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Solid recovered fuels - Determination of combustion behaviour

S.R. CEN/TR 15716:2008

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Solid recovered fuels - Determination of combustion behaviour

Combustibles solides de récupération - Détermination du comportement de la combustion

Feste Sekundärbrennstoffe - Bestimmung des Verbrennungsverhaltens

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Contents

Page

Foreword.....	3
Introduction	4
1 Scope	7
2 Combustion of solid fuels.....	7
2.1 Basis of solid fuel combustion.....	7
2.2 Basics of some common combustion systems that utilises SRF	8
2.3 Determination of characteristic parameters	9
2.4 Use of classification numbers.....	10
2.5 Combustion prediction tool.....	10
3 Thermal gravimetric analysis	13
4 Standard fuel analysis.....	17
4.1 General.....	17
4.2 Proximate analysis: Moisture, volatiles, and ash content.....	17
4.3 Ultimate analysis: C, H, N, S, Halogens.....	17
4.4 Gross calorific value (GCV)/net calorific value (NCV).....	18
4.5 Particle size distribution	18
4.6 Ash content and ash melting behaviour	19
5 Advanced laboratory methods for fuel characterisation.....	19
5.1 General.....	19
5.2 Determination of fuel composition	21
5.3 Composition and calorific value of the volatile matter.....	22
5.4 Kinetic properties	25
5.5 Image analysis method for particle size distribution.....	30
5.6 Apparent densities of particles and intermediates	32
5.7 Aerodynamic lift velocity	33
5.8 Slagging and fouling behaviour.....	34
6 Operational behaviour in the combustion process.....	35
7 Summary.....	38
Bibliography.....	40

Foreword

This document (CEN/TR 15716:2008) has been prepared by Technical Committee CEN/TC 343 “Solid recovered fuels”, the secretariat of which is held by SFS.

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Introduction

Historically, SRF goes back to the oil crises approximately 30 years ago, when refused derived fuel (RDF) was promoted as a substitute low cost fuel. Contrary to that situation, the producers of SRF took the initiative for the implementation of a quality system to meet and guarantee specified fuel classification and specification parameters. Quality systems to check their production now exist in several EU member states and efforts are being made by CEN/TC 343 to develop European Standards for SRF [1].

The production and thermal utilisation (energy recovery) of Solid Recovered Fuels (SRF) from bio wastes, residues, mixed- and mono waste streams have significant relevance as a key component of an integrated waste management concept.

The implementation of SRF production in an integrated waste management concept demands a potential market for these products. Known proven markets are found in the European energy sector and in other more product-oriented sectors like cement or lime industry by substitution of fossil fuels. The capacities for co-utilisation of these products, to include utilisation in minor thermal shares, are enormous, especially in the new European member states as most of the energy production of these countries relies on fossil fuels.

A successful application of solid recovered fuel in power plants and industrial furnaces would require a thorough understanding of the fuel properties which include the combustion behaviour, emission potential, impact on facility etc. The determination of combustion behaviour which is the main focus of this document seeks to outline possible methods and procedures that can be adopted to analyse any given solid recovered fuel. An approach has therefore been outlined where the determination of combustion behaviour is categorised into four groups which combine to give a holistic impression of the combustion progress of SRF in both mono and co-firing systems (see Figure 1).

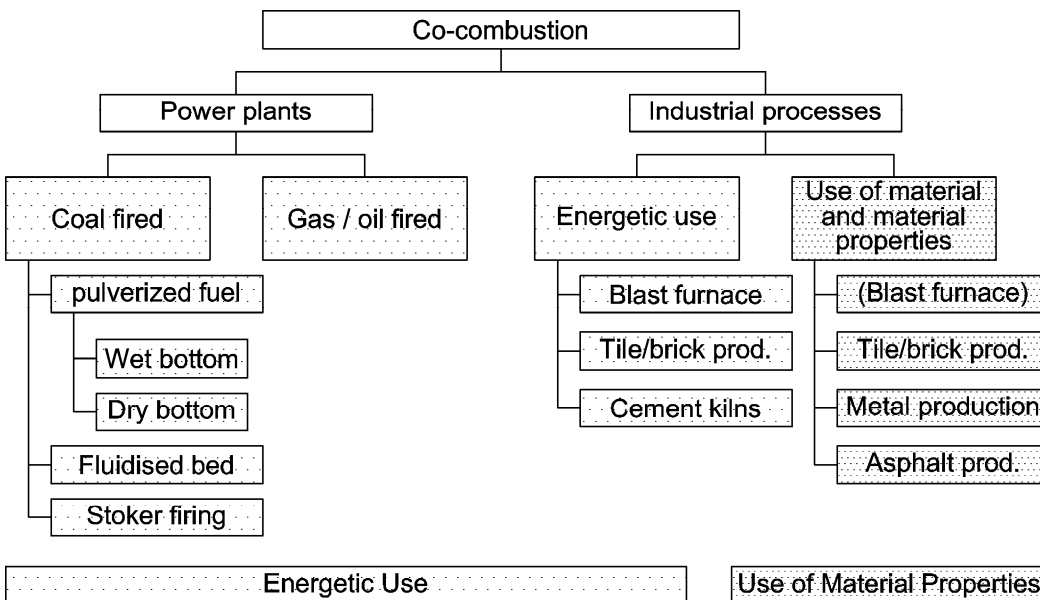


Figure 1 — Scheme to determine combustion behaviour of SRF

While there are standardised methods, such as from the American Society for Testing and Materials (ASTM) and the German Institute for Standardization (DIN Deutsches Institut für Normung e. V.), for determining combustion behaviour for primary fuels (e.g. coal), the process is not the same for SRF. At present, there are no standardised methods for SRF. Most of the available methods are in-house, usually designed for particular types of SRF, e.g. waste, or bio-residue fractions to suit a specific combustion system like grate firing, fluidised bed, pulverised fuel system, and cement kiln. Figure 2 gives an overview about the broad variety of

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