SLOVENSKI STANDARD
oSIST prEN 15937:2011

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Blato, obdelani biološki odpadki in tla - Določevanje specifične električne prevodnosti

Sludge, treated biowaste and soil - Determination of specific electrical conductivity

Schlamm, behandelter Bioabfall und Boden - Bestimmung der spezifischen elektrischen Leitfähigkeit

Boue, biodéchet traité et sol - Détermination de la conductivité électrique spécifique

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13.030.20	Tekoči odpadki. Blato	Liquid wastes. Sludge

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Sludge, treated biowaste and soil - Determination of specific electrical conductivity

Boue, biodéchet traité et sol - Détermination de la conductivité électrique spécifique

Schlamm, behandelter Bioabfall und Boden - Bestimmung der spezifischen elektrischen Leitfähigkeit

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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Foreword

This document (prEN 15937:2010) has been prepared by Technical Committee CEN/TC 400 "Project Committee - Horizontal standards in the fields of sludge, biowaste and soil", the secretariat of which is held by DIN.

This document is currently submitted to the second CEN Enquiry.

This draft European Standard prEN 15937 was completely technically and editorially revised following the comments made during the 1st CEN-Enquiry in 2009 and the discussions from CEN/TC 400/WG 4 "Inorganic elements and compounds".

This European Standard is part of a modular horizontal approach in which this document belongs to the analytical step.

The preparation of this document by CEN is based on a mandate by the European Commission (Mandate M/330), which assigned the development of standards on sampling and analytical methods for hygienic and biological parameters as well as inorganic and organic determinants, aiming to make these standards applicable to sludge, treated biowaste and soil as far as this is technically feasible.

Until now, test methods determining properties of materials within the environmental area were prepared in Technical Committees (TCs) working on specific products/matrices (e. g. soil, waste, sludge). However, it is understood that many steps within individual test procedures may also be used for the analysis of various other materials. By careful determination of these steps and selection of specific questions within these steps, elements of the test procedure can be described in a way that can be used for a variety of matrices and materials with certain specifications. This optimization is in line with the development among end-users of standards. A majority of routine environmental analyses are carried out by institutions and laboratories working under a scope that is not limited to one single environmental matrix but covers a wide variety of matrices. Availability of standards covering more matrices contributes to the optimization of laboratory procedures and standard maintenance costs, e. g. costs related to accreditation and recognition.

A horizontal modular approach was developed in the project 'Horizontal'. 'Modular' means that a test standard developed in this approach concerns a specific step in assessing a property and not the whole "chain of measurement" (from sampling to analyses). A beneficial feature of this approach is that individual "modules" can be replaced by improved ones without jeopardizing the standard "chain".

The results of the desk study as well as the evaluation and validation studies have been subject to discussions with all parties concerned in the CEN structure during the development by project 'Horizontal'. The results of these consultations with interested parties in the CEN structure have been presented to and discussed in CEN/TC 400.

Based on data from interlaboratory studies and consultations with interested parties within CEN member bodies, it has been concluded that this draft standard prEN 15937 is acceptable for its intended use and is ready for CEN enquiry.

It is recognized that standardization in the environmental field in most national standardization bodies is organized in national standardization committees that mirror the vertical structure of technical committees in the environmental field in CEN. The present CEN enquiry therefore asks for special attention by the NSBs to assure that the relevant and interested parties are consulted during the CEN enquiry, i. e. to assure that one single consolidated enquiry reply on this draft standard prEN 15937 can be presented by the NSB that covers the entire scope of this draft standard.

Introduction

The determination of the specific electrical conductivity is carried out to obtain an indication of the content of water-soluble electrolytes in the materials mentioned. This European Standard is based on ISO 11265. There is presently no International standard for sludge or treated biowaste. For practical reasons, for instance if there is a need to make strict comparisons with previous measurements, soils should generally be air-dried. Air-drying can be used for all soils, except for those containing sulfidic minerals or volatile acids. In both cases fresh soil should be used to avoid either sulfide oxidation resulting in the formation of sulfuric acid, or volatilisation of low-molecular organic acids. Regarding sludge and treated biowaste, fresh samples are recommended. In these materials air-drying may introduce artefacts due to a stimulation of oxidation processes and should therefore be avoided.

WARNING — Persons using this European Standard should be familiar with normal laboratory practice. This European Standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted according to this European Standard be carried out by suitably trained staff.

1 Scope

This document (prEN 15937) specifies a method for the determination of the specific electrical conductivity in aqueous suspensions of sludge (fresh), treated biowaste (fresh) or soil (fresh or air-dry).

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 WI 0400022 *Sludge, treted biowaste and soil — Guidance on sample pretreatment*

EN ISO 3696 *Water for analytical laboratory use — specification and test methods*

3 Terms and definitions

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

3.1
electrical conductivity
specific conductance
EC
reciprocal of the resistance, measured under specified conditions, between the opposite faces of a unit cube of defined dimensions of an aqueous solution

NOTE 1 This is often expressed as "electrical conductivity" and may be used as a measure of the concentration of ionisable solutes present in the sample.