



SLOVENSKI STANDARD

SIST-TS CEN/TS 14779:2005

01-november-2005

Trda goriva - Vzorec - Metode za pripravo vzorčnih planov in vzorčnih
certifikatov

Solid biofuels - Sampling - Methods for preparing sampling plans and sampling
certificates

Feste Biobrennstoffe - Probenahme - Verfahren zur Erstellung von Probenahmeplänen
und -zertifikaten

Biocombustibles solides - Échantillonnage - Méthodes de préparation des plans
d'échantillonnage et des certificats d'échantillonnage

Ta slovenski standard je istoveten z: CEN/TS 14779:2005

ICS:

75.160.10 Trda goriva Solid fuels

SIST-TS CEN/TS 14779:2005 en

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TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN/TS 14779

August 2005

ICS 75.160.10

English Version

**Solid biofuels - Sampling - Methods for preparing sampling plans
and sampling certificates**

Biocombustibles solides - Echantillonnage - Méthodes de
préparation des plans d'échantillonnage et des certificats
d'échantillonnage

Feste Biobrennstoffe - Probenahme - Verfahren zur
Erstellung von Probenahmeplänen und -zertifikaten

This Technical Specification (CEN/TS) was approved by CEN on 19 March 2005 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This Technical Specification (CEN/TS 14779:2005) has been prepared by Technical Committee CEN/TC 335 “Solid biofuels”, the secretariat of which is held by SIS.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this CEN Technical Specification: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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CEN/TS 14779:2005 (E)**Introduction**

Biofuels are a major source of renewable energy. Technical Specifications are needed for production, trade and use of solid biofuels. For sampling and sample preparation of biofuels the following Technical Specifications can be used:

CEN/TS 14778-1, *Solid biofuels - Sampling – Part 1: Methods for sampling*

CEN/TS 14778-2, *Solid Biofuels - Sampling – Part 2: Methods for sampling particulate material transported in lorries*

CEN/TS 14779, *Solid biofuels – Sampling – Methods for preparing sampling plans and sampling certificates*

CEN/TS 14780, *Solid biofuels - Methods for sample preparation*

Current practice and the best available knowledge have been used to write these Technical Specifications. The results of recent sampling experiments may be used to improve the sampling plans.

These Technical Specifications can be used by production and trading of solid biofuels. They are also useful for buyers of solid biofuels, regulators, controllers and laboratories.

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1 Scope

This Technical Specification describes methods for preparing sampling plans and sampling certificates, and is applicable to solid biofuels that are either:

- fine and regularly-shaped particulate materials, particle sizes up to about 10 mm that can be sampled using a scoop or pipe, for example: sawdust, olive stones and wood pellets;
- coarse or irregularly-shaped particulate materials, particle sizes up to about 200 mm that can be sampled using a fork or shovel, for example: wood chips and nut shells, forest residue chips, and loose straw;
- baled materials that require a special sampling tool to be used if the bales are not to be broken open for sampling, for example baled straw or grass;
- large pieces (particles sizes above 200 mm) which are to be picked manually;
- Fibrous and vegetable waste dewatered in belt press.

The methods described in this Technical Specification may be used, for example, when the samples are to be tested for bulk density, durability, particle size distribution, moisture content, ash content, ash melting behaviour, calorific value, chemical composition, and impurities. The methods are not intended for obtaining the very large samples required for the testing of bridging properties.

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.

CEN/TS 14588, *Solid biofuels – Terminology, definitions and descriptions*.

CEN/TS 14774-1, *Solid biofuels – Methods for determination of moisture content – Oven dry method – Part 1: Total moisture – Reference method*.

CEN/TS 14774-2, *Solid biofuels – Methods for determination of moisture content – Oven dry method – Part 2: Total moisture – Simplified procedure*.

CEN/TS 14778-1, *Solid biofuels – Sampling – Methods for sampling*.

CEN/TS 14778-2, *Solid biofuels – Sampling – Methods for sampling particulate material transported in lorries*.

CEN/TS 15149 (all parts), *Solid biofuels – Methods for the determination of particle size distribution*.

3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in CEN/TS 14588 and the following apply.

3.1

combined sample

sample consisting of all the increments taken from a sub-lot

CEN/TS 14779:2005 (E)

NOTE The increments may be reduced by division before being added to the combined sample.

3.2**common sample**

sample collected for more than one intended use

NOTE Adapted from ISO 13909

3.3**general analysis sample**

sub-sample of a laboratory sample having a nominal top size of 1 mm or less and used for a number of chemical and physical analyses

3.4**increment**

portion of fuel extracted in a single operation of the sampling device

NOTE Adapted from ISO 13909

3.5**laboratory sample**

combined sample, or a sub-sample of a combined sample, or an increment, or a sub-sample of an increment sent to a laboratory

3.6**lot**

defined quantity of fuel for which the quality is to be determined

NOTE 1 See also sub-lot.

NOTE 2 Adapted from ISO 13909

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3.7**mass-reduction**

reduction of the mass of a sample or sub-sample

3.8**moisture analysis sample**

sample taken specifically for the purpose of determining total moisture according to CEN/TS 14774-1 and CEN/TS 14774-2

3.9**nominal top size**

aperture size of the sieve used in the CEN/TS 15149 method for determining the particle size distribution of solid biofuels through which at least 95 % by mass of the material passes

NOTE Adapted from ISO 13909

3.10**sample**

quantity of material, representative of a larger quantity for which the quality is to be determined

3.11**size analysis sample**

sample taken specifically for the purpose of determining particle size distribution

3.12**size-reduction**

reduction of the nominal top size of a sample or sub-sample

3.13**sub-lot**

part of a lot for which a test result is required

NOTE Adapted from ISO 13909

EXAMPLE Consider a power station that receives 20 lorry-loads of wood chips a day. Every single lorry-load is tested for moisture content. One lorry-load is selected at random for other tests. In this example, the lot could be the quantity of fuel delivered in a day (20 lorry-loads) and the sub-lot could be a single lorry-load.

3.14**sub-sample**

portion of a sample

3.15**test portion**

sub-sample of a laboratory sample consisting of the quantity of material required for a single execution of a test method

4 Symbols and abbreviations

d nominal top size, mm

n number of increments

V volume of an increment or sample, litre

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5 Calculation of the volume of the combined sample

The sampler shall refer to Parts 1 and 2 of CEN/TS 14778 for the minimum number of increments n_{\min} and the volume of the individual increments $V_{\text{Increment}}$ for the circumstances covered by the sampling plan.

The sampler shall calculate the volume $V_{\text{CombinedSample}}$ required for the combined sample:

$$V_{\text{CombinedSample}} = n_{\min} \times V_{\text{Increment}} \quad (1)$$

Where

$V_{\text{CombinedSample}}$ is the volume required for the combined sample, litre

n_{\min} is the minimum number of increments

$V_{\text{Increment}}$ is the volume of the individual increments, litre

The sampler shall consider what tests are to be done and calculate the required volume (mass) needed for the required determinations.

The calculated volume of the combined sample shall be of such a size that sufficient material is provided for all the tests to be performed. In particular, the calculation shall take into account the need in some test methods for duplicate test portions, and for extra material to be available in case dubious results are obtained.

If the calculated volume is too small, the number of increments shall be increased.

When the increments are reduced in volume before they are added to the combined sample, the volume $V_{\text{Increment}}$ used in this calculation shall be the volume obtained after the reduction.

Table A.1 can be used to record the results of the calculation. Table 1 gives typical bulk densities of biofuels.