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HORIZONTAL PCR

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CONTENT

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Introduction

The horizontal Product Category Rules (PCR) for INSIDE/INSIDE were created to assess type III Environmental Product Declarations (EPD) over the full life-cycle of interior products in a clear and simple manner. The horizontal PCRs include PCR product groups as starting points. These product group PCRs can be found at https://www.insideinside.nl/lca-procedure-en-aanleveren-documentatie-12.

Using a single horizontal PCR that covers all interior products allows for a clear comparison of all products in the INSIDE/INSIDE platform.

The horizontal PCR for INSIDE/INSIDE complies with the EN 15804:2012+A1:2013 norm while adding elements to chapters and paragraphs in the EN15804:2012+A1:2013 where provision is made for national guidelines.

The most important additions to EN15804:2012+A1:2013 are:

- specific standard values are stipulated for transport distance, transport type, waste disposal scenarios and so on to avoid unfair differences between products.
- the PCR product group is to be used when applying product-life data.
- horizontally aggregated EPDs should show no larger deviation than 20% for each environmental parameter.
- future expected scenarios may be included in product scenarios within certain conditions. This allows for circular systems that are at the start of their life-cycle to be included in the platform.
- generic data (not specific to a brand or company) can be used if no other data is available for the interior products.

1 Goal and scope

The goal of this INSIDE/INSIDE horizontal PCR is to facilitate a transparent assessment of environmental impacts for interior products that are used in the European Union member states. The target audience for the INSIDE/INSIDE horizontal PCR includes:

- EPD submitters for use in the database of the INSIDE/INSIDE platform.
- EPD submitters for Business-to-Business communication on environmental factors of interior products.
- users of the INSIDE/INSIDE platform database.
- users of Breeam-NL Refurbishment and Fit-Out.

2 Normative references

EN 15804:2012+A1:2013 applies.

3 Terms and definitions

In addition to the terms and definitions used in EN15804:2012+A1:2013 the following terms and definitions apply in this document:

INSIDE/INSIDE: Platform operator and EPD programme operator.

Project site: The location where the products are applied or used.

4 Abbreviations

In addition to the abbreviations used in EN15804:2012+A1:2013 the following abbreviations will be used in this document:

- etc

5 General aspects

5.1 Objective of the horizontal PCR

EN 15804:2012+A1:2013 applies.

5.2 Types of EPD with respect to life cycle stages covered

EN 15804:2012+A1:2013 applies, it is allowed to apply two types of EPD;

EPD type	Information module	Use
Raw materials **(cradle to gate)**	This type of EPD encompasses all impacts concerned with extraction and processing of raw materials (A1), transport to the production location (A2) and the production of raw material or secondary material. The EPD is ordered to a single aggregated information module for the phases A1-A3.	Shall exclusively be used for raw and secondary materials and is supplied for information exchange of raw material suppliers to producers of end-products that are delivered to customers. This type of EPD shall not be included in the INSIDE/INSIDE database. This type of EPD shall not be used for comparison of products, as detailed in EN15804:2012+A1:2013 paragraph 5.3.
Products **(cradle to grave)**	This type of EPD includes the whole life cycle of the product, including module D, whereby the effects of recycling and reuse of the product outside of its functional life in an interior is assessed. The EPD is ordered in information modules as described in EN15804:2012+A1:2013. The A1, A2 and A3 information modules are aggregated, the other modules are included separately.	This type of EPD shall be included in the INSIDE/INSIDE database and serves as information exchange between producers and users of the INSIDE/INSIDE platform. This type of EPD shall be used for comparing products, as detailed in EN15804:2012+A1:2013 paragraph 5.3.

