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Soil quality — Determination of chromium(VI) in solid material by alkaline digestion and ion chromatography with spectrophotometric detection

Qualité du sol — Dosage du chrome(VI) dans les matériaux solides par digestion alcaline et chromatographie ionique avec détection spectrophotométrique

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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 15192 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical methods and soil characteristics*.

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Introduction

Under environmental conditions, chromium in compounds exists in the trivalent, Cr(III), or the hexavalent, Cr(VI), state. Cr(III) is an essential trace element for mammals, including man, whereas it is presumed that Cr(VI) compounds are genotoxic and potentially carcinogenic in humans. Interconversion of trivalent and hexavalent chromium species can occur during sample preparation and analysis, but these processes are minimized, to the extent possible, by the sample preparation methods specified in this International Standard.

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Soil quality — Determination of chromium(VI) in solid material by alkaline digestion and ion chromatography with spectrophotometric detection

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1 Scope

This International Standard specifies a method for the determination of Cr(VI) in solid waste material and soil by alkaline digestion and ion chromatography with spectrophotometric detection. This method can be used to determine Cr(VI) mass fractions in solids greater than 0,1 mg/kg.

NOTE In the case of reducing or oxidizing waste matrix, no valid Cr(VI) mass fraction can be reported.

2 Normative references

The following referenced documents are indispensable for the application 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 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 9174:1998, *Water quality — Determination of chromium — Atomic absorption spectrometric methods*

ISO 11464, *Soil quality — Pretreatment of samples for physico-chemical analysis*

ISO 11885:2007, *Water quality — Determination of selected elements by inductively coupled plasma optical emission spectrometry (ICP-OES)*

ISO 15586:2003, *Water quality — Determination of trace elements using atomic absorption spectrometry with graphite furnace*

ISO 17294-2:2003, *Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) — Part 2: Determination of 62 elements*

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

3 Terms and definitions

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

3.1
alkaline digestion
process for obtaining a solution containing the analyte of interest from a sample under alkaline conditions

NOTE Alkaline digestion may or may not involve complete dissolution of the sample.

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