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Cement and building lime — Environmental product declarations — Product category rules complementary to EN 15804

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National foreword

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Ciment et chaux de construction - Déclarations environnementales sur les produits - Règles de catégorie de produits complémentaires de l'EN 15804

Zement und Baukalk - Umweltproduktdeklarationen - Produktkategorieregeln in Ergänzung zu EN 15804

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European foreword

This document (EN 16908:2017) has been prepared by Technical Committee CEN/TC 51 “Cement and building limes”, the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

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Introduction

How to use this document

This document provides product category rules (PCR) for Type III environmental declarations (EPDs) according to EN 15804 [14] for cement and building lime, in particular to products according to the standards developed in CEN/TC 51 "Cement and building limes".

The European standard EN 15804, "Core rules for the product category of construction products", is intended as the core PCR to be followed. This PCR document supplements EN 15804 by giving more detail for specific items relevant to cement and building lime. In all cases where no specific rules are given in this document, EN 15804 should be followed. Therefore, this document should be read in parallel with EN 15804. EN 15804 is normatively referenced in this document and is indispensable for its application.

The structure of this document follows that of EN 15804, with all headings and section numbers kept the same. Where a section of EN 15804 applies without modification, this is indicated. Where a section of EN 15804 is not relevant for EPDs covered by this PCR, this is also indicated.

The purpose of an EPD is given in the Introduction to EN 15804.

Definition of the covered products

Cement

Cement is defined in standards published by CEN/TC 51 as "a hydraulic binder, i.e. a finely ground inorganic material which, when mixed with water, forms a paste which sets and hardens by means of hydration reactions and processes and which, after hardening, retains its strength and stability even under water".

Building Lime

Building lime is defined in EN 459-1 as a "group of lime products, exclusively consisting of two families: air lime and lime with hydraulic properties, used in applications or materials for construction, building and civil engineering." Air lime refers to the product which combines and hardens with carbon dioxide present in air.

Air lime refers to the product which combines and hardens with carbon dioxide present in air. Air lime has no hydraulic properties. Air lime is divided into two sub-families, calcium lime (CL) and dolomitic lime (DL). Calcium lime is an air lime consisting mainly of calcium oxide (quicklime) and/or calcium hydroxide (hydrated lime). Dolomitic lime is an air lime consisting mainly of calcium magnesium oxide and/or calcium magnesium hydroxide.

Lime with hydraulic properties is a building lime consisting mainly of calcium hydroxide, calcium silicates and calcium aluminates. It has the property of setting and hardening when mixed with water and/or under water. Reaction with atmospheric carbon dioxide is part of the hardening process. Lime with hydraulic properties is divided into three subfamilies, natural hydraulic lime (NHL), formulated lime (FL) and hydraulic lime (HL).

1 Scope

The general scope of the core product category rules (PCR) is given in EN 15804:2012+A1:2013, Clause 1.

This PCR is primarily intended for the creation of cradle-to-gate EPDs of cement and building lime.

In other respects, the scope is as in EN 15804.

2 Normative references

As in EN 15804.

3 Terms and definitions

For the purposes of this document the terms and definitions of EN 15804 apply.

4 Abbreviations

As in EN 15804.

5 General aspects

5.1 Objective of the Core PCR

As in EN 15804.

5.2 Types of EPD with respect to life cycle stages covered

As in EN 15804.

Cement and building lime are intermediate products with many different final uses. Cement may for example be used in ready-mix concrete, precast concrete, mortar, screed, base treatment for various types of infrastructures, etc. Building lime may for example be used in plasters, renders, masonry mortars, calcium silica bricks, autoclave aerated concrete, soil treatment, asphalt mixtures etc. Therefore, it is generally not possible to provide information about the environmental impacts of the products during the construction process, use, and end of life stages, as this will greatly depend on how the cement or building lime is used.

For this reason, this PCR is primarily intended to support the creation of cradle-to-gate EPDs, i.e. it focuses on the life cycle stages A1 – A3: raw material supply, transport, and manufacturing, although other stages may also be included.

Information on other life cycle modules may be provided in an EPD if relevant. Particularly information on carbonation of building limes in the life cycle modules A5 and B1 may be provided in EPDs.

If additional stages are included, the modularity principle shall be observed (see 6.3.4.1 of EN 15804:2012+A1:2013) in order to produce consistent EPDs.

