

Sludge, treated biowaste, soil and waste - Calculation of dry matter fraction after determination of dry residue or water content

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 15934:2012 sisaldab Euroopa standardi EN 15934:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 15934:2012 consists of the English text of the European standard EN 15934:2012.
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English Version

**Sludge, treated biowaste, soil and waste - Calculation of dry
matter fraction after determination of dry residue or water
content**

Boues, bio-déchets traités, sols et déchets - Calcul de la
teneur en matière sèche par détermination du résidu sec
ou de la teneur en eau

Schlamm, behandelter Bioabfall, Boden und Abfall -
Berechnung des Trockenmassenanteils nach Bestimmung
des Trockenrückstands oder des Wassergehalts

This European Standard was approved by CEN on 24 May 2012.

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Foreword

This document (EN 15934:2012) 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 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of an identical text or by endorsement, at the latest by February 2013, and conflicting national standards shall be withdrawn at the latest by February 2013.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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.

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

Introduction

In case of analysis of solids and sludge water is usually not considered as part of the sample and results are generally related to dry matter, which can be calculated by determination of the dry residue (dry matter fraction). For this purpose, and for the determination of the water content, two methods are described in this European Standard. The choice of the method depends on the type of sample and its content of volatile substances excluding water.

As a result of the validation study, the determination of water content by azeotropic distillation has been replaced by Karl-Fischer-titration. Nevertheless, the distillation may be useful in certain cases. This method is described in Annex B (informative).

This European Standard is applicable and validated for several types of matrices as indicated in Table 1 (see also Annex A for the results of the validation).

Table 1 — Matrices for which this European Standard is applicable and validated

Matrix		Materials used for validation
Sludge	(only method A)	Municipal sludge
Biowaste	(only method A)	Fresh compost
Soil	(only method A)	Sludge amended soil
Waste	(method A and B)	Contaminated soil, Dredged sludge, Nickel sludge, Filter cake, Distillation residue, Drilling emulsion

WARNING — Persons using this European Standard should be familiar with usual 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 European Standard specifies methods for the calculation of the dry matter fraction of sludge, treated biowaste, soil and waste for which the results of performed analysis are to be calculated to the dry matter basis. Depending on the nature and origin of the sample, the calculation is based on a determination of the dry residue (Method A) or a determination of the water content (Method B). It applies to samples containing more than 1 % (mass fraction) of dry residue or more than 1 % (mass fraction) of water.

Method A applies to sludge, treated biowaste, soil and solid waste. Method B applies to liquid waste and to samples which are suspected or known to contain volatiles except for water.

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

EN 16179, *Sludge, treated biowaste and soil — Guidance for sample pretreatment*

3 Terms and definitions

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

3.1

dry residue

remaining mass fraction of a sample after a drying process at 105 °C under specified conditions

3.2

water content

mass fraction of water in a sample determined by the method after drying at 105 °C or by Karl-Fischer-titration under specified conditions

3.3

dry matter fraction

mass fraction of a sample excluding water expressed as mass fraction calculated by determination of dry residue or water content

4 Principle

4.1 General

Depending on the origin (sludge, biowaste, soil, waste) and the nature of the sample (liquid, solid or multiphase) either the water content or the dry residue is to be determined. The results from the determination of water content or dry residue are used to calculate the dry matter fraction. In case of multiphase (waste) samples these samples shall be homogenized. If homogenization is not possible, a phase separation according to EN 15002 shall be applicable and the phases are analysed separately.