SLOVENSKI STANDARD
SIST EN 15234-1:2011

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Nadomešča:
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Trdna biogoriva - Zagotavljanje kakovosti goriv - 1. del: Splošne zahteve

Solid biofuels - Fuel quality assurance - Part 1: General requirements

Feste Biobrennstoffe - Qualitätssicherung von Brennstoffen - Teil 1: Allgemeine Anforderungen

Biocombustibles solides - Assurance de la qualité des combustibles - Partie 1: Exigences générales

Ta slovenski standard je istoveten z: EN 15234-1:2011

ICS:

75.160.10	Trda goriva	Solid fuels

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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.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 15234-1:2011) 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of an identical text or by endorsement, at the latest by September 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

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 supersedes CEN/TS 15234:2006.

The European standard series EN 15234 *Solid biofuels — Fuel quality assurance* are provided as a general requirements and additional standards. Additional 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 (under development)*;

— *Part 3: Wood briquettes for non-industrial use (under development)*;

— *Part 4: Wood chips for non-industrial use (under development)*;

— *Part 5: Firewood for non-industrial use (under development)*;

— *Part 6: Non-woody pellets for non-industrial use (under development)*.

Although these standards may be obtained separately, it should be recognised 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 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 and the United Kingdom.

Introduction

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

The solid biofuel supply chain usually consists of the main stages described in Figure 1.

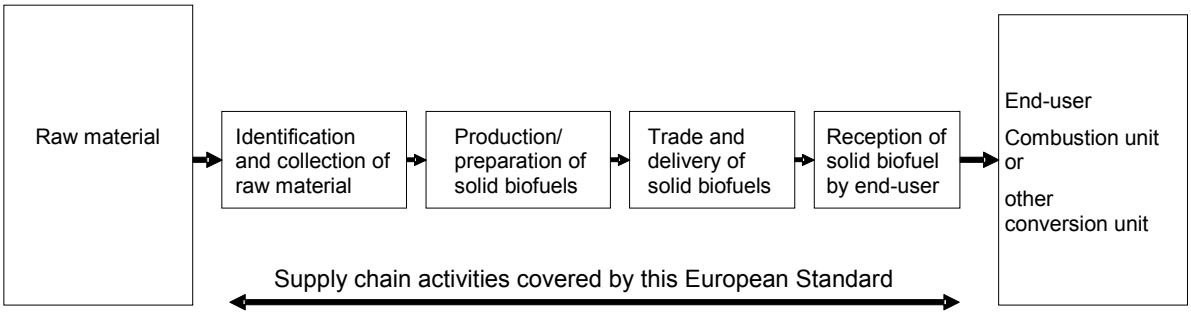


Figure 1—Solid biofuel supply chain

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

a) end-user can find a biofuel that corresponds to its needs;

b) producer/supplier can produce a biofuel with defined and consistent properties and describe the biofuel to the customers.

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

Solid biofuels are specified according to EN 14961 series — *Solid biofuels — Fuel specifications and classes*.

According to the terminology of EN ISO 9001:2008 [1], a Quality Management system generally consists of quality planning, quality control, quality assurance and quality improvement. This European Standard covers fuel quality assurance (part of quality management, focused on providing confidence that the quality requirements will be fulfilled) and quality control (part of quality management, focused on fulfilling the quality requirements).

The users of this European Standard may integrate EN 15234-1 in their general quality assurance scheme, e.g. the EN ISO 9000 series [1, 2, 3]. If the company does not have a quality management system, this European Standard can be used on its own to help the supplier in documenting fuel quality and creating adequate confidence between the supplier and the end-user.

NOTE This European Standard for fuel quality assurance is only concerned with the fuel part. To ensure the efficient use of solid biofuels, the relationship between the fuel and the combustion unit is also important to consider. It is recommended that the end-users ensure that the combustion technology used and the solid biofuels are compatible to achieve an optimised burning process. In addition to high efficiency, the environmental impact is reduced when the combustion process is optimised (e.g. unburnt carbon in the ash will be reduced; the emissions from the flue gases are reduced, etc.).

1 Scope

This European Standard defines the procedures to fulfil the quality requirements (quality control) and describes measures to ensure adequate confidence that the biofuel specification is fulfilled (quality assurance). This European Standard covers the whole chain, from supply of raw materials to point of delivery to the end-user.

