



SLOVENSKI STANDARD
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Sredstva za apnjenje - Določanje fizikalnih in kemijskih lastnosti ter specifičnih onesnaževal

Liming materials - Determination of physical and chemical properties and specific contaminants

Kalkdünger - Bestimmung physikalischer und chemischer Eigenschaften und spezifischer Kontaminanten

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EUROPEAN STANDARD
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English Version

Liming materials - Determination of physical and chemical properties and specific contaminants

Kalkdünger - Bestimmung physikalischer und chemischer Eigenschaften und spezifischer Kontaminanten

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

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European foreword

This document (prEN 17816:2022) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials” the secretariat of which is held by DIN.

This document is currently submitted to CEN Enquiry.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

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Introduction

Regulation (EU) 2019/1009 [2] lays down the rules on the making available on the market of EU fertilizing products and the specific safety, quality and labelling requirements for the defined product function categories (PFCs). Liming materials have been classified as PFC 2.

In this document the normative references of the test methods to be used for liming materials (PFC 2) are defined in order to measure the compliance with the related requirement in the Regulation (EU) 2019/1009 [2].

Supplementary denominations and specifications widely used in Europe are given in EN 14069 [1].

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1 Scope

This document is applicable to liming materials, which contain oxides, hydroxides, carbonates or silicates of the nutrients calcium (Ca) or magnesium (Mg) and the function of which is to correct soil acidity. It is applicable to fertilizing products, which are classified as PFC 2 or the PFC 2 component in PFC 7 of Regulation (EU) 2019/1009 [2].

This document specifies references to the methods for the determination of the following physical and chemical properties and specific contaminants in liming materials:

- Determination of the cadmium content;
- Determination of the chromium VI content;
- Determination of the mercury content;
- Determination of the nickel content;
- Determination of the lead content;
- Determination of the arsenic content;
- Determination of the total chromium content;
- Determination of neutralizing value;
- Determination of the reactivity;
- Determination of the grain size/granulometry;
- Determination of the total CaO content;
- Determination of the total MgO content.

The following requirements for liming material of the Regulation (EU) 2019/1009 [2] are not addressed in this document as they are covered in other European Standards:

- Determination of the copper and zinc content;
- Determination of the chloride content;
- Determination of quantity (indicated by mass or volume);
- Determination of the phosphonates content.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1482-1:2007, *Fertilizers and liming materials - Sampling and sample preparation - Part 1: Sampling*

EN 1482-2:2007, *Fertilizers and liming materials - Sampling and sample preparation - Part 2: Sample preparation*

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EN 1482-3:2016, *Fertilizers and liming materials - Sampling and sample preparation - Part 3: Sampling of static heaps*

EN 12944-1:1999, *Fertilizers and liming materials and soil improvers - Vocabulary - Part 1: General terms*

EN 12944-3:2019, *Fertilizers and liming materials - Vocabulary - Part 3: Terms relating to liming materials*

EN 12945:2014+A1:2016, *Liming materials - Determination of neutralizing value - Titrimetric methods*

EN 12946:2000, *Liming materials - Determination of calcium content and magnesium content - Complexometric method¹*

EN 12947:2000, *Liming materials - Determination of magnesium content - Atomic absorption spectrometric method*

EN 12948:2010, *Liming materials - Determination of size distribution by dry and wet sieving*

EN 13475:2001, *Liming materials - Determination of calcium content - Oxalate method*

EN 13971:2020, *Carbonate and silicate liming materials - Determination of reactivity - Potentiometric titration method with hydrochloric acid*

EN 14984:2016, *Liming materials - Determination of product effect on soil pH - Soil incubation method*

EN 16317:2013+A1:2017, *Fertilizers and liming materials - Determination of arsenic by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution*

EN 16318:2013+A1:2016, *Fertilizers and liming materials - Determination of chromium(VI) by photometry (method A) and by ion chromatography with spectrophotometric detection (method B)*

EN 16319:2013+A1:2015, *Fertilizers and liming materials - Determination of cadmium, chromium, lead and nickel by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution*

EN 16320:2013+A1:2017, *Fertilizers and liming materials - Determination of mercury by vapour generation (VG) after aqua regia dissolution*

EN 16357:2013, *Carbonate liming materials - Determination of reactivity - Automatic titration method with citric acid*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1:1999 and EN 12944-3:2019 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

¹ Including corrigendum EN 12946:2000/AC:2002; the standard including the corrigendum is currently under revision.

4 Sampling and sample preparation

4.1 Sampling

Samples taken for quality control purposes shall be representative, as described in EN 1482-1:2007. Sampling of static heaps shall be in accordance with EN 1482-3:2016.

4.2 Sample preparation

Sample preparation for quality control purposes shall be in accordance with EN 1482-2:2007.

5 Requirements

5.1 General

The requirements for liming materials according to PFC 2 of Regulation (EU) 2019/1009 [2] shall be evaluated by using the analytical methods referred to in 5.2 and 5.3.

5.2 Determination of physical and chemical properties

NOTE Relevant analytical methods for the determination of physical and chemical properties of liming materials (PFC 2) are specified in 5.2.1 to 5.2.5.

5.2.1 Neutralizing value

The neutralizing value shall be determined in accordance with EN 12945:2014+A1:2016.

5.2.2 Reactivity

The reactivity shall be determined in accordance with EN 13971:2020 or EN 14984:2016 or EN 16357:2013.

5.2.3 Grain size/Granulometry

The grain size/granulometry shall be determined in accordance with EN 12948:2010.

NOTE Grain size is a synonym to granulometry. By measuring the granulometry in accordance with EN 12948:2010 compliance with the requirements on grain size can be confirmed.

5.2.4 Total calcium oxide (CaO) content

The total CaO content shall be determined in accordance with EN 12946:2000 or EN 13475:2001.

5.2.5 Total magnesium oxide (MgO) content

The total MgO content shall be determined in accordance with EN 12946:2000 or EN 12947:2000.

5.3 Determination of specific contaminants

NOTE Relevant analytical methods for the determination of specific contaminants in liming materials (PFC 2) are specified in 5.3.1 to 5.3.6.

5.3.1 Cadmium content

The cadmium content shall be determined in accordance with EN 16319:2013+A1:2015.

5.3.2 Hexavalent chromium content

The hexavalent chromium content shall be determined in accordance with EN 16318:2013+A1:2016.

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5.3.3 Mercury content

The mercury content shall be determined in accordance with EN 16320:2013+A1:2017.

5.3.4 Nickel content

The nickel content shall be determined in accordance with EN 16319:2013+A1:2015.

5.3.5 Lead content

The lead content shall be determined in accordance with EN 16319:2013+A1:2015.

5.3.6 Arsenic content

The arsenic content shall be determined in accordance with EN 16317:2013+A1:2017.

5.3.7 Total chromium content

The total chromium content shall be determined in accordance with EN 16319:2013+A1:2015.

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