Table 1: Two types of EPDs

Interior assessment information																
Interior product life cycle information																Supplementary information beyond the interior life cycle
A1-A3 Product stage			**A4-A5** Construction stage		**B1-B7** Use stage							**C1-C4** End of life stage				**D** Benefits and loads beyond the system boundary
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Raw material supply	Transport	Manufacturing	Transport	Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposal	Reuse- Recovery- Recycling- potential

Raw materials **(cradle to gate)**	Mandatory				
Product **(cradle to grave)**	Mandatory	Mandatory	Mandatory (excluding B4 and B5)*	Mandatory	Mandatory

** Module B4 in the INSIDE/INSIDE platform refers to the products functional lifetime and Reference Service Life (RSL)*

Figure 1: Mandatory modules for the two EPD types

5.3 Comparability of EPD for construction products

EN 15804:2012+A1:2013 applies.

Only EPDs that include the full life assessment shall be compared in the INSIDE/INSIDE platform.

5.4 Additional information

EN 15804:2012+A1:2013 applies.

5.5 Ownership, responsibility and liability for the EPD

EN 15804:2012+A1:2013 applies.

5.6 Communication formats

EN 15804:2012+A1:2013 and EN 15942:2011 apply.

In addition to EN 15942:2011, in Annex A, table A.6 'Other environmental information describing output flows' are also declared per module.

In addition to EN 15942:2011, the following characteristics shall be declared:

- Product dimensions conforming to product group PCR INSIDE/INSIDE notation rules.
- Reference Service Life (RSL) of a product in years.
- Expected period for B1 module – use (standard value 1 year).
- Expected period for B2 module – maintenance (standard value 1 year).
- Expected period for B3 module – repair (standard value 1 year).
- Transport distance for module A4 (standard value 1 km).
- Name and address from where the product was transported to the project site.
- Background databases and versions used for the EPD.

To be included in the INSIDE/INSIDE database the products shall be supplied in the most recent JSON format as stipulated in https://www.insideinside.nl/lca-procedure-en-aanleveren-documentatie-12. An EPD in PDF format in accordance to the communication formats and additional product descriptions shall be provided as well.

6 Product Category Rules for LCA

6.1 Product category

EN 15804:2012+A1:2013 applies.

6.2 Life cycle stages

6.2.1 General

EN 15804:2012+A1:2013 applies.

6.2.2 A1-A3, Product stage, information modules

EN 15804:2012+A1:2013 applies.

6.2.3 A4-A5, Construction process stage, information modules

EN 15804:2012+A1:2013 applies.

Transport, module A4

In addition to EN 15804:2012+A1:2013 one kilometre shall be declared in module A4 to aid automatic distance calculation for each project.

If deviating from this method of declaring transport, the distance used shall be declared in the EPD and included in the JSON import file for INSIDE/INSIDE.

In addition to EN 15804:2012+A1:2013 the transport in module A4 shall include transport from production, assembly and/or storage facility to the project site. If this occurs outside of Western Europe the transport from production location to assembly and or storage location shall be included in module A2.

6.2.4 B1-B5, Use stage, information modules

EN 15804:2012+A1:2013 applies.

6.2.4.1 Use stage (B1) and maintenance (B2)

In addition to EN 15804:2012+A1:2013 one year is declared for the modules B1 a B2 to aid calculating the impact of a chosen functional life of a product.

If deviating from this method of declaration, the functional life shall be declared in the EPD and included in the JSON import file for INSIDE/INSIDE.

Maintenance cycle frequency

In addition to EN15804:2012+A1:2013 the frequency of maintenance cycles per year are calculated by dividing a product's Reference Service Life (RSL) with its maintenance cycle in years and subtracting 1 (the initial production). To calculate the necessary maintenance per year the result must then be divided by its RSL again. The amount of maintenance cycles can never be smaller than 0 and is expressed in at least 3 significant digits.

Necessary maintenance (inputs and outputs) for one cycle are multiplied by the number of maintenance cycles a year.

If maintenance is not declared per year, the RSL must be divided by the maintenance cycle in years minus one (initial production).