According to the mandate given for the standardisation work, the scope of the CEN/TC 335 only includes solid biofuels originating from the following sources:

— products from agriculture and forestry;

— vegetable waste from agriculture and forestry;

— vegetable waste from the food processing industry;

— wood waste, with the exception of wood waste which may contain halogenated organic compounds or heavy metal as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste originated from construction and demolition waste;

— fibrous vegetable waste from virgin pulp production and from the production of paper from pulp, if it is co-incinerated at the place of production and heat generated is recovered;

— cork waste.

NOTE 1 The quality assurance systems applied to the operation of conversion plants fuelled by solid biofuels are outside the scope of this European Standard.

NOTE 2 Health, safety and environmental issues for solid biofuels are important and need special attention, however they are outside the scope of this European Standard.

NOTE 3 For the avoidance of doubt, demolition wood is not included in the scope of this European Standard. Demolition wood is defined as “used wood arising from demolition of buildings or civil engineering installations” (EN 14588:2010, 4.52).

NOTE 4 The biofuels covered by this European standard are identical to the fuels exempted from the Directive 2000/76/EC [Article 2.2 a) from i) to v)] on incineration of waste.

NOTE 5 Aquatic biomass is not included in the scope of this European Standard.

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*

NOTE In EN 14961-1, there is a list of Normative references of the European Standards for sampling, sample reduction and determination of solid biofuel properties.

3 Terms and definitions

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

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)

daf dry, ash-free

ar as received

w-% weight-percentage

A designation for ash content A_d (w-% of dry basis) [1)]

BD designation for bulk density as received [kg/m^3] [1)]

DE designation for particle density as received [kg/dm^3] [1)]

D designation for diameter as received [mm] [1)]

DU designation for mechanical durability as received [w-%][1)]

E designation for energy density as received E_{ar} [MJ/m^3 or MWh/m^3 loose or stacked volume] amount of energy/volume unit) [1)]

F designation for amount of fines [w-%, particles less than 3,15 mm] [1)]

L designation for length as received [mm] [1)]

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

P designation for particle size distribution [1)]

$q_{V,gr,d}$ gross calorific value at constant volume on dry basis [MJ/kg]

$q_{p,net,d}$ net calorific value at constant pressure on dry basis [MJ/kg]

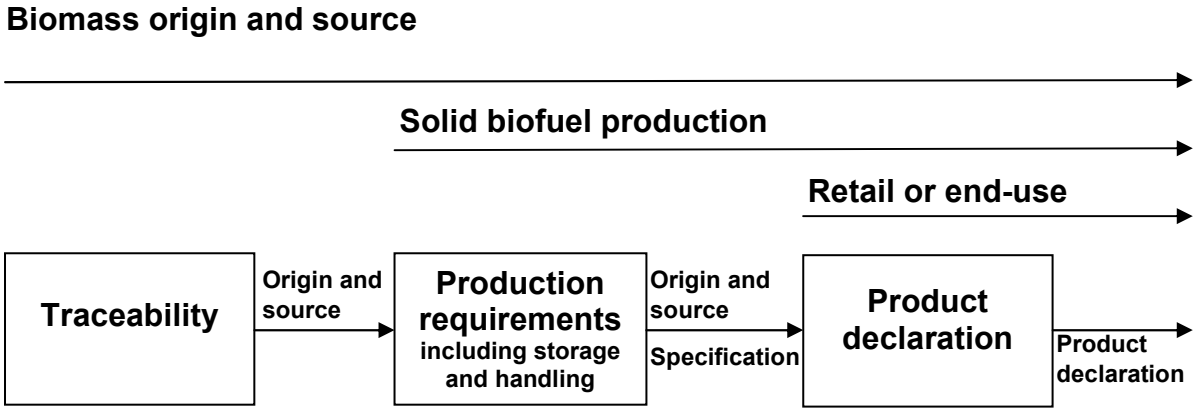
Q designation for net calorific value as received, $q_{p,net,ar}$ [MJ/kg or kWh/kg or MWh/t] at constant pressure[1)]

NOTE 1 MJ/kg equals 0,2778 kWh/kg (1 kWh/kg equals 1 MWh/t and 1 MWh/t is 3,6 MJ/kg). 1 g/cm^3 equals 1 kg/dm^3.

