SLOVENSKI STANDARD
SIST-TS CEN/TS 14778-2:2005

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Trdna biogoriva ï Vzorļenje ï 2. del: Metode vzorļenja trdnih snovi, ki se prevaģajo s tovornjaki

Solid biofuels - Sampling - Part 2: Methods for sampling particulate material transported in lorries

Feste Biobrennstoffe - Probenahme - Teil 2: Verfahren zur Probenahme von Schüttgut bei Anlieferung in Lastkraftwagen

Biocombustibles solides - Echantillonnage - Partie 2: Méthodes d'échantillonnage des matériaux particulaires transportés par poids lourds

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Solid biofuels - Sampling - Part 2: Methods for sampling particulate material transported in lorries

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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.

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Foreword

This Technical Specification (CEN/TS 14778-2:2005) 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.

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.

1 Scope

This Technical Specification describes methods for taking samples of solid biofuels that are transported in lorries, 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, 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.

It 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. It is not intended for obtaining the very large samples required for the testing of bridging properties. It does not provide any information on how often lorry-loads should be selected for sampling.

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 description.*

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 14779:2005, *Solid biofuels – Method for preparing sampling plans and sampling certificates.*

CEN/TS 14780:2005, *Solid biofuels – Methods for sample preparation.*

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

ISO 13909-8, *Hard coal and coke – Mechanical sampling – Part 8: Methods of testing for bias.*

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

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 13909:2002

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 13909:2002

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 13909:2002

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 13909:2002

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 13909:2002

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 of the biofuel, mm

H height of a sampling tool, mm

H' height to which a sampling box is filled in practice, mm

L length of a sampling tool, mm

V volume of a sample or increment, litre

W width of a sampling tool, mm

5 Principle of correct sampling

The main principle of sampling is to get a representative sample (samples) from the whole lot concerned. Every particle in the lot or sub-lot to be represented by the sample should have an equal probability of being included in the sample. When this principle cannot be applied in practice, the sampler shall note the limitations in the sampling plan.

6 Sampling plan

A written sampling plan shall be prepared, before samples are taken, according to CEN/TS 14779.

The plan takes into account single lorry loads and continuous delivery of one source.

The sampling plan may require that each lorry-load to be sampled is inspected visually before sampling, and, if it consists of a mixture of substantially different materials, or if it contains lumps of unwanted material (such as soil or pieces of metal) this shall be reported immediately to the appropriate body according to the contract. The sampler shall proceed with the sampling if requested to do so by the appropriate party. The minimum number of increments to be taken from a lot or a sub-lot shall be calculated from equation 1.

$$n = 5 + 0{,}040 \times M_{lot} \qquad (1)$$

where
n is the minimum permitted number of increments, round off to the nearest whole number;
M_{lot} is the mass of the lot or sub-lot in tonnes.

NOTE 1 The minimum of five increments is to be taken regardless if it is discharged in a bunker or in another stationary spot.