5.3 Comparability of EPD for construction products

As in EN 15804.

As cement and building lime are intermediate products, no functional unit can be defined in EPDs for cement and building lime (see 6.3) and therefore no comparisons with other construction products can be made based on EPDs according to this PCR. As stated in EN 15804, "*EPD that are not in a building context are not tools to compare construction products and construction services*".

5.4 Additional information

As in EN 15804.

For additional information on emissions to indoor air, soil and water during the use stage, please refer to the respective PCR/EPDs for the downstream products such as ready-mix concrete, precast concrete, screed, plasters, masonry mortars, etc.

The lime cycle of high calcium lime is shown in Figure 2.

5.5 Ownership, responsibility and liability for the EPD

As in EN 15804.

5.6 Communication formats

As in EN 15804.

6 Product Category Rules for LCA

6.1 Product category

The product category for this PCR is cement and building lime, particularly those covered by the standards developed in CEN/TC 51.

6.2 Life cycle stages and their information modules to be included

6.2.1 General

As in EN 15804.

In general, EPDs according to this PCR will be cradle-to-gate EPDs, i.e. will cover modules A1 – A3 only. However, downstream processes (including transport, use and reuse, recycling or recovery) may optionally be declared.

As an example, information on carbonation of building limes in the life cycle modules A5 and B1 may be provided in EPDs.

6.2.2 A1-A3, Product stage, information modules

As in EN 15804.

For a more detailed description of the processes in the product stage of cement and building lime see 6.3.4.2.

6.2.3 A4-A5, Construction process stage, information modules

As in EN 15804, not relevant for cradle to gate EPDs, but relevant for the information on carbonation of building limes (see 6.3.4.3).

6.2.4 B1-B5, Use stage, information modules related to the building fabric

As in EN 15804, not relevant for cradle to gate EPDs, but relevant for the information on carbonation of building limes (see 6.3.4.3).

6.2.5 B6-B7, Use stage, information modules related to the operation of the building

As in EN 15804, not relevant for cradle to gate EPDs.

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

As in EN 15804, not relevant for cradle to gate EPDs.

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

As in EN 15804, not relevant for cradle to gate EPDs.

6.3 Calculation rules for the LCA

6.3.1 Functional unit

As in EN 15804.

As cement and building lime are intermediate products, no functional unit can be defined in EPDs for cement and building lime. A declared unit is used as defined in 6.3.2.

6.3.2 Declared unit

As in EN 15804.

The declared unit is 1 000 kg of cement or building lime.

6.3.3 Reference service life (RSL)

As in EN 15804.

No RSL is declared for cement or building lime as they are intermediate building products. A reference service life could be declared for downstream products such as ready-mix concrete, precast concrete, screed, plasters, masonry mortars or other building products in which cement and/or building lime are used.

6.3.4 System boundaries

6.3.4.1 General

As in EN 15804.

Biogenic CO_2 emissions can be compensated by re-growth of biomass in the short term. Therefore, CO_2 emissions from biomass fuels (secondary fuels or waste) and the biogenic carbon content of mixed fuels (secondary fuels or waste) shall not be included in the total CO_2 emissions [10], [11].

For emissions from waste and secondary fuels see Annex D. As a conservative approach, if wastes are used for energy or material recovery and do not have the same waste status in all regions, for transparency reasons two figures may be specified in the communication of the LCA results in module A1 to A3:

— the environmental impacts caused by the emissions including processing, incineration and co-incineration of waste (gross figure); and

— the environmental impacts caused excluding the incineration of waste (net figure), see Annex D.

6.3.4.2 Product stage

As in EN 15804.

In more detail, the life cycle stages for cement and building lime include the following:

— A1 Extraction of raw materials and primary fuels (e.g. mining processes):

  — Extraction of raw materials. This includes the quarrying of calcareous or dolomitic materials, such as limestone or marl, siliceous materials such as sand, argillaceous material, such as clay or shale and aluminous materials such as bauxite.

  — Extraction of primary fuels. Major primary fuels used in the production of cement and building lime are coal, petcoke, lignite and natural gas.

— A1 Production of upstream products

  — Production of quicklime or hydrated lime and alumina for the production of calcium aluminate cements.

  — Production of cements or other pre-products (cf. Annex D of EN 459-1:2015) for the production of building lime.