1) Designation symbols are used in combination with a number to specify property levels in Table 3 to Table 15 and in informative Annex A in EN 14961-1:2010. 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.

5 Principle

This European Standard covers the fuel quality assurance of the supply chain and the information to be used in the quality control of the biofuel. This ensures traceability and gives confidence by demonstrating that all processes along the supply chain (of solid biofuels) up to the point of the delivery to the end-user are under control. Figure 2 illustrates the principle of this standard and the procedures to establish confidence in the biofuel.



	Traceability	Production requirements	Product declaration
Person/ Organisation responsible:	1st operator providing the resource as a feedstock for energy purposes	Producer of the solid biofuel who is responsible for the maintenance of the fuel quality until it is delivered to the end-user or retailer.	If the producer is a direct supplier for end-user it is him/her who has to provide a product declaration. Supplier/retailer of solid biofuels to the end-user
Actions:	Providing accurate information on the origin, source and location the feedstock was taken from.	Processing, handling and storage of the solid biofuels ensuring the solid biofuel is supplied in the quality that has been declared.	Ensuring the customer receives products as declared in the product declaration and the declaration is accurate and appropriate for the end-users requirements
Example of demonstrating compliance	This can be achieved through a combination of using EN 14961-1:2010, Table 1 Origin and Source and having a declaration where possible on the location of the feedstock	This can be achieved by providing a declaration about origin, source an location according to EN 14961-1:2010, Table 1 at the location of the feedstock wherever possible	Product declaration, backed up with quality control verification and quality assurance documentation and test data (as appropriate)

Figure 2 — Illustration of principle.

Figure 3 illustrates some of the different types of solid biofuel supply chains and appropriate points for documenting the origin and source and the points for making the product declaration. Figure 3 is only listing operators and documentation (not harvesting, transport or storage processes). Additional configurations of supply chains are possible.

