
**Soil and waste — Guidance on the
selection and application of screening
methods**

*Sol et déchets — Recommandations relatives à la sélection et à
l'application des méthodes de diagnostic rapide*



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Published in Switzerland

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 190, *Soil quality*, SC 3, *Chemical and physical characterization*.

This second edition cancels and replaces the first edition (ISO 12404:2011), which has been technically revised.

The main changes compared to the previous edition are as follows:

- The contents of ISO 12404:2011 and EN 16123:2013 were merged;
- The scope was widened to include waste;
- The document was developed parallel with CEN according to the Vienna Agreement;
- The text was editorially revised.

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.

Introduction

This document provides guidance on the use of screening methods for soil, soil-like materials and waste characterization. Most of the following clauses are applicable to all matrices mentioned. However, a few subclauses are specific to either waste or soil, including soil-like material, only.

One field of application of screening methods is “on-site verification” as recommended in the European Landfill Directive (1999/31/EC) and the Landfill Decision (2003/33/EC).

Screening methods, which can be chemical, physical or biochemical in nature, can often be applied in a quick and simple manner. Performance of quick and simple tests can be used in the field (i.e. on-site) and, in some cases, are also applicable for laboratory use. They can indicate the presence or absence of an analyte or provide a qualitative estimate of a parameter such as a concentration or value, or generate a semi-quantitative result.

Screening methods are applicable to processes such as entrance control at waste disposal sites in conjunction with standardized methods, because they allow fast verification of the documented waste characteristics. They can also be used in similar way when soil or soil-like materials are to be reused in accordance with the guidance in ISO 15176.

Regarding soil, they can also be used to produce a spatial distribution of concentrations or values within a site, which can be supported by subsequent reference (laboratory-based) analysis. When used in this way, the purpose is generally to obtain information on target parameters or groups of parameters and the location of unusual concentrations, possibly prior to undertaking a more detailed study or investigation. In waste investigation, the location of samples is limited to an area where waste is dumped but confirmation of the spatial distribution is still one of the investigation purposes, especially when investigating soil-like material.

The use of screening methods usually increases the efficiency of a site investigation. Generally, many more samples can be analysed or checked and screened for target parameters and results generated faster than using conventional laboratory-based reference methods. Additionally, screening methods, particularly if carried out on-site, can offer an immediate decision-making opportunity which enables staff to direct their efforts more effectively to those areas where a more thorough investigation might need to be undertaken. Any required performance criteria prescribed for a parameter or group of parameters need to be known; this should include an estimate of the uncertainty of the results.

NOTE Although soil screening methods are most commonly used to determine contaminants (pollutants) in soils, for example in investigations of potentially contaminated sites, they can also be used to determine parameters in uncontaminated soils (e.g. agricultural soils). Thus, the word “contaminant” in this document can be construed to apply in any particular context to any relevant soil parameter (e.g. chemical, physical, biological).

Soil and waste — Guidance on the selection and application of screening methods

1 Scope

This document provides guidance on the selection and application of screening methods for assessing soil quality and waste characterization, including distribution of target parameters in soil and soil-like material. The aim of this document is to set up criteria as to when the different kind of screening methods can be applied for the analysis of a certain parameter in soil, including soil-like material, and waste, and which steps are required to prove their suitability.

This document does not recommend any particular screening method but confirms the principles of their selection and application.

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 terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

3.1

screening

application of any analytical semi-quantitative method for exploratory analysis

3.2

screening method

method which is used (often on-site) to quickly explore a given area including target parameter distribution or to test a set of samples and obtain data on sample characteristics

Note 1 to entry: It is not necessarily directly comparable with reference methods.

3.3

reference method

method which is performed in accordance with national or international standards

3.4

on-site verification

inspection to ensure that the waste accepted at a landfill is the same as described in the accompanying documents and that it is in accordance with the basic characterization and/or compliance testing

Note 1 to entry: Procedures can be found in the European Landfill Directive (1999/31/EC) and the Landfill Decision (2003/33/EC).

4 Principles

This document specifies a framework for selection and application of screening methods.