SLOVENSKI STANDARD
kSIST FprEN 14778:2011

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Trdna biogoriva - Vzorčenje

Solid biofuels - Sampling

Feste Biobrennstoffe - Probenahme

Biocombustibles solides - Echantillonnage

Ta slovenski standard je istoveten z: **FprEN 14778**

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75.160.10	Trda goriva	Solid fuels

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English Version

Solid biofuels - Sampling

Biocombustibles solides - Echantillonnage

Feste Biobrennstoffe - Probenahme

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If this draft becomes a European Standard, 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.

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

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Foreword

This document (prEN 14778:2010) has been prepared by Technical Committee CEN/TC 335 “Solid biofuels”, the secretariat of which is held by SIS.

This document is currently submitted to the Unique Acceptance Procedure.

This document will supersede CEN/TS 14778-1:2005 and CEN/TS 14778-2:2005.

Introduction

Solid biofuels are a major source of renewable energy. European Standards are needed for production, trade and use of solid biofuels.

This European Standard can be used with regard to production, trading, controlling and analysis of solid biofuels in general. It is also useful for buyers of solid biofuels, regulators, controllers and laboratories.

This standard creates new working methods and practices for a broad fuel source, while for coal there are many years of experience for a single fuel source. This standard is based on the coal sampling methods, however due to the limited experience of biomass sampling, it is recognized that this standard will change in future versions when more experience is gained. What today is utilized as solid biofuels may change in the future.

1 Scope

This European Standard describes methods for preparing sampling plans and certificates and taking samples of solid biofuels, for example, from the place where the raw materials grow, from production plant, from deliveries e.g. lorry loads, or from stock. It includes both manual and mechanical methods, and is applicable to solid biofuels that are either:

— fine (particle size up to about 10 mm) and regularly-shaped particulate materials 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 straw;

— baled materials for example: baled straw or grass;

— large pieces (particles sizes above 200 mm) which are either picked manually or automatically;

— vegetable waste, fibrous waste from virgin pulp production and from production of paper from pulp that has been dewatered;

— round wood.

It may be possible to use this standard on other solid biofuels. The methods described in this European Standard may be used, for example, when the samples are to be tested for moisture content, ash content, calorific value, bulk density, durability, particle size distribution, ash melting behaviour and chemical composition. 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.

EN 14588, *Solid biofuels – Terminology, definitions and descriptions.*

EN 14780, *Solid biofuels – Sample preparation*.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 14588 and the following apply.

3.1
bias
systematic error that leads to the average value of a series of results being persistently higher or persistently lower than those that are obtained using a reference sampling method

3.2
combined sample
sample consisting of all the increments taken from a lot or sub-lot

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

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

3.5
laboratory sample
combined sample or a sub-sample of a combined sample for use in a laboratory

3.6
large stockpile
> 40 tonnes

3.7
lot
defined quantity of fuel for which the quality is to be determined

NOTE See also sub-lot.

3.8
mass-reduction
reduction of the mass of a sample or sub-sample

3.9
nominal top size
aperture size of the sieve used in the EN 15149 method for determining the particle size distribution of solid biofuels through which at least 95 % by mass of the material passes

3.10
sample
quantity of material, representative of a larger quantity for which the quality is to be determined

3.11
overall precision
closeness of agreement between independent test results obtained under stipulated conditions; including sample preparation and sample analysis

NOTE A determination might be made with great precision and the standard deviation of a number of determinations on the same sub-lot might, therefore, be low; but such results are accurate only if they are free from bias

3.12
particle size-reduction
reduction of the nominal top size of a sample or sub-sample

3. 13
small stockpile
≤ 40 tonnes

3.14
sub-lot
part of a lot for which a test result is required

3.15
sub-sample
portion of a sample

3.16
test portion
sub-sample of a laboratory sample consisting of the quantity of material required for a single execution of a test method

3.17
test-sample
laboratory sample after an appropriate preparation made by the laboratory

4 Symbols and abbreviations

d_{95} is nominal top size biofuel in mm

d_i is the difference between individual pair members

m_{lot} is mass of the lot or sub-lot, tonnes

n is number of increments per (sub)-lot

n_{min} is minimum number of increments per (sub)-lot

n_P is the number of pairs (for estimating V_{PT})

n_{mp} is the maximum practicable number of increments per sub-lot

N_L, N_{SL} is the number of lots/sub-lots

P_L is the overall precision for the sampling, sample preparation and testing for the whole biofuel lot at 95 % confidence level

P_{SL} is similar to P_L but then for the sub-lot

s is the sample estimate of the population standard deviation

V_{SPT} is the total variance of the results for replicate samples

$Vol_{increment}$ is volume of an increment, litre

Vol_{min} is minimum volume of increment, litre

V_I is the primary increment variance

V_{PT} is the preparation and testing variance

W is width of a sampling tool, mm

x_i is the value of the analysed parameter

5 Principle

The main principle of correct sampling is to obtain 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