  — Production of other additives (pigments, grinding aids, …).

— A1 Allocated impacts of co-products from other industries used in the production of cement or building lime

— A1 Processing of raw materials

  EXAMPLE 1 Crushing of limestone in the quarry.

— A1 Processing of secondary materials, used as input for manufacturing the product, but not including those processes that are part of the waste processing in the previous product system. Processing of co-products and upstream-products materials used as input for manufacturing the product.

  EXAMPLE 2 Processing of co-products such as blast furnace slag, artificial gypsum and silica fume, recovered alumina. Processing of materials recovered from previous use or from waste.

— A1 Processing of fuels:

  — Processing of primary or secondary fuels in preparation for use in the kiln

— A1 Generation of electricity

— A2 Transportation up to the factory gate and internal transport, including:

  — Transport of raw materials, upstream products and fuels to the plant

  — Internal transport in the plant

  — Transport of materials to the grinding mills or hydration units (the latter for building lime)

— A3 Production of ancillary materials or pre-products and manufacturing of products in the cement or building lime factory.

For cement this includes:

— Preparation of ground raw materials

Preparation of ground raw materials occurs by a wet or dry process. In the wet process, a slurry of the raw materials is prepared prior to burning. The slurry is homogenized in basins and pumped to the wet long kiln. In the dry process, drying and grinding to the desired fine-ness of the raw mix usually takes place in one step in the raw mill. The residual heat of the flue gases of the kiln is utilized for drying.

— Production of clinker

The raw mix is preheated using the residual heat of the flue gases and burned in a kiln at about 1 450 °C. The fuel used is generally a mix of primary fuels, secondary fuels and waste.

— Processing (grinding etc.) and blending of:

  — Portland cement clinker

  — Other main constituents (blast-furnace slag, silica fume, pozzolana, fly ash, burnt shale, limestone)

  — Minor additional constituents

  — Calcium sulphate in the form of gypsum, hemi-hydrate or anhydrit

  — Additives (such as pigments).

— For some cement types: blending of cement according to EN 197-1, building lime according to EN 459-1 and possibly other constituents.

For building lime, this includes:

— Preparation of ground raw material by crushing, screening and washing. Transfer to the kiln.

— Calcination: The raw material mix is preheated using the residual heat of the flue gases and burned in a kiln at about 900 °C –1200 °C. The fuel used is generally a mix of primary fuels, secondary fuels and waste.

— Grinding and Screening

Quicklime is ground and screened for particular applications or for hydration.

  — Hydration

  Hydration consists of adding a controlled amount of water to quicklime to manufacture the hydrated lime.

  — Blending

  Is the mixing with other constituents, e.g. for the production of formulated lime and hydraulic lime.

  — A3 Manufacturing of packaging:

- E.g. manufacture of bags for bagged cement or bagged building lime

— A3 Packaging, storage and dispatch:

- Packaging operations in the case of bagged cement or bagged building limes
- Storage
- Preparation for dispatch

— A1-A3 processing up to the end-of-waste state or disposal of final residues including any packaging not leaving the factory gate with the product.

For packaging wastes that occur in modules A1-A3, a co-product allocation has to be applied for secondary materials/fuels and exported energy leaving modules A1-A3.

6.3.4.3 Construction process stage

As in EN 15804.

Generally not relevant for cradle-to-gate EPDs according to this PCR. As cement and building lime are intermediate products with many different final uses (ready-mixed concrete, precast concrete, screed, plasters, masonry mortars, etc.), it is generally not possible to provide information about the environmental impacts of the product during the construction process stage, as this will greatly depend on how the cement or building lime are used. However, environmental information for this life cycle stage may be found in the respective PCR/EPDs for downstream products.

As part of the hardening process, during the construction process stage building lime will react with CO_2 from the atmosphere to develop hardening and strength [13]. This process will continue during the use stage, according to specific use conditions.

The compensation for cement or building lime which may be lost due to the breakage of the packaging material should be included in module A4.

Loads from the disposal of packaging wastes and benefits from the recycling or energy recovery of packaging having left the product system may be included in module A5.

6.3.4.4 Use stage

As in EN 15804.

