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**Trdna biogoriva - Zagotavljanje kakovosti goriv - 2. del: Lesni peleti za neindustrijsko uporabo**

Solid biofuels - Fuel quality assurance - Part 2: Wood pellets for non-industrial use

Feste Biobrennstoffe - Qualitätssicherung von Brennstoffen - Teil 2: Holzpellets für nichtindustrielle Verwendung

Biocombustibles solides - Assurance qualité du combustible - Partie 2: Granulés de bois densifié à usage non industriel

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**ICS:**

75.160.10 Trda goriva

Solid fuels

**SIST EN 15234-2:2012**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 15234-2**

January 2012

ICS 75.160.10

English Version

**Solid biofuels - Fuel quality assurance - Part 2: Wood pellets for non-industrial use**

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This European Standard was approved by CEN on 27 November 2011.

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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

**Management Centre: Avenue Marnix 17, B-1000 Brussels**

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## Foreword

This document (EN 15234-2:2012) 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of an identical text or by endorsement, at the latest by July 2012, and conflicting national standards shall be withdrawn at the latest by July 2012.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.

**EN 15234-2:2012 (E)****Introduction**

The overall aim of this European Standard is to guarantee the wood pellet quality through the whole supply chain, from the origin 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 pellets. Thereby:

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

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

Wood pellets are specified according to EN 14961-2, *Solid biofuels — Fuel specifications and classes — Part 2: Wood pellets 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 pellet specification described in EN 14961-2 is fulfilled (quality assurance). This European Standard covers the 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 pellets produced from the woody biomasses stated in EN 14961-1:2010, Table 1 and EN 14961-2.

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

EN 14961-2:2011, *Solid biofuels — Fuel specifications and classes — Part 2: Wood pellets 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 14961-2:2011 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 pellet**

densified biofuel made from pulverised woody biomass with or without additives usually with a cylindrical form, random length typically 5 mm to 40 mm, with broken ends

NOTE The raw material for wood pellets is woody biomass in accordance with Table 1 of EN 14961-1:2010. Pellets are usually manufactured in a die, with total moisture content usually less than 10 % of their mass on wet basis.

### 3.2

#### **additive**

material which improves the quality of the fuel (e.g. combustion properties), reduces emissions or makes production more efficient

### 3.3

#### **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.

**EN 15234-2:2012 (E)****3.4****impurities**

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

**3.5****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.

<i>d</i>	dry (dry basis)
<i>ar</i>	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>
D	designation for diameter as received, $D$ [mm] <sup>1)</sup>
DU	designation for mechanical durability as received [w-%] <sup>1)</sup>
F	designation for amount of fines as received [w-%, particles less than 3,15 mm]
L	designation for length as received, $L$ [mm] <sup>1)</sup>
M	designation for moisture content as received in wet basis, $M_{ar}$ [w-%] <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>.

**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, etc.), timing and logistics (to provide biofuels in time and to agreed performances criteria).

1) Designation symbols are used in combination with a number to specify property levels (see for example Table 1, EN 14961-2:2011). 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.



Fuel quality assurance needs to be applied to the entire supply chain. As the supply chains for solid biofuels in 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.

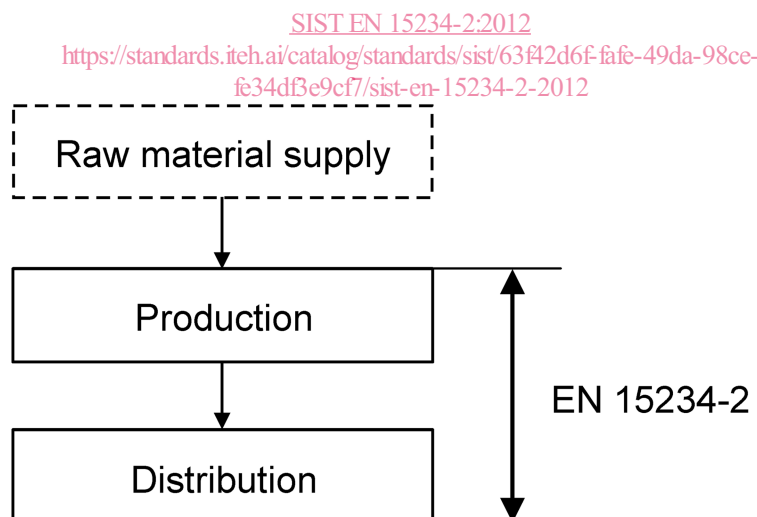
Quality assurance on the other hand, is about reviewing the products and processes, primarily through data provided from the quality control records and using this data:

- 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 pellets for non-industrial use shall be specified with EN 14961-2. The origin and source of solid 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 a wood pellet 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.