International Standard

ISO 11465

Sludge and solid environmental matrices — Determination of dry residue or water content and calculation of the dry matter fraction on a mass basis

Boues et matrices environnementales solides — Détermination de la teneur en résidu sec ou en eau et calcul de la fraction massique de matière sèche

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical and physical characterization*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 444, *Environmental characterization of solid matrices,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 11465:1993), which has been technically revised. It also incorporates the Technical Corrigendum ISO 11465:1993/Cor 1:1994.

The main changes are as follows:

— content was merged with the content of EN 12880 where appropriate;

— content was merged with the content of EN 15934 where appropriate.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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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 specified in this document. 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 can be useful in certain cases.

This document 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 document 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	(methods A and B)	Contaminated soil Dredged sludge Nickel sludge Filter cake Distillation residue Drilling emulsion

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Sludge and solid environmental matrices — Determination of dry residue or water content and calculation of the dry matter fraction on a mass basis

WARNING — Persons using this document should be familiar with usual laboratory practice. This document 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 essential that tests conducted according to this document be carried out by suitably trained staff.

1 Scope

This document specifies methods for the calculation of the dry matter fraction of sludge, sludge products, treated biowaste, soil and waste for which the results of performed analysis are 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 (methods A and 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, sludge products, 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

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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 minus its water content

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