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NSAI Standards

Irish Standard
I.S. EN 16319:2013+A1:2015

Fertilizers - Determination of trace elements - Determination of cadmium, chromium, lead and nickel by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution

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National Foreword

I.S. EN 16319:2013+A1:2015 is the adopted Irish version of the European Document EN 16319:2013+A1:2015, Fertilizers - Determination of trace elements - Determination of cadmium, chromium, lead and nickel by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16319:2013+A1

December 2015

ICS 65.080

Supersedes EN 16319:2013

English Version

Fertilizers and liming materials - Determination of cadmium, chromium, lead and nickel by inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution

Engrais et amendements minéraux basiques - Détermination du cadmium, chrome, plomb et nickel par spectrométrie d'émission atomique avec plasma induit par haute fréquence (ICP-AES) après digestion à l'eau régale

This European Standard was approved by CEN on 15 September 2013 and includes Amendment 1 approved by CEN on 7 November 2015.

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Contents

Page

European foreword ... 3

1 Scope ... 4

2 Normative references ... 4

3 Terms and definitions ... 4

4 Principle ... 4

5 Sampling and sample preparation ... 4

6 Reagents ... 4

7 Apparatus ... 5

8 Procedure ... 6
8.1 General ... 6
8.2 Preparation of the test solution ... 7
8.2.1 General ... 7
8.2.2 Preparation ... 7
8.3 Preparation of the test solution for the correction of matrix effects by spike recovery ... 7
8.4 Preparation of the blank test solution ... 8
8.5 Preparation of the calibration solutions for the analysis of cadmium, chromium, nickel and lead ... 8
8.6 Determination of cadmium, chromium, nickel and lead by ICP-AES ... 8
8.6.1 General ... 8
8.6.2 Determination by ICP-AES ... 8

9 Calculation and expression of the results ... 10
9.1 External calibration ... 10
9.2 Correction for spike recovery ... 10
9.3 Standard addition method ... 11
9.4 Calculation of the element content in the sample ... 11

10 Precision ... 12
10.1 Inter-laboratory tests ... 12
10.2 Repeatability ... 12
10.3 Reproducibility ... 12

11 Test report ... 13

Annex A (informative) **Results of the inter-laboratory test** ... 15

A.1 Inter-laboratory tests ... 15

A.2 Statistical results for the determination of cadmium, chromium, lead and nickel ⟨A1⟩ for fertilizers ⟨A1⟩ ... 15

A.3 Statistical results for the determination of cadmium, chromium, lead and nickel for liming materials ... 17

Bibliography ... 20

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European foreword

This document (EN 16319:2013+A1:2015) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

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 June 2016, and conflicting national standards shall be withdrawn at the latest by June 2016.

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

This document includes Amendment 1 approved by CEN on 2015-11-07.

This document supersedes [A1⟩ EN 16319:2013 ⟨A1].

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1⟩ ⟨A1].

[A1⟩ *deleted text* ⟨A1]

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1 Scope

[A1] This European Standard specifies a method for the determination of the content of cadmium, chromium, nickel and lead in fertilizers and liming materials using inductively coupled plasma-atomic emission spectrometry (ICP-AES) after aqua regia dissolution. [A1] Limits of quantification are dependent on the sample matrix as well as on the instrument, but can roughly be expected to be 0,3 mg/kg for Cd and 1 mg/kg for Cr, Ni and Pb.

[A1] NOTE 1 [A1] Due to significant interference from Cu, Fe and Mn, no valid results can be reported using this method for fertilizer matrices containing high concentrations (≥ 10 %) of these micro-nutrients.

[A1] NOTE 2 The term fertilizer is used throughout the body of this European Standard and needs to be taken to include liming materials unless otherwise indicated. [A1]

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

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

EN 12944-2:1999, *Fertilizers and liming materials and soil improvers — Vocabulary — Part 2: Terms relating to fertilizers*

[A1] EN 12944-3:2001, *Fertilizers and liming materials — Vocabulary — Part 3: Terms relating to liming materials* [A1]

EN ISO 3696, *Water for analytical laboratory use — Specification and test methods (ISO 3696)*

3 Terms and definitions

[A1] For the purposes of this document, the terms and definitions given in EN 12944-1:1999, EN 12944-2:1999 and EN 12944-3:2001 apply. [A1]

4 Principle

Cadmium, chromium, nickel and lead are extracted from the sample with aqua regia and conventional boiling. The concentrations in the extract are measured by inductively coupled plasma–atomic emission spectrometry (ICP-AES), with axial or radial viewing.

5 Sampling and sample preparation

Sampling is not part of the method specified in this European Standard. A recommended sampling method is given in EN 1482-1.

Sample preparation shall be carried out in accordance with EN 1482-2.

6 Reagents

Use only reagents of recognized analytical grade.

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