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STANDARD

10693

First edition
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Soil quality — Determination of carbonate content — Volumetric method

Qualité du sol — Détermination de la teneur en carbonate — Méthode volumétrique



Reference number
ISO 10693:1995(E)

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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 10693 was prepared by Technical Committee ISO/TC 190, *Soil quality*, Subcommittee SC 3, *Chemical methods and soil characteristics*.

Annexes A and B of this International Standard are for information only.

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Soil quality — Determination of carbonate content — Volumetric method

1 Scope

This International Standard specifies a method for the determination of carbonate content in soil samples.

It is applicable to all types of air-dried soil samples.

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 revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

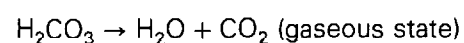
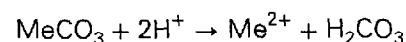
ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.

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

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

3 Principle

Hydrochloric acid is added to a soil sample to decompose any carbonates present. The reaction in simplified form reads as follows (Me means metal):



The volume of the carbon dioxide produced is measured by using a Scheibler apparatus (5.1), and is compared with the volume of carbon dioxide produced by pure calcium carbonate. To avoid making corrections for differences in temperature and pressure, all determinations are carried out under the same conditions. The determination should be carried out in a temperature-controlled room.

NOTES

1 The carbonate content is expressed as an equivalent concentration of calcium carbonate (CaCO_3). In fact all carbonates and bicarbonates present in the sample are measured. Many carbonates appear in the form of calcite and aragonite (CaCO_3), dolomite [$\text{CaMg}(\text{CO}_3)_2$], siderite (FeCO_3) and rhodochrosite (MnCO_3). In soils in dry (arid) regions, soda ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$) may be present. When it is known that a certain form of carbonate, other than calcium carbonate, is mainly present in the soil under study, the final concentration of this form can be used.