SLOVENSKI STANDARD
SIST EN 16908:2017

01-maj-2017

Cement in gradbeno apno - Okoljske deklaracije za proizvode - Pravila za kategorije proizvodov, ki dopolnjujejo EN 15804

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

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

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

Ta slovenski standard je istoveten z: **EN 16908:2017**

ICS:

13.020.20	Okoljska ekonomija. Trajnostnost	Environmental economics. Sustainability
91.100.10	Cement. Mavec. Apno. Malta	Cement. Gypsum. Lime. Mortar

SIST EN 16908:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16908

February 2017

ICS 91.010.99; 91.100.10

English Version

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

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

This European Standard was approved by CEN on 21 November 2016.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 16908:2017 E

Contents

Page

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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.