Example 1: Maintenance cycle declared per year, with an RSL of 15 years and a maintenance cycle every three years; MAX (15 years / 3 years – 1; 0.00) / 15 years = 0.267

Example 2: Maintenance cycle declared per Reference Service Life with an RSL of 15 years and a maintenance cycle every three year; MAX(15 years / 3 years – 1 ; 0.00) = 4.00

6.2.4.2 *Repair (B3)*

In addition to EN 15804:2012+A1:2013 an extra year is declared for module B3 to aid calculating the impact of the chosen functional life. The impact per year is calculated by taking the total impact from repairs over the product's RSL and dividing it by the RSL.

If deviating from this method of declaration, the period used must be declared in the EPD and included in the JSON import file for INSIDE/INSIDE.

Amount of replacements and repairs

Replacements or repairs for parts of a product that do not last the full service life of the product are included in module B3 in accordance with EN 15804:2012+A1:2013. The amount of repairs are calculated by dividing the functional life by the RSL of the product part subtracting one (the initial production). To achieve the number of reparations each year the result must again be divided by the RSL. The amount of replacements and repairs can never be less than one and must be expressed in at least 3 significant digits.

If repair is not declared per year, the RSL must be divided by the repair in years minus one (initial production).

Example 1: Repairs/replacements declared per year, with an RSL of 10 years and a three-year service life for the part; MAX(10 years / 3 years – 1 ; 0.00) / 10 years = 0.233

Example 2: Repairs/replacements declared per Reference Service Life with an RSL of 10 years and a three-year service life for the part; MAX(10 years / 3 years – 1 ; 0.00) = 2.33

6.2.4.3 *B4 – replacement*

Replacement of the whole product is detailed in this horizontal PCR in the calculation rules for interiors which specifies multiplying product data as explained in chapter **Fout! Verwijzingsbron niet gevonden.**. In deviation from EN 15804:2012+A1:2013 the full replacement of a product is not declared separately in module B4.

6.2.5 B6-B7, use stage, information modules related to operation

EN 15804:2012+A1:2013 applies.

Use stage, related to operation (B6-B7)

In addition to EN 15804:2012+A1:2013 in modules B6 and B7 one year is declared to aid calculating impact of the chosen functional life.

If deviating from this method of declaration, the period used shall be declared in the EPD and included in the JSON import file for INSIDE/INSIDE.

6.2.6 C1-C4 End-of-life stage, information modules

EN 15804:2012+A1:2013 applies.

6.2.7 D, Benefits and loads beyond the system boundary, information module

EN 15804:2012+A1:2013 applies.

6.3 Calculation rules for the LCA

EN 15804:2012+A1:2013 applies.

EPD reference units can apply to a product unit or to a functional unit. In addition to EN 15804:2012+A1:2013 the stages as described in 5.2 must be taken into account.

6.3.1 Functional unit

EN 15804:2012+A1:2013 applies.

In choosing the functional unit to be included from the EPDs environmental data for the INSIDE/INSIDE database, the functional unit from the product category's product group PCR shall be used.

If the required functional unit does not exist in the INSIDE/INSIDE PCR product group, a request may be made to the program operator (DGBC) for the INSIDE/INSIDE Technical Commission to include a new functional unit.

6.3.2 Declared unit

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 the designated declared unit in the product group PCR shall be applied.

If the required declared unit does not exist in the INSIDE/INSIDE PCR product group, a request may be to the program operator (DGBC) for the INSIDE/INSIDE Technical Commission to include a new declared unit.

6.3.3 Reference service life (RSL)

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 the designated RSL in the PCR product group shall be applied.

If the required RSL does not exist in the INSIDE/INSIDE PCR product group, a request may be made to the program operator (DGBC) for the INSIDE/INSIDE Technical Commission to include a new RSL.

6.3.4 System boundaries

6.3.4.1 General

EN 15804:2012+A1:2013 applies.

6.3.4.2 Product stage

EN 15804:2012+A1:2013 applies.

