

Characterization of waste Microwave assisted digestion with hydrofluoric (HF), nitric (HNO₃) and hydrochloric (HCl) acid mixture for subsequent determination of elements

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13656:2003 sisaldab Euroopa standardi EN 13656:2002 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.02.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13656:2003 consists of the English text of the European standard EN 13656:2002.</p> <p>This document is endorsed on 18.02.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>This European Standard specifies methods of microwave assisted digestion with hydrofluoric (HF), nitric (HNO₃) and hydrochloric (HCl) acid mixture. 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)</p>	<p>Scope:</p> <p>This European Standard specifies methods of microwave assisted digestion with hydrofluoric (HF), nitric (HNO₃) and hydrochloric (HCl) acid mixture. 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)</p>
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ICS 13.030.40

Võtmesõnad: chemical analysis and testin, communication equipment, determinat, determination procedures, digestion, digestion method, disintegration, elements, high frequencies, hydrochloric acid, hydrogen fluoride, microwave devices, microwaves, nitric acid, testing, wastes

ICS 13.030.40

English version

Characterization of waste - Microwave assisted digestion with
hydrofluoric (HF), nitric (HNO₃) and hydrochloric (HCl) acid
mixture for subsequent determination of elements

Caractérisation des déchets - Digestion assistée par micro-ondes avec un mélange d'acides fluorhydrique (HF), nitrique (HNO₃) et chlorhydrique (HCl) pour la détermination ultérieure d'éléments contenus dans les déchets

Charakterisierung von Abfällen - Aufschluss mittels Mikrowellengerät mit einem Gemisch aus Fluorwasserstoffsäure (HF), Salpetersäure (HNO₃) und Salzsäure (HCl) für die anschließende Bestimmung der Elemente im Abfall

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.



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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document EN 13656:2002 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 purpose of the method is to bring the elements to be determined in many types of waste into solution to provide a rapid digestion for analysis. Elements extractable by this procedure can in many instances be described as „total“. On another hand they cannot be regarded as available for leaching, as the extraction procedure is too vigorous to represent natural processes.

1 Scope

This European Standard specifies methods of microwave assisted digestion with hydrofluoric (HF), nitric (HNO₃) and hydrochloric (HCl) acid mixture. 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 method is applicable to the microwave assisted acid 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

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

3.2

sample

portion of material selected from a larger quantity of material

[ENV 12506:2001]

3.3

laboratory sample

sample or sub-sample(s) sent to or received by the laboratory

[ENV 12506:2001]

3.4

test sample; analytical sample

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

[ENV 12506:2001]

3.5

test portion; analytical portion

quantity of material of proper size for measurement of the concentration or other properties of interest, removed from the test sample

[ENV 12506:2001]

NOTE 1 The test portion may be taken from the laboratory sample directly if no preparation of sample is required (e.g. with liquids), but usually it is taken from the prepared test sample.