
Soil quality — Sampling —

Part 105:

**Packaging, transport, storage and
preservation of samples**

Qualité du sol — Échantillonnage —

*Partie 105: Emballage, transport, stockage et conservation des
échantillons*



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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 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*, Subcommittee SC 2, *Sampling*.

This first edition of ISO 18400-105, together with ISO 18400-102, ISO 18400-104 and ISO 18400-206, cancels and replaces ISO 10381-6:2009, which has been technically and structurally revised. The ISO 18400 series is based on a modular structure and cannot be compared to ISO 10381-6 clause by clause.

A list of all parts in the ISO 18400 series can be found on the ISO website.

Introduction

Samples of soils and related materials are liable to change as a result of physical processes and chemical or biological reactions occurring between the time of sampling and testing. This is especially true of soils contaminated with volatile constituents. The extent of these changes is a function of the chemical and biological characteristics of the sample, its temperature, its exposure to light, the nature of the container in which it is placed, the time between sampling and analysis, the conditions to which it is submitted, and seasonal conditions. The characteristics of a sample can change considerably in a few hours. For more information, see ISO 18512.

An important part of the sampling plan is to consider the possible extent of these changes and to prescribe the process of packaging, preservation, transport, and delivery in such a way that the samples are still representative when delivered to the laboratory.

This document is part of a series on sampling standards for soil. The role/position of the International Standards within the total Investigation programme is shown in [Figure 1](#).

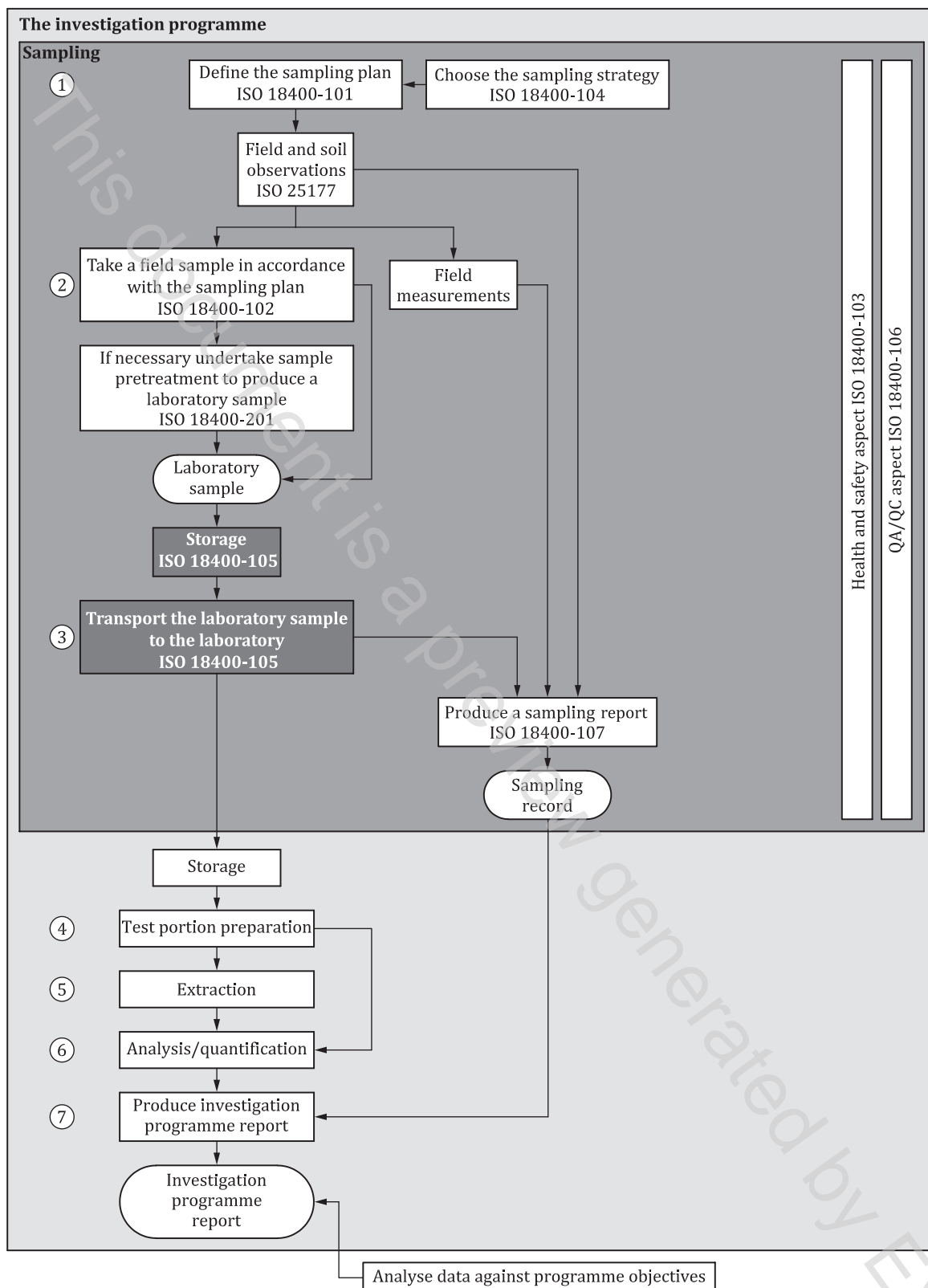


Figure 1 — Links between the essential elements of an investigation programme

NOTE 1 The numbers in circles in [Figure 1](#) define the key elements (1 to 7) of the investigation programme.

NOTE 2 [Figure 1](#) displays a generic process which can be amended when necessary.

Soil quality — Sampling —

Part 105:

Packaging, transport, storage and preservation of samples

1 Scope

This document establishes general principles for packing, preservation, transport and delivery of samples of soil and related materials with an emphasis on requirements for when chemical analysis of the samples is required, but with the intention that the general procedures are to be adapted as appropriate when other forms of testing are required (e.g. biological testing, physical tests on disturbed or undisturbed samples). Special procedures for specific sampling purposes are given in other parts of ISO 18400 (see also 7.2).

This document is intended to be read in conjunction with ISO 18512.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 11074, *Soil quality — Vocabulary*

ISO 18512:2007, *Soil quality — Guidance on long and short term storage of soil samples*

ISO 22155, *Soil quality — Gas chromatographic determination of volatile aromatic and halogenated hydrocarbons and selected ethers — Static headspace method*

DIN 19747, *Investigation of solids — Pre-treatment, preparation and processing of samples for chemical, biological and physical investigations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11074 and the following 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 <http://www.iso.org/obp>

3.1

volatile organic compound

VOC

organic compound that is a gas under normal environmental/atmospheric conditions, although it can be found in the ground in the solid, liquid, and dissolved phase form, as well as in the gaseous phase

Note 1 to entry: The US Environmental Protection Agency uses a variety of definitions for VOCs in different contexts, but the one most appropriate here is “an organic compound which has a boiling point below that of water and which can easily vaporize or volatilize”.

Note 2 to entry: Examples include single-ring aromatic hydrocarbons and other low boiling halogenated hydrocarbons, which are used as solvents or fuels, and some degradation products.