Raw materials transport (A2)

In addition to EN15804:2012+A1:2013 the transport stage (A2) is dependent on the system boundaries of the chosen environmental profile from where the transport stage (A2) begins. Each environmental profile needs defined system boundaries. Transport routes through intermediary organisations shall also be included in the calculation, such as routes through a merchant or intermediary between the producer and the project site. If the raw materials are untraceable a justified use of "market for" profiles are allowed whereby transport shall be modelled on statistical data with additional transport data from the raw materials supplier.

Note 1: When the chosen environmental profile covers processes and transport to the gate such as with the production of PA6, transport costs shall be calculated from the factory gate – not exclusively from the supplier of the raw or secondary material.

6.3.4.3 Construction stage

EN 15804:2012+A1:2013 applies.

Transport to the project site

In addition to EN15804:2012+A1:2013 the transport stage (A4) starts from the moment the product or part is ready for transport and ends at the moment it is delivered to the project site.

Transport routes through intermediary organisations shall also be included in the calculation, such as routes through a merchant or intermediary between the producer and the customer or project site.

6.3.4.4 Use stage

B1 – Use stage

EN 15804:2012+A1:2013 applies.

B2 – Maintenance

EN 15804:2012+A1:2013 applies.

B3 – Repair

EN 15804:2012+A1:2013 applies.

B4 – Replacement

EN 15804:2012+A1:2013 applies.

B5 – Refurbishment

Refurbishment is not a part of this horizontal INSIDE/INSIDE PCR.

B6 and B7 – Energy and water use for operation

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 the basic starting points from the applicable INSIDE/INSIDE PCR product groups shall be used.

6.3.4.5 End-of-life stage

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 the end-of-life stage starts when the product must be replaced, refurbished or removed and no longer has any function.

6.3.4.6 Benefits and loads beyond the product system boundary for interiors

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 module D includes net benefits and loads from reusing, recycling or reclaiming energy from materials that have reached their end-of-life. These can occur from the production stage (A4-A5), the use stage (B1-B7) and the end-of-life stage (C1-C4).

Examples of secondary materials are recycled scrap, broken concrete, broken glass or recycled plastic. In addition, energy benefits (any combustible material) that are used for energy production with a process efficiency of more than 60% can be included.

Module D is only applicable for materials or products that are used in a primary production process for other materials or combustibles and have reached their end-of-life. Furthermore module D shall only be calculated for specific scenarios that are consistent with other end-of-life processing and are based on current technical possibilities. The applied end-of-life scenario must be declared in the EPD.

Double counting shall be avoided by excluding co-product streams through calculating net outputs of the secondary material or the product system's fuel. Examples of calculations for net outputs for secondary materials follow:

Example 1:

A product, such as a primary metal, has an output in the C1 module of 0.8 kg material. Downstream this product can be recycled by 90% resulting in 0.72 kg metal in module C3 until the product's end-of-life as well as further use in a next product system and 0.08 kg of lost material to be declared in module C4.

The net impact in module D is calculated on the basis of net outputs of secondary materials that have reached their end-of-life. In this example a recycling efficiency of 95% whereby 0.68 kg of primary material can be replaced with 0.68 waste. The benefits in module D thus amount to 0.68 kg primary material.

Example 2:

If the same product as above has a net input of 0.5 kg secondary metal in module A, then the net output (of primary material) would not be 0.68 kg but 0.68 kg – 0.5 kg = 0.18 kg. The benefits in module D now amount to 0.18 kg primary material.

Example 3:

If the same product has an input of 0.90 kg secondary material in module A, a negative net output of secondary material occurs (0.68 kg – 0.90 kg = -0.22 kg). This output must be recorded as load in module D.

Note 1:

Only actual primary materials or combustibles are allowed to be entered as benefits in module D.

Actual primary materials and combustibles are understood to include;

- Metals such as in the example above.
- Cast iron when band steel is melted into cast iron parts
- Energy produced from wood when it is burned to reclaim energy.

Note 2:

The amount of energy reclaimed is defined by the Lower Heating Values (LHV) of the material. The thermal and electrical output that is applicable for the production technique used.

6.3.5 Criteria for the exclusion of inputs and outputs

EN 15804:2012+A1:2013 applies.

