

Characterisation of sludges - Determination of Kjeldahl nitrogen

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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 13342:2001 sisaldab Euroopa standardi EN 13342:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 15.01.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 13342:2001 consists of the English text of the European standard EN 13342:2000.</p> <p>This document is endorsed on 15.01.2001 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:</p> <p>This standard describes a procedure for the determination of Kjeldahl Nitrogen in sludge and sludge products. The digestion is catalysed by selenium or copper, the temperature being raised by a high concentration of sodium sulphate. Although wet samples are normally taken for analysis, it is recognised practice to report results on a dry mass basis (g/kg). Consequently, it is also necessary to determine the dry residue of the homogenised sample for analysis (see EN 12880).</p>	<p>Scope:</p> <p>This standard describes a procedure for the determination of Kjeldahl Nitrogen in sludge and sludge products. The digestion is catalysed by selenium or copper, the temperature being raised by a high concentration of sodium sulphate. Although wet samples are normally taken for analysis, it is recognised practice to report results on a dry mass basis (g/kg). Consequently, it is also necessary to determine the dry residue of the homogenised sample for analysis (see EN 12880).</p>
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English version

Characterization of sludges
Determination of Kjeldahl nitrogen

Caractérisation des boues – Détermination de l'azote Kjeldahl

Charakterisierung von Schlämmen – Bestimmung des Stickstoffs nach Kjeldahl

This European Standard was approved by CEN on 2000-08-05.

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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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 308 "Characterization of sludges", the secretariat of which is held by AFNOR.

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 2001, and conflicting national standards shall be withdrawn at the latest by February 2001.

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

The annex A is informative.

Introduction

Because sludge may be applied to land as a nutrient or as a disposal route, there is a need to monitor nitrogen content and application rates.

1 Scope

This method describes a procedure for the determination of "Kjeldahl Nitrogen" in sludge and sludge products. The digestion is catalysed by selenium or copper, the temperature being raised by a high concentration of sodium sulphate.

Although wet samples are normally taken for analysis, it is recognised practice to report results on a dry mass basis (g/kg). Consequently, it is also necessary to determine the dry residue of the homogenised sample used for analysis (see EN 12880).

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 12880, *Characterization of sludges – Determination of dry residue and water content*.

EN 25663, *Water quality – Determination of Kjeldahl nitrogen – Method after mineralization with selenium* (ISO 5663 : 1984).

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

EN ISO 5667-13, *Water quality – Sampling – Part 13 : Guidance on sampling of sludges from sewage and water-treatment works* (ISO 5667-13 : 1997).

ISO 5664, *Water quality – Determination of ammonium – Distillation and titration method*.

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1

Kjeldahl nitrogen

nitrogen that is contributed by free ammonia, inorganic ammonia compounds and those types of organic nitrogen compounds that are converted to ammonium sulphate by the digestion process described (catalysed sulphuric acid digestion)

3.2

dry residue

the dry mass portion of the sludge obtained after the specified drying process. It is expressed in percent or in grams per kilogram (see EN 12880)

4 Principle

Rigorous acid digestion of the sample in the presence of selenium or copper converts most nitrogen compounds present to ammonium sulphate. Sodium sulphate is added to raise the digest to the appropriate temperature.

Distillation of the digest under alkaline conditions into excess dilute sulphuric acid (or excess boric acid) liberates the ammonia giving a solution of ammonium sulphate (or ammonium borate). This solution can then be analyzed for ammonia using the appropriate method (see ISO 5664 and EN 25663).