and energy units: kW (MW) for power
- MJ for energy

## 4 PCR for soccer pitch specific EPD

EPD for all physical layers of the soccer pitch and all life cycle stages: raw materials extraction and production, laying, operation and maintenance and end of life scenario.

An EPD based on PCR for soccer pitch specific EPD shall account for the complete life cycle of the soccer pitch surface for all physical layers from basis and support layers to the surface the soccer players are playing on.

The EPD is based on scenarios, but the scenario and the input of data in the LCA should as far as possible be adjusted to the specific soccer pitch and the chosen technical solution and products.

Factors that may influence the scenario is:

- Geographic circumstances and the local climate
- Choice of product types of soccer pitch surfaces
- Heating/no heating

The soccer pitch specific EPD shall be based on the scenarios described in chapter 4.1.3. Where EPD for the relevant soccer pitch surface product is available, data on the product's influencing on laying stage, use stage or end of life described in the product EPD shall be taken into account.

Deviation from the defined scenario is allowed when relevant, but shall be justified in the EPD.

### 4.1 Methodological requirements

The EPD shall be based on life cycle assessment (LCA) in accordance with ISO 14044.

#### 4.1.1 Product category description

This PCR is valid for a soccer pitch including all layers from support/ground masses to visible layers

#### 4.1.2 Functional unit

The main functional unit is 1 Soccer pitch surface 7400 m<sup>2</sup> (if not defined otherwise in the EPD) operated in 40 years.

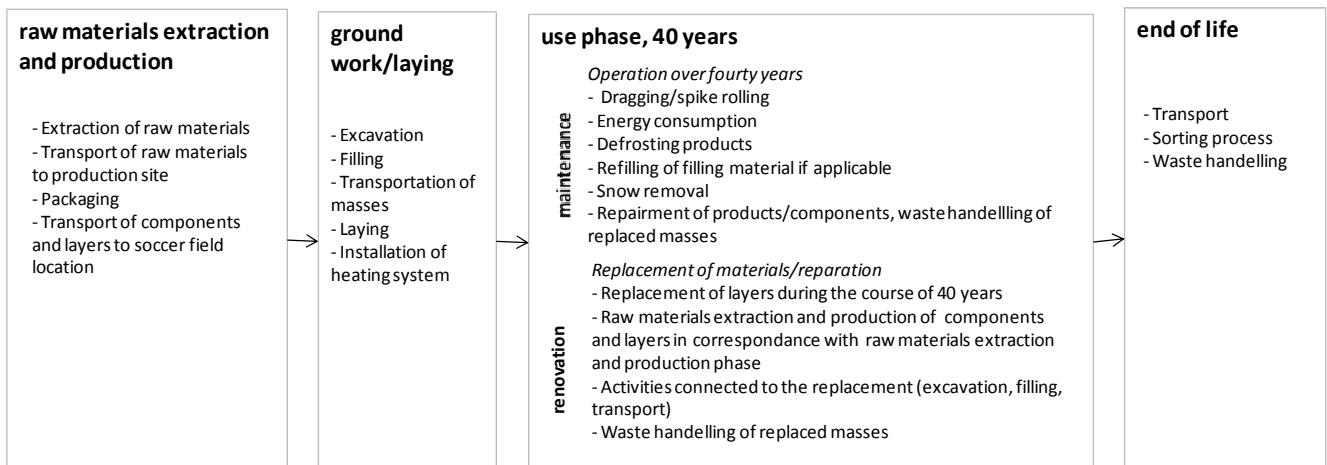
Some environmental impacts shall be presented based on estimated hours played during 40 years (see chapter 4.4.1 and 4.4.2). The estimated amount of hours played over 40 years shall be documented and justified in relation to the actual type of soccer pitch surface (natural grass, artificial grass etc.).

If the life span of included products is less than 40 years, the EPD has to account for chngement of the materials and activities.

Where chagement or reparation of products/materials in the soccer pitch requires activities such as excavation, transport and/or similar, those activities shall be accounted for in the soccer pitch specific EPD.

### 4.1.3 Description of life cycle stages and defined scenarios

The scenarios are meant as guidelines and local variations may be implemented. Deviation from the defined scenario shall be well described and justified.



**Figure 3** The life cycle stages of a soccer pitch surface

### Production stage scenario

The production stage should include raw materials extraction, production, packaging and transportation of all materials to location as shown in Figure 3. For natural grass agriculture of the grass and fertilizers must be included. Emission data from existing product specific EPDs for soccer pitch products included in the specific soccer pitch shall be implemented.

