Characterization of waste - Screening methods for the element composition by portable X-ray fluorescence instruments

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NATIONAL FOREWORD

See Eesti standard EVS-EN 16424:2014 sisaldab Euroopa standardi EN 16424:2014 inglisekeelset teksti.	This Estonian standard EVS-EN 16424:2014 consists of the English text of the European standard EN 16424:2014.
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 15.10.2014.	Date of Availability of the European standard is 15.10.2014.
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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English Version

Characterization of waste - Screening methods for the element composition by portable X-ray fluorescence instruments

Caractérisation des déchets - Méthode de dépistage pour la détermination de la composition élémentaire au moyen d'analyseurs portables de fluorescence X

Charakterisierung von Abfällen - Screening-Verfahren zur Bestimmung der elementaren Zusammensetzung mit tragbaren Röntgenfluoreszenzspektrometern

This European Standard was approved by CEN on 16 August 2014.

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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 16424:2014) 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 2015, and conflicting national standards shall be withdrawn at the latest by April 2015.

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.

X-ray fluorescence spectrometry (XRF) is a fast and reliable method for the determination of the total content of certain elements within different matrices. Quantitative analysis using XRF is described in EN 15309 [2]. For screening purposes, portable instruments are often used, especially when only the absence or presence of elements is under investigation or qualitative results with an indication of the concentration level are requested. This standard is applicable for on-site verification at landfills (see CEN/TR 16130 [4]) and it is an exemplification of EN 16123 [3].

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard is dedicated to field portable X-ray fluorescence (XRF) equipment (hand-held or portable bench top) and specifies a screening method for the determination of the elemental composition of waste materials for on-site verification. Portable XRF spectrometers are used for a rapid and exploratory analysis of paste-like or solid materials. The absence or presence of specific elements is displayed qualitatively with an indication of the concentration level.

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 15002, *Characterization of waste — Preparation of test portions from the laboratory sample*

3 Terms and definitions

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

3.1
field portable XRF spectrometer
XRF spectrometer for analyzing samples in the field, namely hand-held or portable bench top XRF spectrometers

3.2
hand-held XRF spectrometer
XRF spectrometer which can be used for in-situ analysis by direct probing or mounted on a stand

3.3
on-site verification
third level of inspection according to the Landfill Directive and the Landfill Decision to ensure that the waste accepted at a landfill is the same as described in the accompanying documents and that it is in accordance with the basic characterization and/or compliance testing

3.4
portable bench top spectrometer
compact bench top XRF spectrometer which can easily be carried into the field

3.5
screening
application of any analytical method for exploratory analysis

4 Principle

The sample can be measured directly or after a suitable sample preparation. In principle two different methods are used for probing the sample, either a pistol-like instrument is placed directly on the sample or a sufficient test portion is taken and put into a sample cup for measurement with the XRF instrument. The presence of a specific element is verified if a significant intensity for that element is measured. The intensities of the lines can be evaluated to indicate the concentration range.