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**Trdna biogoriva - Zagotavljanje kakovosti goriv - 4. del: Lesni sekanci za neindustrijsko uporabo**

Solid biofuels - Fuel quality assurance - Part 4: Wood chips for non-industrial use

Feste Biobrennstoffe - Qualitätssicherung von Brennstoffen - Teil 4: Holzhackschnitzel für nichtindustrielle Verwendung

Biocombustibles solides - Assurance qualité du combustible - Partie 4: Plaquettes de bois à usage non industriel

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15234-4**

January 2012

ICS 75.160.10

English Version

**Solid biofuels - Fuel quality assurance - Part 4: Wood chips for  
non-industrial use**

Biocombustibles solides - Assurance qualité du  
combustible - Partie 4: Plaquettes de bois à usage non  
industriel

Feste Biobrennstoffe - Qualitätssicherung von Brennstoffen  
- Teil 4: Holzhackschnitzel für nichtindustrielle Verwendung

This European Standard was approved by CEN on 27 November 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.

CEN members are the national standards bodies of 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, Turkey and United Kingdom.

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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 Symbols and abbreviations .....	6
5 Quality assurance and quality control measures.....	6
5.1 General.....	6
5.2 Traceability .....	7
5.3 Production requirements .....	7
5.4 Fuel requirements for the final product (Step 1) .....	8
5.5 Process description (Steps 2, 3 and 4).....	8
5.6 Measures to assure the quality of the product (Step 5).....	10
5.6.1 Inspection of incoming raw material and other goods.....	10
5.6.2 Wood chips production.....	10
5.6.3 Distribution.....	10
5.7 Routines for separate handling of nonconforming raw materials and solid biofuels (Step 6).....	11
6 Product declaration of fuel quality and labelling .....	11
Annex A (informative) Examples of product declarations .....	12
Annex B (informative) A-deviations .....	14
Bibliography .....	15

## Foreword

This document (EN 15234-4:2012) has been prepared by Technical Committee CEN/TC 335 “Solid biofuels”, the secretariat of which is held by SIS.

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 July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.

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.

The European standard series EN 15234, *Solid biofuels — Fuel quality assurance* are provided as a general requirements and additional product standards. Additional product standards may extend this series over time.

EN 15234 consists of the following parts, under the general title *Solid biofuels — Fuel quality assurance*:

- *Part 1: General requirements;*
- *Part 2: Wood pellets for non-industrial use;*
- *Part 3: Wood briquettes for non-industrial use;*
- *Part 4: Wood chips for non-industrial use;*
- *Part 5: Firewood for non-industrial use;*
- *Part 6: Non-woody pellets for non-industrial use.*

Although these product standards may be obtained separately, it should be recognized that they require an understanding of the standards based on and supporting EN 15234-1. It is recommended to obtain and use EN 15234-1 in conjunction with these standards.

**NOTE** In these product standards, non-industrial use means - use in smaller scale appliances, such as in households, in small commercial and public sector buildings.

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, Turkey and United Kingdom.

## Introduction

The overall aim of this European Standard is to guarantee the wood chips quality through the whole supply chain, from the origin and source to the delivery of the solid biofuel and provide adequate confidence that specified quality requirements are fulfilled.

The objective of this European Standard is to serve as a tool to enable the efficient trading of wood chips. Thereby:

- 1) the end-user can find wood chips that corresponds to its needs;
- 2) the producer/supplier can produce wood chips with defined and consistent properties and describe the fuel to the customers.

Quality assurance measures should establish confidence in the wood chips through systems that are simple to operate and do not cause undue bureaucracy.

Wood chips are specified according to EN 14961-4, *Solid biofuels — Fuel specifications and classes — Part 4: Wood chips for non-industrial use*.

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## 1 Scope

This European Standard defines the procedures to fulfil the quality requirements (quality control) and describes measures to ensure adequate confidence that the wood chips specification for non-industrial use as described in EN 14961-4 is fulfilled (quality assurance). This European Standard covers the raw material supply, production and delivery chain, from purchasing of raw materials to point of delivery to the end-user.

This European standard covers only quality assurance for wood chips produced from the woody biomasses stated in EN 14961-1:2010, Table 1 and EN 14961-4.

## 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 14588:2010, *Solid biofuels — Terminology, definitions and descriptions*

EN 14778, *Solid biofuels — Sampling*

EN 14961-1:2010, *Solid biofuels — Fuel specifications and classes — Part 1: General requirements*

EN 14961-4:2011, *Solid biofuels — Fuel specifications and classes — Part 4: Wood chips for non-industrial use*

EN 15234-1, *Solid biofuels — Fuel quality assurance — Part 1: General requirements*

NOTE In EN 14961-1:2010 there are listed Normative references of the European Standards for sampling and sample reduction and in EN 14961-4:2011 for determination of solid biofuel properties.

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14588:2010 and the following apply.

### 3.1

#### **wood chips**

chipped *woody biomass* in the form of pieces with a defined *particle size* produced by mechanical treatment with sharp tools such as knives

NOTE 1 Wood chips have a rectangular shape with a typical length 5 to 50 mm and a low thickness compared to other dimensions.