For the support layer generic data may be applied if no EPD for the relevant product is available. The defined scenario assumes 500 mm of mass all over a 7400 m<sup>2</sup> soccer pitch. Three alternatives are suggested below:

Material	Density	Suggested amount	Suggested datasource
Gravel	2000 kg/m <sup>3</sup>	7 500 000 kg	Generic
Leca	700 kg/m <sup>3</sup>	2 625 000 kg	EPD
Glasopor	180 kg/m <sup>3</sup>	675 000 kg	Generic or EPD

Table 4 Support layers

If other materials, products or volumes are applied, experience/generic data may be utilized. The assumptions shall be justified.

## Laying stage scenario

The laying stage includes all activities and consumption of materials related to the construction work at the location of the soccer pitch surface shown in Figure 3, such as:

- removal of masses on the soccer pitch location
- transport of removed and unused masses from soccer pitch location to waste treatment (specific transportation distances and means of transportation)
- refilling of masses
- transportation of all products from fabrication location (via stockiest where relevant) to soccer pitch location (specific transportation distances and type of transportation)
- installation of soccer pitch products and related activities (such as brushing)

Other relevant activities not mentioned above should be included. Where EPD for applied soccer pitch product exist, information about the product's influence on the laying stage shall be implemented in the use stage scenario.

Suggested scenario for removal of masses (excavation) and refilling of masses:

Activity	Machine/tool	Unit	Assumption
Excavation	Digger	3700 m3 excavated	Excavation of a layer of 0,5 m on soccer pitch (7400m2)
Filling of masses	Digger	3700 m3 replaced	Filling of a layer of 0,5 m on soccer pitch (7400m2)

Table 5 Scenarios for removal of masses

The scenario should be adjusted to the activities at the specific soccer pitch surface. The assumptions shall be justified.

## Use stage scenario

The use stage includes operation and maintenance of all layers and products of the soccer pitch surface as shown in Figure 3. Where EPD for applied soccer pitch product exist, information about the product's influence on the operation stage should be implemented in the use stage scenario.

For heated soccer pitches energy use for 40 years of operation shall be included in the soccer pitch specific EPD. Relevant energy carrier should be applied.

Impact from infrastructure for energy and heat used shall be included. This is in correspondence with the PCR for electricity, steam, hot and cold water, generation and distribution (PCR, 2007).[7]

The use stage scenario shall include annual/ weekly/daily maintenance activities of 40 years of operation such as:

- Brushing
- Snow removal
- Use of defrosting products



- Refilling of filling material
- Mowing
- Fertilizing
- Drainage

Other relevant maintenance activities not mentioned above should be included. The use stage scenario should reflect the geographical location of the soccer pitch and the local climate's influence on the operation activities.

Replacement of layers and necessary maintenance during 40 years of operation shall be included. Assumptions shall be documented and justified. Where chngement or maintenance of products/materials in the soccer pitch requires activities such as excavation, transport and/or similar, those activities shall be accounted for in the soccer pitch specific EPD.

For replacement, maintenance and filling activities, transport and waste treatment of replaced materials has to be accounted for.

Leaching of substances from the products included in the soccer pitch (emissions to water) must be declared according to relevant standards.

### **End of life scenario**

Includes end of life and waste treatment for all materials. Where EPD for applied soccer pitch product exist, information about the product's influence on the end of life stage should be implemented in the use stage scenario.

Activities that have to be included are:

- Transport of all materials to waste treatment (specific transport distance and means of transportation)
- Waste management of all materials (landfill, energy recovery)

#### **4.1.4 System boundaries to 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 explorative impact, and on the output side emissions and resource consumption. In an ideal LCA, all flows studied shall be traceable to a natural recipient. A flow that cannot be traced back to a natural recipient shall be reported.

A soccer pitch specific EPD shall reflect the geographical location of the soccer pitch and the local climate's influence on the life cycle stages, especially the operation stage.

#### **4.1.5 System boundaries for manufacturing equipment and employees**

The following system boundaries apply:

- Environmental impact from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process shall not be accounted for in the LCI.
- Impact from infrastructure for energy and heat used shall, however, be included. This is in correspondence with the PCR for electricity, steam, hot and cold water, generation and distribution (PCR, 2007).[7]
- Personnel related impacts such as transportation to and from work, are not accounted for in the LCI.
- Installations and activities outside of the soccer pitch related to visitors and players may be excluded from the LCA.

#### 4.1.6 Material recycling and technosphere system boundaries

When a product reaches its end of life it may be sent to landfill or energy recovery, or its materials may be reprocessed and utilised in a new product (open loop recycling).

The recycling processes shall be treated as closed loop recycling, as long as no changes occur in the inherent properties of the recycled material. In such cases, the need for allocation is avoided since the use of secondary material displaces the use of virgin (primary) materials. Recycled materials that are used in the fabrication of the product shall have no environmental impact on the new product.

