

Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 13657:2003 sisaldab Euroopa standardi EN 13657:2002 ingliskeelset teksti. Käesolev dokument on jõustatud 18.02.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 13657:2003 consists of the English text of the European standard EN 13657:2002. This document is endorsed on 18.02.2003 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This European Standard specifies methods of digestion with aqua regia. Solutions produced by the methods are suitable for analysis e.g. by atomic absorption spectrometry (FLAAS, HGAAS, CVAAS, GFAAS), inductively coupled plasma emission spectrometry (ICP-OES) and inductive coupled plasma mass spectrometry (ICP-MS)	Scope: This European Standard specifies methods of digestion with aqua regia. Solutions produced by the methods are suitable for analysis e.g. by atomic absorption spectrometry (FLAAS, HGAAS, CVAAS, GFAAS), inductively coupled plasma emission spectrometry (ICP-OES) and inductive coupled plasma mass spectrometry (ICP-MS)
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ICS 13.030.40

Võtmesõnad: aqua, chemical analysis and testin, chemical analysis and testing, chemical elements, definition, definitions, determination, determination procedures, digestion, digestion method, disintegration, elements, hydrochloric acid, nitric acid, solubility, testing, wastes

ICS 13.030.40

English version

Characterization of waste - Digestion for subsequent determination of aqua regia soluble portion of elements

Caractérisation des déchets - Digestion en vue de la détermination ultérieure de la part des éléments solubles dans l'eau régale contenus dans les déchets

Charakterisierung von Abfällen - Aufschluss zur anschließenden Bestimmung des in Königswasser löslichen Anteils an Elementen in Abfällen

This European Standard was approved by CEN on 19 August 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

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Contents

	page
Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Safety remarks	6
5 Sample	6
5.1 Sample pre-treatment	6
5.2 Mass of test portion	7
6 Equipment	7
6.1 Closed vessel system	7
6.1.1 Microwave unit	7
6.1.2 Digestion vessels	7
6.2 Semi-open vessel system	8
6.2.1 Microwave unit	8
6.2.2 Digestion vessels	8
6.3 Apparatus for thermal heating digestion	8
6.3.1 Reaction vessels	8
6.3.2 Reflux condenser	8
6.3.3 Absorption vessel	8
6.3.4 Roughened glass beads	8
6.3.5 Temperature-controlled heating apparatus	8
6.4 General equipment	8
7 Reagents	9
8 Interferences and sources of error	9
8.1 General informations	9
8.2 Closed vessel system	9
8.3 Semi-open vessel system for microwave or thermal heating digestion	10
9 Procedure	10
9.1 Blank test	10
9.2 Procedure for microwave assisted digestion in closed vessels	10
9.3 Procedure for microwave assisted digestion in semi-open vessels	11
9.3.1 Amount of samples	11
9.3.2 Digestion	11
9.3.3 Preparation of the solution for analysis	11
9.4 Procedure for thermal heating digestion in reflux systems	11
9.4.1 Amount of samples	11
9.4.2 Digestion	12
9.4.3 Preparation of the solution for analysis	12
10 Test report	12
Annex A (normative) Calibration of the power adjustment	14
Annex B (informative) Validation	15
B.1 Inter-laboratory study	15
B.2 Robustness study	23
Bibliography	26

Foreword

This document EN 13657:2002 has been prepared by Technical Committee CEN/TC 292 "Characterization of waste", the secretariat of which is held by NEN.

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 April 2003, and conflicting national standards shall be withdrawn at the latest by April 2003.

In this European Standard the annex A is normative and the annexe B is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

The aim of this European Standard is to describe suitable methods for the extraction of elements in waste, soluble by digestion with aqua regia, i. e. aqua regia soluble elements.

For those types of waste, where the sample material by the described digestion with aqua regia are not brought totally in solution, the obtained results will not be the total amount of the elements in the waste.

The obtained results of aqua regia soluble elements cannot be regarded as available for leaching, as the digestion with aqua regia is too vigorous to represent natural processes.

1 Scope

This European Standard specifies methods of digestion with aqua regia. Solutions produced by the methods are suitable for analysis e.g. by atomic absorption spectrometry (FLAAS, HGAAS, CVAAS, GFAAS), inductively coupled plasma emission spectrometry (ICP-OES) and inductive coupled plasma mass spectrometry (ICP-MS).

The digestion with aqua regia will not necessarily release all elements completely. However for most environmental application and waste characterization the results fit for the purpose.

The method is applicable to the digestion of waste for example for the following elements: Al, Sb, As, B, Ba, Be, Ca, Cd, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, P, K, Se, Ag, S, Na, Sr, Sn, Te, Ti, Tl, V, Zn.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN ISO 3696:1995, *Water for analytical laboratory use - Specification and test methods (ISO 3696:1987)*.

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1

aqua regia

digestion solution obtained by mixing 1 volume of nitric acid (65 % m/m to 70 % m/m) and 3 volumes of hydrochloric acid (35 % m/m to 37 % m/m)

3.2

digestion

mineralization of the organic matter of a sample and dissolution of its mineral part, more or less completely, when reacted with a reagent mixture

3.3

sample

portion of material selected from a larger quantity of material

[ENV 12506:2001]

3.4

laboratory sample

sample or subsample(s) sent to or received by the laboratory

[ENV 12506:2001]

3.5

test sample; analytical sample

sample, prepared from the laboratory sample, from which test portions are removed for testing or analysis

[ENV 12506:2001]