Soil quality — Determination of elemental composition by X-ray fluorescence

Qualité du sol — Détermination de la composition élémentaire par fluorescence X
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Foreword

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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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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 190, Soil quality, Subcommittee SC 3, Chemical methods and soil characteristics.
Introduction

X-ray fluorescence spectrometry is a fast and reliable method for the quantitative analysis of the total content of certain elements within different matrices.

The quality of the results obtained depends very closely on the type of instrument used, e.g. bench top or high performance, energy dispersive or wavelength dispersive instruments. When selecting a specific instrument, several factors have to be considered, such as the matrices to be analysed, the elements to be determined, the detection limits required, and the measuring times. The quality of the results depends on the element to be determined and on the surrounding matrix.

Due to the wide range of matrix compositions and the lack of suitable reference materials in the case of inhomogeneous matrices such as waste, it is generally difficult to set up a calibration with matrix-matched reference materials.

Therefore, this International Standard describes two different procedures:

— a quantitative analytical procedure for homogeneous solid waste, soil, and soil-like material in the normative part. The calibration is based on matrix-matched standards;

— an XRF screening method for solid and liquid materials as waste, sludge, and soil in Annex A which provides a total element characterization at a semi-quantitative level. The calibration is based on matrix-independent calibration curves, previously set up by the manufacturer.

The technical content of this International Standard is identical with the European Standard EN 15309:2007.