The environmental impacts from recycling are regarded as output to the next life cycle.

The recyclability of the product shall be stated in the EPD (weight percentage of materials in product that are recyclable).

#### 4.1.7 Multi input/output process allocation procedures

In a production process where more than one type of product is generated, it may be necessary to allocate the environmental impacts (inputs and outputs) from the process to the different products in order to get product-based inventory data. In principle allocation rules should reflect the goal of the production process.

For soccer pitch products the primary allocation rule is that allocation shall be carried out according to mass. Raw material energy shall be allocated to material resources (kg), while process energy shall be allocated to energy resources (MJ).

Allocation associated with transport should as a main rule be based on weight. Where volume is the constraining parameter, allocation should be based on volume. This shall be documented and justified.

When allocation is used, the economic reality and other relevant aspects shall be considered to determine if other allocation criteria would be more appropriate or lead to deviating results. A sensitivity analysis should be initiated if a deviation of > 25% is foreseen. Different data sets shall be documented and reported, if different allocation options are relevant.

## 4.2 Data quality requirements and calculation rules

The calculation procedures for the contribution to the impact categories shall follow the instructions in the ISO 14040-standards, and the results shall be clearly documented in the LCA-technical report

To enable comparison between the different EPDs the LCA data shall have the same quality and follow homogenous methodology. An environmental product comparison between products from different suppliers requires that the LCA is based on product specific data.

The year of the data and data quality should be commented in the EPD report.

- *Cut-off rules:* Materials or components that contribute to less than 1% of the total environmental impact may be excluded from the study. The exclusion shall be documented. Hazardous materials may never be excluded from the analysis.
- *Technology and geographical coverage:* The geographical and technological representation shall be reported in the EPD.
- *Boundaries in time:* Data should be collected in such a way that it represents the yearly environmental impact. Production data should not be older than two years. Production data older than two years should be documented and the reason should be stated.
- *Electricity mix:* The electricity mix applied should be in correspondence with the electricity mix of the relevant country.

The LCA should as far as possible be based on specific data. Where specific data is impossible to obtain, generic data may be applied as shown in Table 6. The database data must represent the most recent available data.

Material	Database
Steel	IISI (International Iron and Steel Institute) <a href="http://worldsteel.org">http://worldsteel.org</a>
Copper	ICA (International Copper Association)
Aluminium	EAA (European Aluminium Association) <a href="http://www.eaa.org/">http://www.eaa.org/</a>
Plastics	Plastics Europe (Association of Plastics Manufacturers Europe) <a href="http://www.plasticseurope.org/">http://www.plasticseurope.org/</a>
Chemicals	Plastics Europe (Association of Plastics Manufacturers Europe) <a href="http://www.plasticseurope.org/">http://www.plasticseurope.org/</a>

**Table 6** Database data that may be applied if specific data cannot be obtained

All data has to be specified and it shall include the database and year of publication. Sources of data for transport models (including transport form, distances and quantities to be transported) and thermal energy production shall be documented.

Where EPD exist for a purchased product (or a similar product), data from the EPD shall be applied. Where specific data cannot be obtained, the sources in Table 2 may be applied for the European market.

## 4.3 Requirements of product content declaration

A list of the products substances shall be included in the product content declaration. The contents shall be declared in weight %. In cases where a complete declaration of contents could affect patent or company secrets, a list of components and their functions is sufficient.

## 4.4 Environmental declaration reporting format

### 4.4.1 General structure

Recommended length: 4 pages. The mandatory structure of the EPD is listed below:

Heading and environmental declaration specification and PCR identification

Information about soccer pitch location and ownership

Soccer pitch specific information

Includes description of included products and technical solutions (heating or no heating)

Scenario description for each of the life cycle stages, argumentation for deviation from the suggested life cycle scenarios.

Estimated number of hours played during 40 years

Environmental performance declaration

LCA results in total for soccer pitch and for each life cycle stage for main functional unit

LCA results in total per hour played for climate change, cumulative energy demand and resource use

Other significant environmental aspects

Other information

References

Information from programme operator and certification body

For information about mandatory content in EPD, see ISO 14025 section, 7.2.1.

