SLOVENSKI STANDARD
kSIST FprEN 14780:2011

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Trdna biogoriva - Priprava vzorcev

Solid biofuels - Sample preparation

Feste Biobrennstoffe - Probenherstellung

Biocombustibles solides - Préparation des échantillons

Ta slovenski standard je istoveten z: **FprEN 14780**

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75.160.10	Trda goriva	Solid fuels

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English Version

Solid biofuels - Sample preparation

Biocombustibles solides - Préparation des échantillons

Feste Biobrennstoffe - Probenherstellung

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 335.

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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Contents

Foreword

This document (FprEN 14780:2010) 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 14780:2005

Introduction

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

EN 14778, *Solid biofuels – Sampling.*

EN 14780, *Solid biofuels – Sample preparation.*

This European Standard can be used in regard to production, controlling and analysis of solid biofuels in general.

1 Scope

This European Standard describes methods for reducing combined samples (or increments) to laboratory samples and laboratory samples to sub-samples and general analysis samples and is applicable to solid biofuels.

The methods described in this European Standard may be used for sample preparation, for example, when the samples are to be tested for calorific value, moisture content, ash content, bulk density, durability, particle size distribution, ash melting behaviour, chemical composition, and impurities. The methods are not intended to be applied to 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 14774-1, *Solid biofuels – Determination of moisture content – Oven dry method – Part 1: Total moisture – Reference method.*

EN 14774-2, *Solid biofuels – Determination of moisture content – Oven dry method – Part 2: Total moisture – Simplified procedure.*

CEN/TS 15149-1, *Solid biofuels – Methods for the determination of particle size distribution – Part 1: Oscillating screen method using sieve apertures of 3,15 mm and above.*

EN 15149-2, *Solid biofuels – Methods for the determination of particle size distribution – Part 2: Vibrating screen method using sieve apertures of 3,15 mm and below.*

EN 14778, *Solid Biofuels – Sampling.*

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
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
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

3.3
increment
portion of fuel extracted in a single operation of the sampling device

3.4
laboratory sample
combined sample or a sub-sample of a combined sample for use in a laboratory

3.5
lot
defined quantity of fuel for which the quality is to be determined

NOTE See also sub-lot.

3.6
Sample division
division of a sample or sub-sample to a appropriate size. This usually always leads to a mass reduction of a sample or sub-sample

3.7
moisture analysis sample
sample taken specifically for the purpose of determining total moisture according to EN 14774-1 and EN 14774-2

3.8
nominal top size
aperture size of the sieve used in the CEN/TS 15149-1 and CEN/TS 15149-2, method for determining the particle size distribution of solid biofuels, through which at least 95 % by mass of the material passes

3.9
sample
quantity of material, representative of a larger quantity for which the quality is to be determined

3.10
size analysis sample
sample taken specifically for the purpose of determining particle size distribution

3.11
particle size-reduction
reduction of the nominal top size of a sample or sub-sample

3.12
sub-lot
part of a lot for which a test result is required

3.13
sub-sample
portion of a sample

3.14
test portion
sub-sample of a laboratory sample consisting of the quantity of material required for a single execution of a test method

3.15
test-sample
laboratory sample after an appropriate preparation made by the laboratory

4 Symbols and abbreviations

M_p is the moisture loss, in percentage
$m_{sample,1}$ is the initial mass of the sample, g
$m_{sample,2}$ is the mass of the sample after pre-drying, g
W is the width and is at least 2,5 times the nominal top size of the material

5 Principles of correct sample reduction

The main purpose of sample preparation is that a sample is reduced to one or more test portions that are in general smaller than the original sample. The main principle for sample reduction is that the composition of the sample as taken on site shall not be changed during each stage of the sample preparation. Each sub sample shall be representative of the original sample. To reach this goal every particle in the sample before sample division shall

have an equal probability of being included in the sub-sample following sample division. Two basic methods are used during the sample preparation. These methods are:

— sample division;

— particle size-reduction of the sample.

CAUTION — Avoid loss of moisture and fine particles during milling and other operations.

Because of the risk of changes in the moisture content (loss of moisture), a sub-sample (moisture analysis sample) shall be separated at the earliest possible stage of the sample preparation procedure. As an alternative, a separate moisture analysis sample may be taken. The sample reduction shall be carried out by a procedure that does not conflict with requirements of EN 14774-1 or EN 14774-2.

For materials that have to be examined for moisture content, care must be taken to avoid any significant heat build-up and risk of drying.

6 Apparatus

6.1 Apparatus for sample division

Sample division is the process of reducing the mass of the sample without reducing the size of the particles. This paragraph gives some suitable apparatus for this purpose. To determine the correct use of each apparatus for different purposes refer to Clause 8.

6.1.1 Riffle boxes

A riffle box should have an equal number of slots and at least 6 at each side (preferably more if possible), with adjacent slots directing material into different sub-samples, and the width of the slots shall be at least 2,5 times the nominal top size of the material to be riffled (see Figure 1).

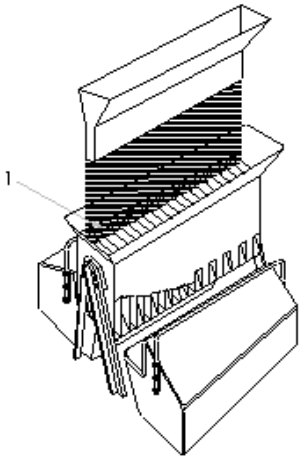

Figure 1 — Example of a riffle box

Key
1 W - slot width is at least 2,5 times the nominal top size of the material

6.1.2 Rotary sample dividers

The inner dimensions of the equipment where the sample is fed shall be at least 2,5 times as wide as the nominal top size of the material to be processed. The rotary sample divider shall have a feeder device adjusted, so that the