Generally not relevant for cradle-to-gate EPDs according to this PCR. As cement and building lime are intermediate products with many different final uses (ready-mixed concrete, precast concrete, screed, plasters and masonry mortars, etc.) it is generally not possible to provide information about the environmental impacts of the product during the use stage, as this will greatly depend on how the cement and building lime are used. However, environmental information for this life cycle stage may be found in the respective PCR/EPDs for downstream products:

As part of the hardening process, building lime will react with CO_2 from atmosphere to develop hardening and strength [13]. This process will continue during the use stage, according to specific use conditions.

6.3.4.5 End-of-life stage

As in EN 15804.

Generally not relevant for cradle-to-gate EPDs according to this PCR. As cement and building lime are intermediate products with many different final uses (ready-mixed concrete, precast concrete, screed, plasters and masonry mortar etc.), it is generally not possible to provide information about the environmental impacts of the product during the end-of-life stage, as this will greatly depend on how the cement and building lime are used. However, environmental information for this life cycle stage may be found in the respective PCR/EPDs for downstream products.

6.3.4.6 Benefits and loads beyond the product system boundary in module D

As in EN 15804.

As cement and building limes are intermediate products with many different final uses, it is generally not possible to provide information about the benefits and loads beyond the product system boundary.

Environmental benefits of cement-based products or building lime-based products beyond the product system boundary include, for example,

— use of recycled concrete or masonry units as aggregate in concrete, in road construction or in land restoration;

— recycling of AAC (autoclaved aerated concrete) as raw material for AAC production.

Information on these benefits and loads may be found in the respective PCR/EPDs for the downstream products.

6.3.5 Criteria for the exclusion of inputs and outputs

As in EN 15804.

6.3.6 Selection of data

As in EN 15804.

An EPD may cover a representative or average product rather than a specific product. Such EPDs can be useful in order to provide LCA data relating to a typical product produced in a certain region or by a specific company. Examples of such products are “Average cement mix produced by company X”, “Representative CL90-S produced in country/region Y”, “Average European CEM II” etc. Documentation of the representativeness (technological, geographical, time-related representativeness etc.) of the input data shall be provided.

6.3.7 Data quality requirements

As in EN 15804.

6.3.8 Developing product level scenarios

As in EN 15804.

Generally not relevant for an EPD of cement or building lime.

6.3.9 Units

As in EN 15804.

6.4 Inventory analysis

6.4.1 Collecting data

As in EN 15804.

6.4.2 Calculation procedures

As in EN 15804.

6.4.3 Allocation of input flows and output emissions

6.4.3.1 General

As in EN 15804.

6.4.3.2 Co-product allocation

As in EN 15804.

6.4.3.3 Co-products used in cement and building lime

Several co-products from other industrial processes can be used in the production of cement and formulated lime, the most important of which are:

— granulated blast-furnace slag (blast furnace slag is a co-product of steel production);

— fly ash (a co-product of coal-fired electricity production);

— silica fume (a co-product of the production of silicon metal and ferro-silicon alloys) and

— artificial gypsum (a co-product of several industrial processes, such as coal-fired electricity production);

— aluminium-oxide-containing sources arising from aluminium and alumina production;

— crystallized basic oxygen furnace slag (Sb) resulting from the transformation of pig iron into steel through an oxygen treatment process.

For co-product allocation, the rules of EN 15804 apply.

— As the industrial processes mentioned above cannot easily be subdivided, the impacts of production shall be divided amongst the co-products according to an allocation method reflecting the main purpose of the processes studied.

— According to EN 15804, allocation according to economic values shall be applied where the difference in the amount of revenue earned by the original producer[1] for each of the co-products is high (greater than 25 %). This is the case for co-products used in cement and building limes.

— Contributions to the overall revenue of the order of 1 % or less are regarded as very low. Where this is the case, impacts from the process may be neglected.

NOTE 1 According to the Technical Report “Guidance for the application of EN 15804” – to be published, this cut off rule for neglecting allocation is intended to allow manufacturers to put all emissions onto the main product where it considers allocation too much effort for minor co-products. However, if a low value co-product is being

[1] E.g. in the case of slag, the “difference in revenue from the co-products” is a comparison of the revenue earned by the steel producer from the sale of slag with that earned from the sale of the main product, steel.

used as an input into a production process, allocation rules are used to understand the impact connected to that product.

