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English Version

Solid recovered fuels - Methods for the determination of metallic aluminium

Combustibles solides de récupération - Méthodes pour la détermination de l'aluminium métal

Feste Sekundärbrennstoffe - Verfahren zur Bestimmung des Gehaltes an metallischem Aluminium

This Technical Specification (CEN/TS) was approved by CEN on 25 March 2006 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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Foreword

This document (CEN/TS 15412:2006) has been prepared by Technical Committee CEN/TC 343 “Solid Recovered Fuels”, the secretariat of which is held by SFS.

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, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

The metallic aluminium in solid recovered fuels is very problematic in combustion processes. Aluminium can form deposit on heat transfer surfaces and superheaters. For these reasons a method for the determination of total metallic aluminium is necessary. Other methods with low melting point such as tin, lead and zinc may cause similar problems but their content in solid recovered fuels is usually very low and then their effect is not significant.

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1 Scope

This Technical Specification specifies two different methods for the determination of metallic aluminium in solid recovered fuels:

— method a: dissolution of metallic aluminium and analysis by Inductively Coupled Plasma Optic Emission Spectrometry (ICP-OES) or by Flame Atomic Absorption Spectrometry (FAAS);

— method b: Differential Thermal Analysis (DTA) on the solid SRF.

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.

CEN/TS 15357:2006, *Solid recovered fuels — Terminology, definitions and descriptions*

CEN/TS 15413, *Solid recovered fuels — Methods for the preparation of the test sample from the laboratory sample*

prCEN/TS 15414-3, *Solid recovered fuels — Determination of moisture content using the oven dry method — Part 3: Moisture in general analysis sample*

prCEN/TS 15403, *Solid recovered fuels — Methods for the determination of the ash content*

EN ISO 3696:1995, *Water for analytical laboratory use — Specification and test methods (ISO 3696:1987)*

EN ISO 11885, *Water quality — Determination of 33 elements by inductively coupled plasma atomic emission spectroscopy (ISO 11885:1996)*

EN ISO 12020, *Water quality — Determination of aluminium — Atomic absorption spectrometric methods (ISO 12020:1997)*

3 Terms and definitions

For the purposes of this Technical Specification, the terms and definitions given in CEN/TS 15357:2006 and the following apply.

3.1
metallic aluminium
aluminium that could be extract from SRF by using a 0,75 mol/l NaOH solution, after leaching with 0,14 mol/l HNO_3 solution. This includes the metallic aluminium and some chemical forms of aluminium non-soluble in nitric acid but easily soluble in alkaline media

4 Safety remarks

The safety in handling of potentially hazardous materials is dealt with in relevant national and European regulations, which every laboratory should refer to.

In addition the following information is given:

— most of reagents used within this Technical Specification are strongly corrosive and toxic. Safety precautions are absolutely necessary due to strong corrosive reagents at high temperature;

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