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NSAI Standards

Irish Standard
I.S. EN ISO 10693:2014

Soil quality - Determination of carbonate content - Volumetric method (ISO 10693:1995)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 10693

March 2014

ICS 13.080.10

English Version

Soil quality - Determination of carbonate content - Volumetric method (ISO 10693:1995)

Qualité du sol - Détermination de la teneur en carbonate - Méthode volumétrique (ISO 10693:1995)

Bodenbeschaffenheit - Bestimmung des Carbonatgehaltes - Volumetrisches Verfahren (ISO 10693:1995)

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Foreword

The text of ISO 10693:1995 has been prepared by Technical Committee ISO/TC 190 “Soil quality” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10693:2014 by Technical Committee CEN/TC 345 “Characterization of soils” the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

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INTERNATIONAL STANDARD

ISO 10693

First edition
1995-03-15

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

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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):

$$MeCO_3 + 2H^+ \rightarrow Me^{2+} + H_2CO_3$$

$$H_2CO_3 \rightarrow H_2O + CO_2 \text{ (gaseous state)}$$

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 [$CaMg(CO_3)_2$], siderite ($FeCO_3$) and rhodochrosite ($MnCO_3$). In soils in dry (arid) regions, soda ($Na_2CO_3 \cdot 10H_2O$) 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.

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