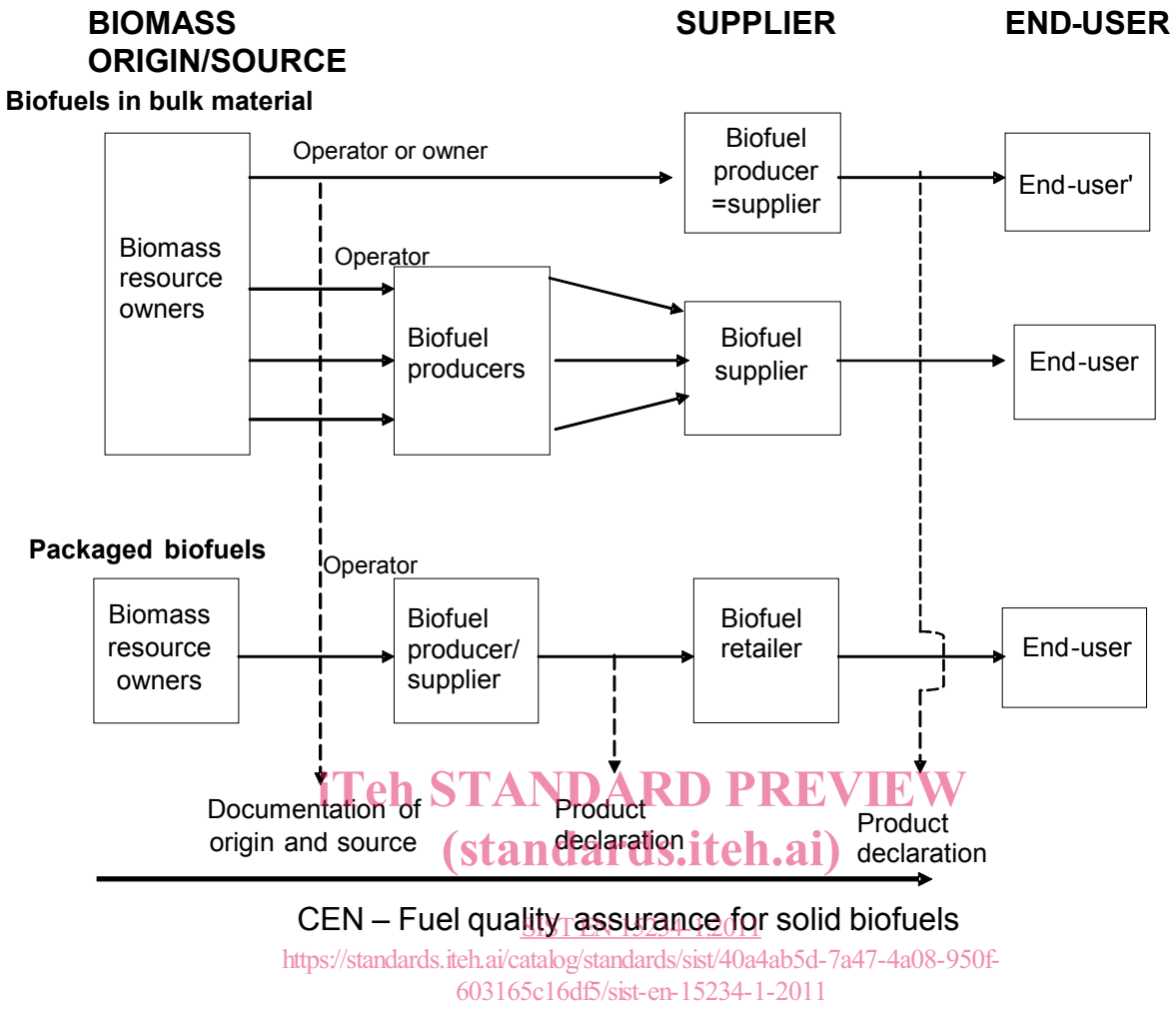


Figure 3 — Examples of the documentation of origin and source and product declaration in different biofuel supply chains

6 Quality assurance and quality control measures

6.1 General

Quality assurance and control aims 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 performance criteria).

Fuel quality assurance needs to be applied to the entire supply chain (see Figure 1). As the supply chains for solid biofuels in most cases need to be kept very simple, the same documents are often used for documentations of quality assurance and quality control measures.

NOTE 1 When the customer is a supplier, a retailer or end user, the customer requirements are usually written in sales contracts.

NOTE 2 For non-industrial use customer production requirements are described in Parts 2 to 6 of EN 14961 [11, 12, 13, 14, 15] and quality requirements in Parts 2 to 6 of prEN 15234 [17, 18, 19, 20, 21].

The methodology (described in this chapter) facilitates the design of a fuel quality control and assurance system. Its function is to make sure that:

— traceability exists;

— factors that influence the fuel quality are controlled;

— the end-user can have confidence in the fuel quality.

Documentation is an important part of quality assurance and quality control. In this European Standard the following documentations are mandatory (see Table 1).

Table 1 — Mandatory documents on quality assurance and control measures

Area	Mandatory documentation	Subclause
Traceability of raw material	Documenting origin and source	6.3
Production requirements	Steps in the process chain [a] (*Step 2*) Critical Control Points (*Step 4*) Criteria and methods to ensure appropriate control at Critical Control Points (*Step 5*) Nonconforming biofuels (*Step 6*)	6.4
Transportation, handling and storage after production	Description of transportation, handling and storage	6.5
Final fuel specification	Product declaration/labelling	6.6
[a] The steps refer to the steps in the methodology described in subclause 6.4.		

6.2 Comparison of quality control and quality assurance

It is important to understand the differences between quality control and quality assurance.

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.

EXAMPLE 1: **Quality control of a pellet factory**

A pellet factory operator will sample and record the pellet moisture content over the shift. If the moisture alters outside given parameters the process will be adjusted to bring the moisture content back within specification. If the process of drying the feedstock is known to be problematic and the operator does not monitor the moisture content in an appropriate timescale, the company could have produced many hours worth of nonconforming pellets before the issue is picked up.

EXAMPLE 2: **Quality control of a wood chip producer**

A wood chip producer has an agreement with a customer to provide no more than 6 % oversized chips. When the chipper blades are blunt the producer knows the chipper makes chips out of specification. The producer has to shape blades or change them to reduce amount of oversize chips. Other option is to sieve produced chips to fulfil the customer requirements.