NOTE 2 Guidance for the application of economic allocation:

— In the case of blast furnace slag, on average in Europe, slag's contribution to the overall revenue of steel production is very low (less than 1 %). Impacts from transport and processing of slag for use in cement and building lime are considered in the LCA of cement and lime.

— In the case of fly ash, on average in Europe, fly ash's contribution to the overall revenue of electricity production is very low (less than 1 %). Impacts from transport and processing of fly ash for use in cement and building limes are considered in the LCA of cement and lime.

— In the case of aluminium-oxide-containing sources arising from aluminium and alumina production, on average in Europe, the contribution of co-product for external recycling to the overall revenue of alumina production is very low (less than 1 %) [12]. Impacts from transport and processing are considered in the LCA of aluminous cement.

6.4.3.4 Allocation procedure of reuse, recycling and recovery

As in EN 15804.

6.5 Impact assessment

As in EN 15804.

7 Content of the EPD

7.1 Declaration of general information

As in EN 15804, with the following additional clarifications:

a) the description of the construction product's use and the declared unit of the construction product to which the data relates:

   Description of the use of cement and building lime: Preparation of concrete, mortar, grout, plaster, etc.

   Declared unit: 1 000 kg of cement or building lime.

b) a description of the main product components and or materials.

   In a cement or building lime EPD, the following maybe used to fulfil this requirement:

   The main components are fully defined by the cement or building lime type according to the applicable product standard or technical specification." The reference to the applicable standard or technical specification shall be given.

   In addition, according to EN 15804, the declaration of material content of the cement or building lime shall list substances that are listed in the "Candidate List of Sub-stances of Very High Concern for authorisation" when their content exceeds the limits for registration with the European Chemicals Agency.

   Prolonged physical contact with non-low chromate cements can cause allergic skin reactions. The REACH Regulation (EC 1907/2006) imposes requirements on the chromate content permissible for cement products. In line with this, only low chromate cements may now be used for the manufacture of concrete, mortar, hydraulic limes or formulated limes if the possibility of physical contact with these concretes, mortars, hydraulic limes or formulated limes during processing

cannot be ruled out. The permissible soluble chromium VI content of the cement , when hydrated , is less than 2 mg/kg (0,0002 %) of the total dry weight of the cement. Non-low chromate cements can now only be used by processors with a closed production system where skin contact is not possible.

c) information on where explanatory material may be obtained.

For representative or average EPDs, users shall be directed to obtain this information on safe and effective installation from the supplier.

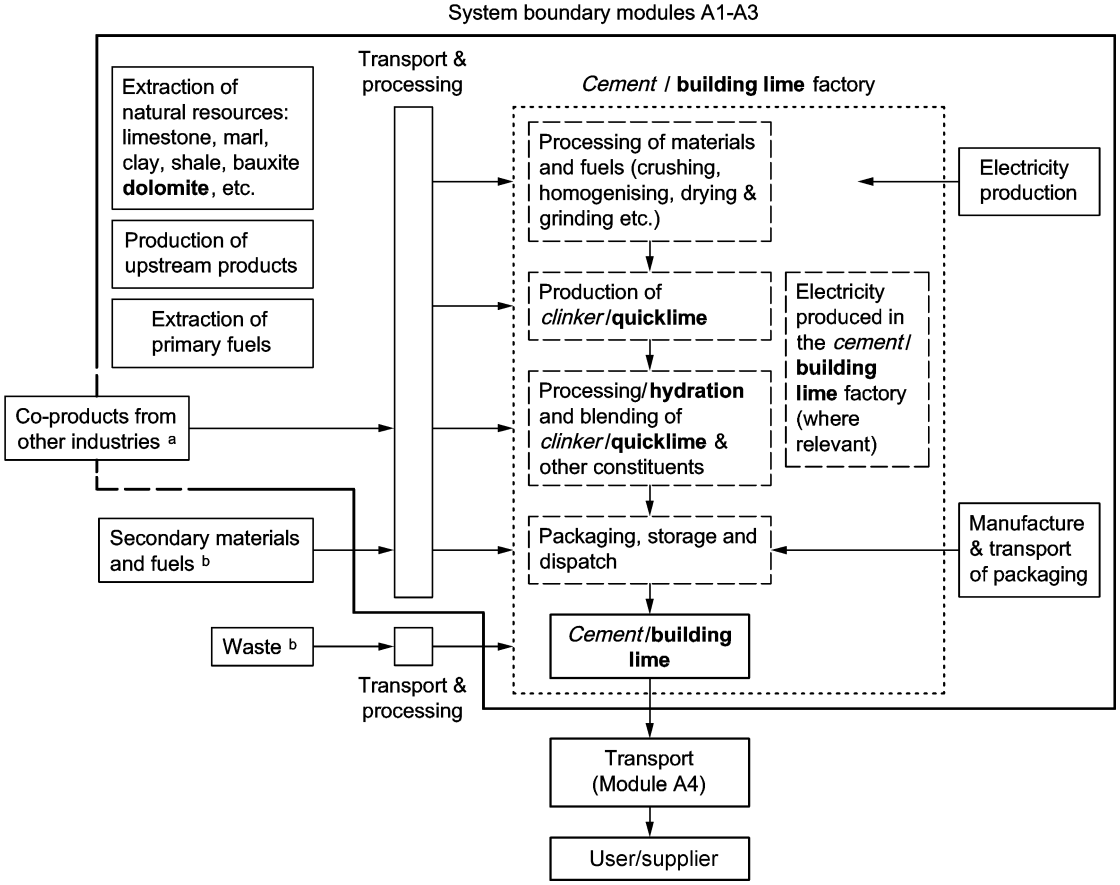
For company-specific EPDs, information on where the company's explanatory material may be found shall be included in the EPD.

