VÄETISED. VÄETISTES OLEVATE MIKROTOITAINETE EKSTRAKTSIOON KUNINGVEEGA

Fertilizers - Extraction of total micro-nutrients in fertilizers using aqua regia

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 16964:2018 sisaldab Euroopa standardi EN 16964:2018 ingliskeelset teksti.	This Estonian standard EVS-EN 16964:2018 consists of the English text of the European standard EN 16964:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.01.2018.	Date of Availability of the European standard is 24.01.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Fertilizers - Extraction of total micro-nutrients in fertilizers using aqua regia

Engrais - Extraction des oligo-éléments totaux des engrais à l'eau régale

Düngemittel - Extraktion von Gesamtspurennährstoffen aus Düngemitteln mit Königswasser

This European Standard was approved by CEN on 15 October 2017.

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Contents

Page

European foreword

This document (EN 16964:2018) 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of an identical text or by endorsement, at the latest by July 2018, and conflicting national standards shall be withdrawn at the latest by July 2018.

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 organizations 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

The preparation of this document was based on a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/335) concerning the modernization of methods of analysis of fertilizers in the framework of Regulation (EC) No 2003/2003 [1].

Aqua regia is applied for determination of many elements in different matrices. A horizontal standard for aqua regia extraction of soils, sludges and biowaste was prepared by CEN/TC 400. Similar procedure was applied for determination of the aqua regia extractable content of arsenic, mercury, cadmium, chromium, nickel and lead in fertilizers and liming materials (European Standard prepared by CEN/TC 260). Wide use of the aqua regia extraction and possibility to prepare a suitable horizontal standard was the main reason to develop the given extraction procedure.

WARNING — Persons using this European Standard should be familiar with normal laboratory practice. This European Standard does not purport to address all of the safety issues, if any, associated with its use. It is the responsibility of the user to establish appropriate health and safety practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted according to this European Standard are carried out by suitably trained staff.

1 Scope

This European Standard specifies a method for the total extraction of boron, cobalt, copper, iron, manganese, molybdenum and zinc with aqua regia from mineral fertilizers containing one or more micro-nutrients.

The extracts can be analysed according to EN 16963, EN 16965, prEN 17041, prEN 17042 and prEN 17043.

This method is also suitable for the extraction of cadmium, chromium, nickel and lead to be determined according to EN 16319; the extraction of mercury to be determined according to EN 16320 and the extraction of arsenic to be determined according to EN 16317.

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

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

EN 16963, *Fertilizers — Determination of boron, cobalt, copper, iron, manganese, molybdenum and zinc using ICP-AES*

EN 16965, *Fertilizers — Determination of cobalt, copper, iron, manganese and zinc using flame atomic absorption spectrometry (FAAS)*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12944-1 and EN 12944-2 apply.

4 Principle

The micro-nutrients are extracted from the sample with boiling aqua regia.

5 Sampling and sample preparation

Sampling and sample preparation are not part of this European Standard. A recommended sampling method is given in EN 1482-1 [2] and a recommended sample preparation method in EN 1482-2 [3].

6 Reagents

All reagents shall be of recognized analytical grade and they shall have negligible concentration of the element to be determined if compared to the lowest concentration of that element in the sample solution.

6.1 Water for extraction, grade 2 according to EN ISO 3696, free from micro-nutrients.