



NSAI
Standards

Irish Standard
I.S. EN 16320:2013+A1:2017

Fertilizers - Determination of trace elements - Determination of mercury by vapour generation (VG) after aqua regia dissolution

I.S. EN 16320:2013+A1:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):

NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.

This document is based on:

EN 16320:2013+A1:2017

Published:

2017-02-22

This document was published under the authority of the NSAI and comes into effect on:

2017-03-24

ICS number:

65.080

NOTE: If blank see CEN/CENELEC cover page

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

National Foreword

I.S. EN 16320:2013+A1:2017 is the adopted Irish version of the European Document EN 16320:2013+A1:2017, Fertilizers - Determination of trace elements - Determination of mercury by vapour generation (VG) after aqua regia dissolution

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

Compliance with this document does not of itself confer immunity from legal obligations.

In line with international standards practice the decimal point is shown as a comma (,) throughout this document.

This page is intentionally left blank

EUROPEAN STANDARD

EN 16320:2013+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2017

ICS 65.080

English Version

Fertilizers and liming materials - Determination of mercury by vapour generation (VG) after aqua regia dissolution

Engrais et amendements minéraux basiques -
Détermination du mercure par génération de vapeur
(VG) après digestion à l'eau régale

Düngemittel und Kalkdünger - Bestimmung von
Quecksilber mit Verdampfungstechnik (VG) nach
Königswasseraufschluss

This European Standard was approved by CEN on 29 August 2013 and includes Amendment 1 approved by CEN on 11 December 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

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	5
7 Apparatus.....	6
8 Procedure.....	7
8.1 General.....	7
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.....	8
8.4 Preparation of the blank test solution	8
8.5 Preparation of the calibration solutions	8
8.5.1 Calibration solutions for the analysis of mercury.....	8
8.5.2 Calibration standards.....	9
8.6 Determination of mercury.....	9
8.6.1 General.....	9
8.6.2 Determination by VG-AAS	9
8.6.3 Spectrometer settings of VG-AAS.....	9
8.6.4 Determination by VG-ICP-AES	10
9 Calculation and expression of the results	11
9.1 External calibration	11
9.2 Correction for spike recovery.....	11
9.3 Standard addition method.....	12
9.4 Calculation of the element content in the sample	12
10 Precision.....	13
10.1 Inter laboratory tests.....	13
10.2 Repeatability.....	13
10.3 Reproducibility	13
11 Test report.....	14
Annex A (informative) Results of the inter-laboratory test.....	15
Bibliography.....	16

European foreword

This document (EN 16320:2013+A1:2017) 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 August 2017, and conflicting national standards shall be withdrawn at the latest by August 2017.

This document includes Amendment 1 approved by CEN on 11 December 2016.

This document supersedes A1 EN 16320:2013 A1.

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

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 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.

EN 16320:2013+A1:2017 (E)

1 Scope

This European Standard specifies a method for the determination of the content of mercury in fertilizers ^{A1} and liming materials ^{A1} after extraction with aqua regia and the detection of mercury by vapour generation (VG) coupled to an atomic absorption spectrometer or an inductively coupled plasma-atomic emission spectrometer. A limit of quantification of 0,01 mg/kg is to be expected.

^{A1} NOTE The term fertilizer is used throughout the body of this European Standard and includes 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 and soil improvers — 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

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

4 Principle

Mercury is extracted from the sample with aqua regia and conventional boiling. The concentration of mercury in the extract is measured by (cold) vapour generation (VG) coupled to a suitable detector, such as an atomic absorption spectrometer (AAS) or an inductively coupled plasma-atomic emission spectrometer (ICP-AES).

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.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-