

Characterization of waste - Determination of hydrocarbon content by gravimetry

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hydrocarbon content by gravimetry

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14345:2004 sisaldab Euroopa standardi EN 14345:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 21.12.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14345:2004 consists of the English text of the European standard EN 14345:2004.</p> <p>This document is endorsed on 21.12.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This European Standard specifies a gravimetric method for the determination of the hydrocarbon content in solid waste. It is applicable to hydrocarbon content greater than 0,5 % (m/m) on dry matter basis. This method does not permit to provide qualitative information on the nature and the source of the hydrocarbons.</p>	<p>Scope: This European Standard specifies a gravimetric method for the determination of the hydrocarbon content in solid waste. It is applicable to hydrocarbon content greater than 0,5 % (m/m) on dry matter basis. This method does not permit to provide qualitative information on the nature and the source of the hydrocarbons.</p>
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ICS 13.030.01

English version

Characterization of waste - Determination of hydrocarbon content by gravimetry

Caractérisation des déchets - Détermination de la teneur en hydrocarbures par gravimétrie

Charakterisierung von Abfällen - Bestimmung des Kohlenwasserstoffgehalts mittels Gravimetrie

This European Standard was approved by CEN on 9 July 2004.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN 14345:2004) 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 March 2005, and conflicting national standards shall be withdrawn at the latest by March 2005.

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 pressurise sealed bottles. 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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

Hydrocarbons have been determined up to now mainly by infrared spectroscopy after extraction with halogenated solvents such as 1,1,2-trichloro-1,2,2-trifluoroethane or tetrachloromethane. The objective of the new standard is to provide an analytical method for the determination of hydrocarbon content by gravimetry avoiding the use of such solvents.

The user of this standard should be aware that the results obtained with the new method might not be comparable with those obtained when using infrared spectroscopy.

This document is restricted to waste samples containing large amounts of relatively high boiling hydrocarbons (boiling point above 250 °C) and may be used as a test that is easy to perform.

1 Scope

This document specifies a gravimetric method for the determination of the hydrocarbon content in solid waste. It is applicable to hydrocarbon content greater than 0,5 % (m/m) on dry matter basis. This method does not permit to provide qualitative information on the nature and the source of the hydrocarbons.

NOTE Aqueous liquid waste samples can be analysed in accordance with prEN ISO 9377-1 or the procedure specified in Annex B.

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.

prEN 14346, *Characterization of waste — Calculation of dry matter by determination of dry residue and water content*

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

3 Terms and definitions

For the purposes of this document, the following term and definition applies.

3.1

hydrocarbon content by gravimetry

sum of compounds extractable with acetone/petroleum ether (2+1) which do not adsorb on Florisil and do not evaporate during the drying process.

For practical reasons, the term "hydrocarbon content by gravimetry" is abbreviated "hydrocarbon content" in the following text

NOTE 1 Substances that comply with this definition are mainly non-polar long-chain or branched aliphatic, alicyclic, polycyclic or alkyl substituted aromatic hydrocarbons.

NOTE 2 This definition differs from that given in EN 14039.

4 Principle

Depending on the type of waste, a known amount of the homogenised waste sample is extracted by mechanical shaking twice with acetone/petroleum ether (2+1). The combined extracts are washed twice with water. Polar compounds are removed by chromatography on Florisil. The final extract is evaporated to dryness after which the mass of the residue is determined by weighing.

5 Hazards

Acetone and petroleum ether are highly flammable solvents and shall therefore be handled with caution. Special care is required during centrifugation. During extraction substantial pressure can built-up in the extraction vessel. This pressure shall be released by occasional venting of the vessel in a fume hood. Due to its toxicity, the contact with the skin and eyes and the inhalation of petroleum ether vapours shall be avoided.