7.2 Declaration of environmental parameters derived from LCA

7.2.1 General

As in EN 15804.

Figure 1 illustrates the system boundaries of cement and building lime production, and should be included in the EPD. The diagram is intended to aid understanding of the system boundaries. However, for detailed rules on how to include co-products, secondary fuels/materials and waste, please refer to 6.4.3 and Annex D of this PCR.



key

a Please see 6.4.3 of this PCR

b Please see Annex D of this PCR

The terms in italics refer to cement only

The terms in bold letters refer to building lime only

Figure 1 — System boundaries of cement and building lime production

7.2.2 Rules for declaring LCA information per module

As in EN 15804.

7.2.3 Parameters describing environmental impacts

As in EN 15804.

7.2.4 Parameters describing resource use

As in EN 15804.

7.2.5 Other environmental information describing different waste categories and output flows

As in EN 15804.

7.3 Scenarios and additional technical information

7.3.1 General

As in EN 15804.

Information on the Reference Service Life (RSL) is not relevant for this PCR.

7.3.2 Construction process stage

As in EN 15804.

Information on the Reference Service Life (RSL) is not relevant for this PCR.

7.3.3 B1-B7 Use stage

As in EN 15804.

Information on the Reference Service Life (RSL) is not relevant for this PCR.

7.3.4 End-of-life

As in EN 15804.

Information on the Reference Service Life (RSL) is not relevant for this PCR.

7.3.5 Carbonation in cement-based products

During and after the lifetime of concrete structures or other cement-containing products, hydrated cement contained within the product reacts with CO_2 in the air. Part of the CO_2 emitted during cement production is reabsorbed by the cement through carbonation, a reaction also referred to as cement carbonation. The quantity of CO_2 taken up will depend on the type of application and also its treatment after its lifetime. This reaction takes place mainly on the surface of cement-based products. Structural concrete applications are designed according to strict codes which ensure that carbonation at the concrete surface does not lead to corrosion of reinforcement. Carbonation can nevertheless be particularly relevant after demolition when the surface in contact with air increases very significantly. Carbonation contributes to a reduced GWP impact of cement products over their whole life.

Since carbonation will depend on the application in question, please refer to the respective PCR/EPDs for ready-mix concrete, precast concrete, mortar, cement screed or other cement-based products. If the CO_2 uptake due to carbonation is taken into account in PCRs/EPDs for cement-based products, it shall be included in the respective module where it occurs.

7.3.6 Carbonation in building lime

During and after the lifetime of building materials, or other lime-containing products, hydrated lime contained within the product reacts with CO_2 in the air. Part of the CO_2 emitted during lime production is absorbed during the hardening process of lime (known as carbonation to $CaCO_3$).

The quantity of CO_2 taken up will depend on the type of application and also on its treatment after its lifetime. Lime carbonation contributes to a reduced GWP impact of lime products over their whole life. This" partly closes the cycle starting with CO_2 process emissions during lime production. This mechanism is summarized in Figure 2.