In addition to EN 15804 when an excluded input is expected to contribute over 5% to one of the environmental impacts of the product per stage (such as the product stage A1-3, construction stage A4-A5, use stage B1-B5, end of life C1-C4 and module D) then this input shall be included. An additional requirement is that the effect of excluding multiple inputs shall never exceed more than 5% of the total per impact category over the whole life cycle (A1-D).

6.3.6 Selection of data

EN 15804:2012+A1:2013 applies.

6.3.6.1 Generic data

In addition to EN 15804 data should preferably be used from the supplier of the producer for raw material production. If the supplier does not – or cannot – deliver the required data, generic data shall be used.

Generic data shall principally come from European databases such as EF compliant databases offered by JRC, EcoInvent, Gabi or ILCD.

Long term emissions (over 100 years) that are modelled mainly for leaching are not to be included. The 100-year cut-off applies to all modules from A-D and for all data regardless of whether they are generic or specific.

6.3.6.2 Standard values

Module A2, transport

If the supplier is unknown it is preferable to use "market for" profiles where statistical data can be used to model the transport to the production location. In addition it is allowed to use the following standard values:

Supplier	Distance	Means of transport
Packaging	230 km	Truck >32 t, EURO 4
And	280 km	Freight train (average)
And	360 km	Barge
Others, inside Europa	130 km	Truck >32 t, EURO 4

And	249 km	Freight train (average)
And	270 km	Barge
Others, outside Europa	1000 km	Truck >32 t, EURO 4
And	18000 km	Container ship
Or	10000 km	Freight aircraft

Table 2: standard values for transport distances from supplier to producer. Source: PEFCR Guidance v6.3

Module A5, construction stage

The following standard values are applicable for losses incurred during the construction stage

Product	Loss
Prefab products, inventory	1%
Prefab products, fixed	3%
Materials used for custom made project furniture at the project site.	5%
Auxillary and/or finishing products	15%

Table 3: standard values for losses incurred during the construction stage

If data exists on specific loss percentages and it has been justified sufficiently, it may be used instead of the standard values.

Note: The standard values in table 3 are conceptual and further research is being conducted into the standard values.

Module C1-C4

De following standard values are applicable for the modules C1 to C4:

- waste disposal scenario as stipulated in the table from appendix A.
- transport distance of a one-way trip from disused product location to sorting or recycling plant: **50 km**.
- transport distance of a one-way trip from sorting or recycling plant to landfill: **50 km.**
- transport distance of a one-way trip for combustible material from the sorting or recycling plant to the waste incinerator: **100 km**.

If data exists for end-of-life scenarios or transport distances and they are sufficiently justified they may be used instead of the standard values.

6.3.7 Data quality requirements

EN 15804:2012+A1:2013 applies.

6.3.8 Developing product level scenarios

EN 15804:2012+A1:2013 applies.

Collection/return system

In deviation from EN 15804:2012+A1:2013 an end-of-life scenario can include a future scenario if can be shown that a collection/return system is in operation at the time of the EPD verification. In practice this means that:

- the collection/return system is economically and logistically well organised.
- the economic parameters have an encouraging effect.
- the collection/return system's efficiency is a guiding principle for the system.
- the technical infrastructure for the recycling process is available and it is assumed that the necessary capacity can be increased.
- applications for the recycled material exist or it is assumed that there is sufficient market demand.
- a stable return system exists and it is assumed that it will still be in operation at the end of the product's life.

6.3.9 Units

EN 15804:2012+A1:2013 applies.

6.4 Inventory analysis

6.4.1 Collecting data

EN 15804:2012+A1:2013 applies.

In addition to EN 15804 suppliers shall first be contacted for their own data before using any generic data. Common public and research sources shall be used, specifically sources that are most accepted by LCA-assessors.

Where different processes exist from different regions the following order of priority shall be given:

1) the country in question;
2) a comparable neighbouring country;
3) the region (for example North-West Europe);
4) the continent;
5) the world.

