

**Solid recovered fuels - Method of the determination of biomass content**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 15440:2011 sisaldab Euroopa standardi EN 15440:2011 ingliskeelset teksti.

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This Estonian standard EVS-EN 15440:2011 consists of the English text of the European standard EN 15440:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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The standard is available from Estonian standardisation organisation.

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English Version

**Solid recovered fuels - Methods for the determination of biomass  
content**

Combustibles solides de récupération - Méthode de  
détermination de la teneur en biomasse

Feste Sekundärbrennstoffe - Verfahren zur Bestimmung  
des Gehaltes an Biomasse

This European Standard was approved by CEN on 22 January 2011.

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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## Foreword

This document (EN 15440:2011) has been prepared by Technical Committee CEN/TC 343 “Solid recovered fuels”, the secretariat of which is held by SFS.

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of an identical text or by endorsement, at the latest by September 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

This document supersedes CEN/TS 15440:2006 and CEN/TS 15747:2008.

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 differs from CEN/TS 15440:2006 mainly as follows:

- a) the method based on  $^{14}\text{C}$  and presented earlier in CEN/TS 15747:2008 is added to the standard;
- b) results of interlaboratory tests supplemented as an informative Annex F;
- c) whole document editorially revised.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Introduction

This European Standard specifies the methods for the determination of biomass content in solid recovered fuels. This European Standard specifies three normative methods that are: the method of selective dissolution, the manual sorting method and the method based on the  $^{14}\text{C}$  content.

The method of selective dissolution is based on the reaction of biomass material with a mixture of sulphuric acid and hydrogen peroxide. The manual sorting method is based on the separation of different fractions by visual inspection. The determination of the biomass content using the  $^{14}\text{C}$  method is based on the well established analytical procedures that are used for the determination of the age of carbon containing objects.

With this European Standard the fraction of biomass is expressed:

- by weight;
- by energy content (gross or net calorific value);
- by carbon content.

This European Standard is primarily geared toward laboratories, producers, suppliers and purchasers of solid recovered fuels, but is also useful for the authorities and inspection organizations.

## 1 Scope

This European Standard specifies three normative methods for the determination of the biomass fraction in solid recovered fuel, and when to use each method. The methods are the selective dissolution in a hydrogen peroxide/sulphuric acid mixture, the manual sorting method and the method based on the  $^{14}\text{C}$  content.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 15357:2011, *Solid recovered fuels — Terminology, definitions and descriptions*

EN 15400, *Solid recovered fuels — Determination of calorific value*

EN 15403, *Solid recovered fuels — Determination of ash content*

EN 15407<sup>1)</sup>, *Solid recovered fuels — Methods for the determination of carbon (C), hydrogen (H) and nitrogen (N) content*

EN 15413<sup>1)</sup>, *Solid recovered fuels — Methods for the preparation of the test sample from the laboratory sample*

EN 15442, *Solid recovered fuels — Methods for sampling*

EN 15443, *Solid recovered fuels — Methods for the preparation of the laboratory sample*

CEN/TS 15414-1:2010, *Solid recovered fuels — Determination of moisture content using the oven dry method — Part 1: Determination of total moisture by a reference method*

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2005)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15357:2011 and the following apply.

### 3.1

#### **ash content**

inorganic mass remaining after complete combustion of a solid recovered fuel under specified conditions expressed as a percentage of the mass of the dry matter in the solid recovered fuel

### 3.2

#### **biodegradable**

material capable of undergoing biological anaerobic or aerobic decomposition under conditions naturally occurring in the biosphere

NOTE (Council Directive 1999/31/EC on the landfill of biodegradable waste; any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, and paper and paperboard.)

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<sup>1)</sup> To be published.