NOTE 2 See also cutter chips, forest chips, green chips, stemwood chips, and whole-tree chips in EN 14588:2010.

### 3.2

#### **chemical treatment**

treatment with chemicals other than air, water or heat

NOTE Examples of chemical treatment are listed in informative Annex C of EN 14961-1:2010.

### 3.3

#### **impurities**

material other than the raw material or fuel itself such as soil, stones, metal, plastic, glass

## EN 15234-4:2012 (E)

## 3.4

**weather condition**

temperature, humidity and precipitation, e.g. rain, snow

## 4 Symbols and abbreviations

The symbols and abbreviations used in this European Standard comply with the SI system of units as far as possible.

*d* dry (dry basis)

*ar* as received

w-% weight-percentage

A designation for ash content,  $A_d$  [w-%, dry basis]<sup>1)</sup>

BD designation for bulk density as received [kg/m<sup>3</sup>]<sup>1)</sup>

M designation for moisture content as received on wet basis,  $M_{ar}$  [w-%]<sup>1)</sup>

P designation for particle size distribution as received<sup>1)</sup>

Q designation for net calorific value as received,  $q_{p,net,ar}$  [MJ/kg or kWh/kg or MWh/t] at constant pressure<sup>1)</sup>

NOTE 1 MJ/kg equals 0,277 8 kWh/kg (1 kWh/kg equals 1 MWh/t and 1 MWh/t is 3,6 MJ/kg). 1 g/cm<sup>3</sup> equals 1 kg/dm<sup>3</sup>.

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## 5 Quality assurance and quality control measures

### 5.1 General

Quality assurance and control aim to provide confidence that a stable quality is continually achieved in accordance with the customer requirements. It means that specified requirements are fulfilled, but it does not necessarily mean a high quality but a steady and continually achieved quality in accordance with the customer's requirements. The customer is the next operator in the supply chain. Customer requirements include not only the fuel quality, but also the quality of the company's performance, such as documentation (product declaration, labelling of packaging, system for traceability, etc.), timing and logistics (to provide biofuels in time and to agreed performances criteria).

Fuel quality assurance needs to be applied to the entire supply chain. As the supply chains for solid biofuels in the most cases needs to be kept very simple, the same documents are often used for documentation of quality assurance and quality control measures.

NOTE When the customer is a supplier, a retailer or end user, the customer requirements are usually written in sales contracts.

Quality control is fundamentally about controlling the quality of a product or process to enable the delivery of the product or service within agreed parameters in the most efficient and cost effective way. The consequences of having good quality control will be a cost effective product and process.

1) Designation symbols are used in combination with a number to specify property levels (see for example Table 1, EN 14961-4:2011). For designation of chemical properties chemical symbols like S (sulphur), Cl (chlorine), N (nitrogen) are used and the value is added at the end of the symbol.



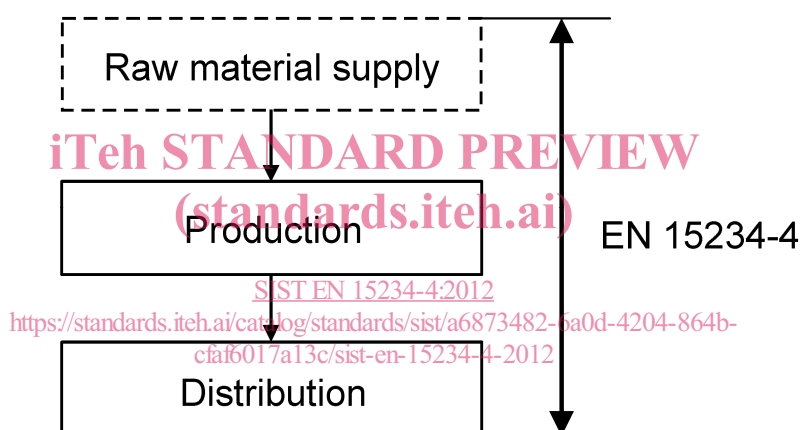
Quality assurance on the other hand, is about reviewing the products and processes, primarily through data provided from the quality control records and using this data:

- a) to provide confidence that products are produced within the required specification and processes are operated as they should be, and
- b) to assure that over a longer term either consistency is being maintained (stability in process results) or that quality improvements are making the intended impact.

## 5.2 Traceability

Wood chips for non industrial use shall be specified with EN 14961-4. The origin and source of solid the biofuel is specified by Table 1 in EN 14961-1:2010.

There are three parts in the supply chain, illustrated in Figure 1.



**Figure 1 —Simplified example of wood chips supply chain**

All operators in the supply chain are responsible for the traceability of the origin and source of the material delivered by them. The first operator is responsible for the documents being prepared the first time. The documents shall be available and provided on justified request throughout the entire supply chain according to EN 15234-1.

## 5.3 Production requirements

The methodology described below for quality assurance and quality control of the production shall be used, but shall be adjusted for the production requirements of the specific wood chips production chain in question.

There are six consecutive steps that have to be followed by every stakeholder in the supply chain. The steps are described below. For examples of documentation, see informative Annex A.

**Step 1:** Define fuel requirements for the final product (see 5.4)

**Step 2:** Document the steps in the raw material supply, production and distribution processes (see 5.5, Figures 2)