Biogenic carbon

Biogenic carbon entails carbon won from or captured in biomass. If biogenic carbon is included in a product, according to EN 15804 norm, the production and use emissions shall be included at the end-of-life cycle of the product.

As this is a difficult calculation and prone to error, the application of biogenic carbon for INSIDE/INSIDE – in deviation from EN 15804:2012+A1:2013 – shall also be accepted if the product is biogenic carbon neutral. This application is obtained by excluding intake of biogenic carbon at the start of the life-cycle and not including carbon emissions at the end of the life-cycle. The calculation can be made, for example, by setting the characterisation factor for biogenic carbon intake as emission to zero. The biogenic carbon intake during the growth of biomass and the emissions of biogenic carbon during natural decay or incineration must be in balance at all times, with the exception of biogenic carbon that is permanently stored.

6.4.2 Calculation procedures

EN 15804:2012+A1:2013 applies.

6.4.3 Allocation of input flows and output emissions

6.4.3.1 General

EN 15804:2012+A1:2013 applies.

6.4.3.2 Co-product allocation

EN 15804:2012+A1:2013 applies.

6.4.3.3 Allocation procedure of reuse, recycling and recovery

EN 15804:2012+A1:2013 applies.

6.5 Impact assessment

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 to verify the results of an LCA a sensitivity analysis shall be performed when at least one of the following variations, averaging or distribution is used in the EPD:

- the influence of geographical and technological variation inside a group of product locations. Use the highest and the lowest values in the sensitivity analysis. Outliers can be removed if necessary from the data – variation of less than 20%. If a weighted yearly average is used and the combined spread is less than 20% it shall not be included in the sensitivity analysis.
- Variation as a result of averaging in composition. Use the highest and the lowest values in the sensitivity analysis. Outliers can be removed if necessary from the data – variation less than 20%.
- Variation as a result of averaging when creating a group average. Use the highest and the lowest values in the sensitivity analysis. Outliers can be removed if necessary from the data – variation less than 20%.
- Spread from uncertainty in starting points for recycling allocation. In this case conduct the sensitivity analysis for the variation in values – variation of less than 20%.
- Allocation with multi-input and multi-output processes in cases where the standard distribution code has not been used (mass based on multi-output processes and physical composition for multi-input processes). Use the standard distribution code in the sensitivity analysis.

The LCA must be revised if the results of the sensitivity analysis indicate a revision is necessary.

The differences may not amount to more than 20% in any one environmental variable compared to the average or original value. If the sensitivity analysis shows that the differences are larger than 20% they must be split into different EPDs whereby the differences are lower than 20%. The sensitivity analysis is not necessary if can be shown that a worst-case scenario was used for the LCA.

7 Content of the EPD

7.1 Declaration of general information

EN 15804:2012+A1:2013 applies.

7.2 Declaration of environmental parameters derived from LCA

7.2.1 General

EN 15804:2012+A1:2013 applies.

7.2.2 Rules for declaring LCA information per module

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 only the EPD-types listed under 5.2 shall be used.

7.2.3 Parameters describing environmental impacts

EN 15804:2012+A1:2013 applies.

If "Abiotic depletion potential (ADP-fossil fuels) for fossil resources" is available in the kg Sb unit equiv, a multiplying factor can be used of 4,81E-4 kg antimony/MJ [CMLIA, Part 2b: Operational annex, page 52].

7.2.4 Parameters describing resource use

EN 15804:2012+A1:2013 applies.

7.2.5 Other environmental information describing different waste categories and output flows

EN 15804:2012+A1:2013 applies.

7.3 Scenarios and additional technical information

7.3.1 General

EN 15804:2012+A1:2013 applies.

7.3.2 Construction process stage

EN 15804:2012+A1:2013 applies.

7.3.2.1 A4, Transport to the building site

EN 15804:2012+A1:2013 applies.

7.3.2.2 A5, Installation in the building

EN 15804:2012+A1:2013 applies.

7.3.3 B1-B7 use stage

EN 15804:2012+A1:2013 applies.

