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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Fertilizers - Extraction of total micro-nutrients in
fertilizers using aqua regia**Engrais - Extraction des oligo-éléments totaux des
engrais à l'eau régaleDüngemittel - Extraktion von
Gesamtspurennährstoffen aus Düngemitteln mit
Königswasser

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

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EN 16964:2018 (E)

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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of an identical text or by endorsement, at the latest by July 2018, and conflicting national standards shall be withdrawn at the latest by July 2018.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.

EN 16964:2018 (E)**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)*

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