### 4.4.2 Specification concerning reporting the LCA results

The following information shall be included in the EPD:

Functional unit

Estimated hours played during 40 years

Model assumptions/scenario definitions

Technological, geographical and time related coverage

The table below shows impact categories to be included in the LCA:

Impact category	Unit /declared unit	Source
Climate change (GWP)	[kg CO <sub>2</sub> equiv]	Latest version of IPCC

Depletion of potential of the stratospheric ozone (OPD)	[kg CFC 11 equiv]	CML 2001 or latest version
Acidification (AP)	[kg SO <sub>2</sub> equiv]	CML 2001 or latest version
Eutrophication (NP)	[kg (PO <sub>4</sub> ) <sup>-3</sup> equiv]	CML 2001 or latest version
Photochemical Ozone Creation Potential (POCP)	[kg C <sub>2</sub> H <sub>4</sub> equiv]	CML 2001 or latest version
Cumulative energy demand	[MJ] divided on the categories: <ul style="list-style-type: none"> <li>- Renewable energy resources, primary energy</li> <li>- Non renewable energy resources, primary energy</li> <li>- Renewable secondary fuels</li> </ul>	Sources shall be specified
Resource use	[kg] divided on the categories: <ul style="list-style-type: none"> <li>- Input of renewable material resources other than primary energy</li> <li>- Input of non renewable material resources other than primary energy</li> </ul>	Sources shall be specified

**Table 7 Impact categories to be included**

CML may in the future be replaced by ELCD Handbook recommendations.

In addition the following topics shall be addressed:

- Input of net fresh water (m<sup>3</sup>)
- Any toxic (for human health or eco systems) substances or materials included in the product shall be listed
- The recyclability of the product shall be stated (weight percentage of product that may be recycled)

Hazardous waste (kg), if applicable, according to EU directive 91/689/EEC and updates (see also regulation of June 1, 2004 no. 930 of recycling and treatment of waste with amendment by the Ministry of the Environment (Avfallsforskriften)).

All environmental impact categories shall be presented as total for the soccer pitch and for each life cycle stage (production and raw materials extraction stage, laying stage, use stage and end of life stage). The total result shall also be presented per estimated hours played on the soccer pitch during 40 years for the impact categories climate change, cumulative energy demand and resource use.

#### Units

The following units shall be used:

- SI units
- Preferred power and energy units: kW (MW) for power
- MJ for energy

## **5 Period of validity of the document**

This document is valid until 21.10.2015.

The document may be updated during this period in accordance with changes in standards in force and EPD Norway's guidelines.

## 6 References

1. ISO 14025: 2006 Environmental labels and declarations –Type III environmental declarations – Principles and procedures
2. ISO 14044: 2006 Environmental management - Life cycle assessment - Requirements and guidelines
3. prEN15804: 2008 Sustainability of construction works – Environmental product declarations – core rules for the product category of construction products
4. KKD, 2007: Kunstgressboka. Bygging, drift og vedlikehold av kunstgressbaner. Kirke- og kulturdepartementet and Norges Fotballforbund, 2007. (Norwegian report: Artificial grass handbook. Installation, operation and maintenance of artificial grass pitches by the Norwegian Ministry of culture and church affairs and the Norwegian soccer association).
5. KKD, 2004: Veileder. Vedlikehold av kunstgressbaner. Kirke- og kulturdepartementet and Norges Fotballforbund, 2004. (Norwegian report: Guideline for maintenance of artificial grass by Norwegian Ministry of culture and church affairs and the Norwegian soccer association)
6. PCR 2006:02 Product category rules for preparing an environmental declaration for Building products. The Swedish Environmental Management council. Version 1.0.
7. PCR 2007: Product category rules for preparing an environmental declaration for Electricity, Steam, Hot and cold water, generation and distribution, PCR CPC 17, Version 1.1.
8. CML 2010: Universiteit Leiden, Website of Institute of Environmental Sciences (CML), Faculty of Science. CML-IA Characterisation Factors found at: <http://cml.leiden.edu/software/data-cmlia.html>
9. IPCC, Intergovernmental Panel on Climate Change (2007): Climate Change 2007. IPCC Fourth Assessment Report. The Physical Science Basis. <http://www.ipcc.ch/ipccreports/ar4-wg1.htm>

**Approved 21.10.2010, valid until 21.01.2015**  
**Norwegian EPD Foundation, PCR Review Panel**



Panel chairman



## Annex 1 – Checklist for influence on use stage for soccer pitch products

Does the declared soccer pitch surface product(s) influence on the following activities during the use stage:

Operation activities:

- Brushing
- Snow removal
- Use of defrosting products
- Refilling of filling materials
- Mowing
- Fertilizing
- Drainage

Maintenance activities such as:

- Replacement and/or repair during the life cycle span of 40 years

Leaching of substances from the products included in the soccer pitch must be declared according to relevant standards.

If the declared soccer pitch surface product(s) influences on other activities associated with use, operation or maintenance of the soccer pitch, this information should be given in the EPD.