7.3.3.1 B1-B5 use stage related to the product

EN 15804:2012+A1:2013 applies.

7.3.3.2 Reference service life

EN 15804:2012+A1:2013 applies.

7.3.3.3 B6, use of energy and B7, use of water

EN 15804:2012+A1:2013 applies.

7.3.4 End-of-life

EN 15804:2012+A1:2013 applies.

7.4 Additional information on release of dangerous substances to indoor air, soil and water during the use stage

7.4.1 Indoor air

EN 15804:2012+A1:2013 applies.

7.4.2 Soil and water

EN 15804:2012+A1:2013 applies.

7.5 Aggregation of information modules

EN 15804:2012+A1:2013 applies.

In addition to EN 15804:2012+A1:2013 the modules A1 to A3 are combined.

8 Project report

8.1 General

EN 15804:2012+A1:2013 applies.

8.2 LCA-related elements of the project report

EN 15804:2012+A1:2013 applies.

8.3 Documentation on additional information

EN 15804:2012+A1:2013 applies.

8.4 Data availability for verification

EN 15804:2012+A1:2013 applies.

9 Verification and validity of an EPD

EN 15804:2012+A1:2013 applies.

10 Interior calculation

10.1 Function duration of an interior

The function duration of an interior can be taken from the reference function duration or a fully adaptable function duration per project. The reference function duration of an interior is set at 10 years.

10.1.1 Initial products and replacement (B4)

Replacements are necessary when the Reference Service Life (RSL) is shorter than the reference function duration (of 10 years) or the voluntarily chosen function duration of the project.

The number of replacements is calculated by dividing the function duration by the reference service life (RSL) minus one (initial production). The number of replacements shall never be less than 0 and is expressed in at least 3 significant digits. The initial production shall always include the full life cycle and can never be less than 1, even if the product's reference service life (RSL) is greater than the function duration.

EXAMPLE 1 With a function duration of 10 years and a reference service life of 25 years, the number of replacements will be 0: MAX(10/25 – 1; 0.00) = 0.00;

EXAMPLE 2 With a function duration of 20 years and a reference service life of 15 years, the number of replacements will be 0.333: MAX(20/15 – 1; 0,00) = 0,333.

10.2 Data categories

The horizontal PCR of INSIDE/INSIDE has three types of data categories:

- **Category 1:** Brand specific, verified by an independent third party, certified by INSIDE/INSIDE
  For: producers, suppliers, re-sellers and so on.
- **Category 2:** Sector-wide, verified by an independent third party, certified by INSIDE/INSIDE, that includes a certificate (applicable for the European market, a branch collaboration or a group of producers for example).
  For: Business associations, groups of producers/suppliers, governments and so on.
- **Category 3:** Generic data (no brand), not verified by an independent third party.
  For: The operator of the INSIDE/INSIDE platform.

Category 3 data includes a multiplier due to the uncertainty on the data accuracy. This multiplication factor is set at 30%. De multiplication factor may be changed by the operators of the INSIDE/INSIDE platform.

10.3 Value of environmental scores

Environmental impact scores are combined into one value by using environmental cost indicators. The numbers are sourced from the RWS report by TNO-MEP "Toxiciteit heeft z'n prijs: schaduwprijzen voor (eco-)toxiciteit en uitputting van abiotische grondstoffen binnen DuboCalc", 8 March 2004.

Translated from the summary: *To achieve a single indicator for environmental impact it is necessary to value and combine scores from the ten impact categories currently in use. A number of options are available to achieve this. In this report one of the options is detailed: the environmental cost indicator method. The environmental cost indicator method is the highest tolerated government cost level (preventative costs) per unit of emission prevention.*

In regards to this report one change has been added: a factor for abiotic depletion of fossil resources.

