
**Soil quality — Determination of organic
carbon by sulfochromic oxidation**

*Qualité du sol — Dosage du carbone organique par oxydation
sulfochromique*



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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.

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.

International Standard ISO 14235 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical methods and soil characteristics*.

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Soil quality — Determination of organic carbon in soil by sulfochromic oxidation

1 Scope

This International Standard specifies a method for the spectrometric determination of organic carbon content in soil by oxidation in a sulfochromic medium.

This International Standard is applicable to all types of air-dry soil samples.

This International Standard is not applicable to soils containing mineral-reducing compounds, e.g. Cl^- or Fe^{2+} . By convention the chloride content in the test portion shall not exceed 2 mg.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revisions, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent additions of the standards indicated below. Members of ICE and ISO maintain registers of currently valid International Standards.

ISO 3696:1987, *Water for analytical use — Specification and test methods*.

ISO 10694:1995, *Soil quality — Determination of organic and total carbon after dry combustion (elemental analysis)*.

ISO 11464:1994, *Soil quality — Pretreatment of samples for physico-chemical analysis*.

ISO 11465:1993, *Soil quality — Determination of dry matter and water content on a mass basis — Gravimetric method*.

3 Principle

The organic carbon present in the soil is oxidized in a mixture of potassium dichromate solution (in excess) and sulfuric acid at a temperature of 135 °C. The dichromate ions, which colour the solution orange-red, are reduced to Cr^{3+} ions which colour the solution green. The intensity of this green colour is measured spectrophotometrically. As it is assumed that the oxidation of one carbon atom of the organic matter produces four electrons, there is a direct relationship between the Cr^{3+} formed and the amount of organic carbon. The method is calibrated using glucose as a source of readily oxidizable carbon.

NOTE An amount of 2 mg of chloride present in the test sample corresponds to an apparent carbon content of about 0,7 mg.