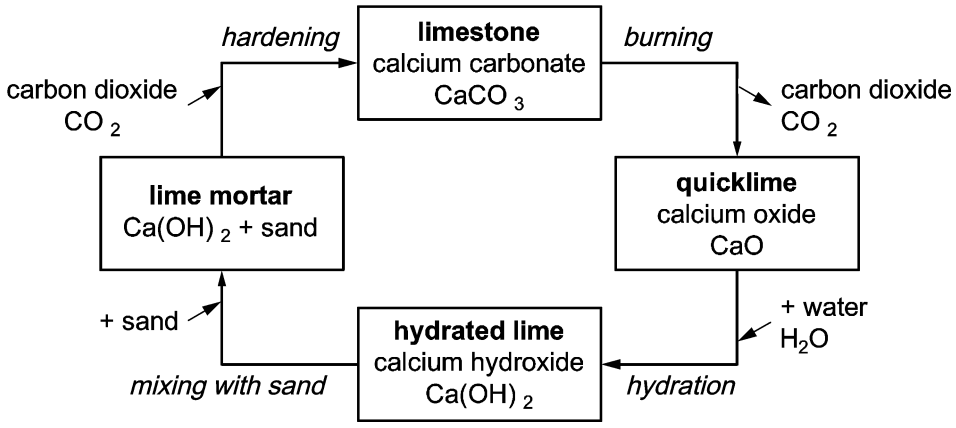


Figure 2 — The lime cycle for high calcium lime

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

As in EN 15804.

For additional information on emissions to indoor air, soil and water during the use stage, please refer to the respective PCR/EPDs for the downstream products such as ready-mix concrete, precast concrete, screed, plasters, masonry mortars, etc.

7.5 Aggregation of information modules

As in EN 15804.

8 Project report

As in EN 15804.

9 Verification and validity of an EPD

As in EN 15804.

Annex A
(normative)

Requirements and guidance on the reference service life

Not relevant for cement EPDs.

Annex B
(informative)

Waste

As in EN 15804.

Annex C
(normative)

Characterization factors for GWP, ODP, AP, EP, POCP and ADP

As in EN 15804.

Annex D
(informative)

Application of the polluter pays principle

Table D.1 — Application of the polluter pays principle to the use of waste as substitute for primary fuels or materials
"Processes of waste processing shall be assigned to the product system that generates the waste until the end-of-waste state is reached"

Reached end-of-waste state?	Energy recovery efficiency rate	The use is according to EN 15804 considered as	System that generates the waste or the secondary material/fuel	System that uses the waste or the secondary material/fuel
Yes, if — the substance or object is commonly used for specific purposes; — a market or demand, exists for such a substance or object; — a substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards; — the use of the substance or object will not Iead to overall adverse environmental or human health impacts;	NA	Use of secondary material or secondary fuel E.g. use of wood chips recovered from untreated wood	Declare the — materials for recycling or recovery in module where the waste is generated, or if at end-of life in C3; — impacts or recycling processes to achieve end of waste in C3; and — impact to achieve substitution and benefits in module D	Declare the — use of secondary material or secondary fuel; and — environmental impact from the use of secondary material or fuel in the module where it is used

Reached end-of-waste state?	Energy recovery efficiency rate	The use is according to EN 15804 considered as	System that generates the waste or the secondary material/fuel	stem that uses the waste or the secondary
No, if — the waste is legally defined as waste when used; and — the use of waste is permitted and regulated under European and/or national waste legislation as applicable	≥ 60 %	Waste recovery, e.g. material or energy recovery Sometimes referred to as use of alternative or waste fuel, e.g. use of tyres as substitute for fossil fuels in the cement industry	Declare the — environmental impact from waste processing e.g. incineration in the module where the waste is generated, or if end of life in module C3; — exported energy in the module where the waste is generated; and — substitution benefits in module D	Do not declare the — impacts from waste processing e.g. co-incineration of waste Declare the — use of imported energy from the waste within “use of secondary fuel” as a more appropriate indicator does not currently exist — it is recommended to note this below table
	< 60 %	Waste disposal	Declare the — environmental impact from waste disposal e.g. incineration in the module where the waste is generated, or if end of life in module C4; — exported energy in the module where the waste is generated; and — substitution benefits in module D	

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