The environmental cost indicator for abiotic depletion of fossil resources is € 0.16 / unit (set at 0 in the final RWS report). To assess the environmental cost indicator for the depletion of fossil energy the conversion factor 4,81E-4 kg antimony/MJ [CMLIA, Part 2b: Operational annex, page 52]. The environmental cost indicator per MJ is then 0.16 * 4.81E-4 kg SB = 7.696E-05 per MJ.

Environmental impact category	Unit	€ / unit
Abiotic depletion potential (ADP-elements) for non-fossil resources	kg Sb eq.	0.16
Abiotic depletion potential (ADP-fossil fuels) for fossil resources	MJ	7.696E-05
Acidification potential of soil and water, AP	kg SO_2 eq.	4.00
Depletion potential of the stratospheric ozone layer, ODP	kg CFC-11 eq.	30.00
Global warming potential, GWP	kg CO_2 eq.	0.05
Eutrophication potential, EP	kg $(PO_4)^{3-}$ eq.	9.00
Formation potential of tropospheric ozone, POCP	kg C_2H_4	2.00

Table 4: Weighted factors (environmental cost indicators) for environmental impact categories

The result per environmental impact categories comes from characterised impact scores by multiplying the weighted factors with the weighted factors per unit – thus no normalisation shall be applied before calculation.

11 Sources

This document was formulated by using the following documents:

- Product Category Rules for Type III environmental product declaration of construction product to EN 15804:2012 [BRE]
- Bepalingsmethode Milieuprestatie Gebouwen en GWW-werken v2.0 Definitief November 2014 [SBK]
- EN 15804:2012+A1:2013
- Draft EN 15804/prA – consolidated version (2017-11-23)
- Product Environmental Footprint Category Rules Guidance, Version 6.3 – May 2018

ANNEX A

Table A1 gives standard values for waste scenarios.

Table A1 – Standard values for waste scenarios

Stream	Specification	Dispersion over fractions %				
		Leave in place	Landfill	Incineration	Recycling	Reuse
Finishing products	Embedded in wood, plastics, metal	0	0	100	0	0
Finishing products	Embedded in stone material	0	100	0	0	0
Aluminium from buildings	profiles, plaques, pipes	0	3	3	94	0
Tarmac		0	5	90	5	0
Elastomers	EPDM rubber	0	10	85	5	0
EPS	Insulation	0	5	90	5	0
Ceramics	Sanitation	0	15	0	80	5
No waste	Empty scenario	0	0	0	0	0
Gypsum	Sheets, plaster boards	0	95	0	5	0
Glass	Windows	0	30	0	70	0
Glass foam	Insulation	0	85	5	10	0
Glass wool	Insulation	0	85	5	10	0

Wood, 'clean'	Beams, planks	0	5	80	10	5
Wood, ‘clean’	From waste materials	0	10	85	5	0
Wood, ‘polluted’	Painted, treated	0	5	95	0	0
Wood, ‘polluted’	From waste materials	0	10	90	0	0
Copper	Electricity cables	0	10	5	85	0
Copper	Plates, pipes	0	5	0	95	0
Plastics, others	Plates, pipes, decoration	0	10	85	5	0
Plastics	Packaging	0	20	80	0	0
Lead	flashing	0	5	0	95	0
Metals, others	Fixations, helper materials	0	5	5	90	0
Metals	From waste materials	0	5	5	90	0
Organic, others	Insulation	0	5	95	0	0
Organic	From waste materials	0	15	85	0	0
Panelling, ‘clean’	Large panels	0	5	85	10	0
Panelling, ‘polluted’	Large panels	0	5	95	0	0
Polyolefin (PE, PP)	Pipes, foils	0	10	85	5	0
PVC, window frames		0	10	10	80	0

PVC, pipes		0	10	20	70	0
PVC	Roofing, foils	0	10	85	5	0
Light steel	Frames, plates, pipes	0	1	0	87	12
Rockwool	Insulation	0	85	5	10	0
HPL panels	Panelling	0	5	75	20	0
XPS	insulation	0	5	90	5	0
zinc / zinc steel	Frames, panels, zinc layers	0	5	0	95	0

Table 5: standard end of life scenarios