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English Version

Solid recovered fuels - Determination of density of pellets and briquettes

Combustibles solides de récupération - Méthode de détermination de la densité des granulés et des briquettes

Feste Sekundärbrennstoffe - Bestimmung der Dichte von Pellets und Briketts

This Technical Specification (CEN/TS) was approved by CEN on 12 June 2010 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.

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Contents

Page

Foreword 3
Introduction 4
1 Scope 5
2 Normative references 5
3 Terms and definitions 5
4 Principle 5
5 Apparatus 6
6 Sampling and sample preparation 8
7 Procedure 8
8 Calculation 9
9 Precision 10
10 Test report 10
Annex A (informative) Correction values for the density of water as a function of temperature 11
Annex B (informative) Volume determination of regularly shaped briquettes by stereometry 12
Bibliography 14

Foreword

This document (CEN/TS 15405:2010) has been prepared by Technical Committee CEN/TC 343 “Solid recovered fuels”, the secretariat of which is held by SFS.

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 15405:2006.

CEN/TS 15405:2006 is not be converted into a European Standard as the test method specified in this document was not validated (see [1], [2]).

This document differs from CEN/TS 15405:2006 mainly as follows:

a) number of replicate tests changed to two replications;

b) whole document editorially revised.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: 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

This Technical Specification specifies a method for the determination of particle density where the required volume is measured by the buoyancy in a liquid. The parameter particle density is not an absolute value, therefore conditions for its determination should be standardised in order to gain comparative measuring results. Practical experience shows that for briquettes, the method specified is also replaceable by a similar measurement applying a gravimetrical determination of the volume via the displaced liquid. In this case, the container with the liquid is not positioned underneath the balance as specified in this Technical Specification but is placed onto the balance which would then have to carry a higher total mass (at the same accuracy requirements). For all other requirements (e.g. for the wetting agent), the procedure as outlined in this Technical Specification should be followed, except, that the Equation for density calculation shall be modified accordingly.

This Technical Specification is based on CEN/TS 15150.

1 Scope

This Technical Specification specifies a method for the determination of particle density of irregularly shaped pieces of compressed fuels such as pellets or briquettes. It is not applicable to soft or semi-soft pellets.

NOTE 1 The term soft pellet is defined in CEN/TS 15639.

NOTE 2 Particle density is subject to variation due to the susceptibility of organic material to environmental or technical impacts such as air humidity, vibration, abrasion or biodegradation. Therefore, particle density can vary during time thus the measured values should be regarded as a momentary fuel property.

NOTE 3 At the time of preparing this document, the production of briquettes of solid recovered fuels could not be identified in the European market.

2 Normative references

The following referenced documents are indispensable for the application of this Technical Specification. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 15357:2008, *Solid recovered fuels — Terminology, definitions and descriptions*

prEN 15442, *Solid recovered fuels — Methods for sampling*

prEN 15443, *Solid recovered fuels — Methods for the preparation of the laboratory sample*

CEN/TS 15359, *Solid recovered fuels — Specifications and classes*

CEN/TS 15414-1, *Solid recovered fuels — Determination of moisture content using the oven dry method — Part 1: Determination of total moisture by a reference method*

CEN/TS 15414-2, *Solid recovered fuels — Determination of moisture content using the oven dry method — Part 2: Determination of total moisture by a simplified procedure*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 15357:2008 apply.

4 Principle

Both mass and volume of an individual particle or a group of particles are determined. The volume is measured by determining the buoyancy in a liquid. This procedure follows the physical principle that the buoyancy of a body is equal to the mass of the displaced volume of a liquid. The apparent loss in mass between a measurement in air and a subsequent measurement in liquid marks its buoyancy. The volume of the sample body is calculated via the density of the applied liquid.