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NSAI Standards

Irish Standard
I.S. EN 14582:2016

Characterization of waste - Halogen and sulfur content - Oxygen combustion in closed systems and determination methods

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National Foreword

I.S. EN 14582:2016 is the adopted Irish version of the European Document EN 14582:2016, Characterization of waste - Halogen and sulfur content - Oxygen combustion in closed systems and determination methods

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 14582

August 2016

ICS 13.030.40

Supersedes EN 14582:2007

English Version

Characterization of waste - Halogen and sulfur content - Oxygen combustion in closed systems and determination methods

Caractérisation des déchets - Teneur en halogènes et en soufre - Combustion sous oxygène en systèmes fermés et méthodes de dosage

Charakterisierung von Abfällen - Halogen- und Schwefelgehalt - Sauerstoffverbrennung in geschlossenen Systemen und Bestimmungsmethoden

This European Standard was approved by CEN on 17 June 2016.

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European foreword

This document (EN 14582:2016) has been prepared by Technical Committee CEN/TC 292 "Characterization of waste", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2017, and conflicting national standards shall be withdrawn at the latest by February 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 14582:2007.

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Introduction

Sulfur and halogens (fluorine, chlorine, bromine and iodine) may be found in materials in various forms. During the combustion of these materials, corrosive and harmful compounds may be released. The determination of sulfur and halogens by oxygen combustion may be used to assess the suitability of waste for incineration.

The determination of the resultant halides and sulphate can be achieved by many different techniques, e.g. using atomic emission spectrometry, titrimetry or ion chromatography.

Validation data of these different techniques are given in Annex A (informative).

Another method, oxygen flask combustion by Schoeniger, did not pass the method validation due to lack of participants. This method is described in Annex B (informative).

Anyone dealing with waste and sludge analysis should be aware of the typical risks of that kind of material irrespective of the parameter to be determined. Waste and sludge samples may contain hazardous (e.g. toxic, reactive, flammable, infectious) substances, which can be liable to biological and/or chemical reaction. Consequently these samples should be handled with special care. Gases which may be produced by microbiological or chemical activity are potentially flammable and will pressurize sealed containers. Bursting bottles are likely to result in hazardous shrapnel, dust and/or aerosol. National regulations should be followed with respect to all hazards associated with this method.

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1 Scope

This standard specifies a combustion method for the determination of halogen and sulfur contents in materials by combustion in a closed system containing oxygen (calorimetric bomb), and the subsequent analysis of the combustion product using different analytical techniques.

This method is applicable to solid, pasty and liquid samples containing more than 0,025 g/kg of halogen and/or 0,025 g/kg of sulfur content. The limit of detection depends on the element, the matrix and the determination technique used.

Insoluble halides and sulphate present in the sample or produced during the combustion step are not completely determined by these methods.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 14346, *Characterization of waste - Calculation of dry matter by determination of dry residue or water content*

EN 15002, *Characterization of waste - Preparation of test portions from the laboratory sample*

EN ISO 3696, *Water for analytical laboratory use - Specification and test methods (ISO 3696)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE Be aware that the above definitions are valid for this empirical EN only and do not comply with scientific definitions of sulfur and halogen content.

3.1
sulfur content
sum of sulfur contained as organic and inorganic compounds that can be converted to sulphate by combustion and then absorbed or dissolved in an aqueous solution

3.2
halogen content
sum of halogens contained as organic and inorganic compounds that can be converted to halides (fluoride, chloride, bromide, iodide) by combustion and then absorbed or dissolved in an aqueous solution

4 Principle

The sample is oxidized by combustion in a closed system (a bomb containing oxygen under pressure). Halogenated and sulfur containing compounds are converted to fluoride, chloride, bromide, iodide and sulphate, which are absorbed and/or dissolved in an absorption solution.

Several methods may be used for the determination of halides and sulphate concentrations in the absorption solution.

The method may be used for samples that burn with difficulty, which involves the use of a combustion enhancer.

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